GURU GOBIND SINGH
INDRAPRASTHA UNIVERSITY
NEW DELHI

A++ NAAC

nirf NATIONAL INSTITUTIONAL RANKING FRAMEWORK
22nd State NIRF Rank

Ph.D Admission Brochure For Academic Session 2026-27

For further information please visit:
www.ipu.ac.in
https://ipu.admissions.nic.in

QS WORLD UNIVERSITY RANKINGS
University Ranking Southern Asia
Year - 2026 || Rank - 56

Guru Gobind Singh Indraprastha University
DELHI – 110078
INDIA

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

Sector 16-C, Dwarka, New Delhi - 110078
(A State University Established by Govt. of NCT of Delhi)

Ph.D. Admission Brochure for Academic Session 2026-27

For further information please visit : www.ipu.ac.in

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ADMISSION TO Ph.D. PROGRAMME (2026-27)

Applications are invited for admission to the Ph.D. Programme in the following disciplines:

Information Technology, Computer Science & Engineering, Computer Applications, Electronics & Communication Engineering, Artificial Intelligence- Data Science, Artificial Intelligence- Machine Learning, Industrial Internet of Things (IIoT), Automation and Robotics (A&R), Mechanical & Automation Engineering, Management, Chemical Technology, Biotechnology, Environmental Science, Medical Sciences, Mathematics, Chemistry, Physics, English, Economics, Law & Legal Studies, Mass Communication, Architecture & Planning, History, Disaster Management, Design, as well as Pharmaceutical Chemistry as per Ph.D. Ordinance 2023 available at link: http://www.ipu.ac.in/rnc_doctoral_research.php

1. Common minimum eligibility criteria for admission to Ph.D. Programmes:

1.1 Candidates seeking admission to the Ph.D. programme should have completed a 1-year/2-semester master's degree programme after a 4-year/8-semester bachelor's degree programme, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission to the Ph.D. programme should have completed a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission after a 4-year/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed.

OR

Candidates who have completed the M.Phil. programme with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed shall be eligible for admission to the Ph.D programme.

OR

Candidates who have an equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution shall be eligible for admission to Ph.D. programme.

1.2 In cases where the marks of the qualifying examination are not given by the degree awarding recognized University/ Institution, such as in case of M.D.S., M.D., M.S., D.M., M.Ch. etc, candidates, who have obtained a minimum of 55% marks in aggregate or its equivalent grade in a point scale wherever the grading system is followed, in the relevant Undergraduate Examination, shall be considered eligible to seek admission to the Ph.D. Programme. In such cases, the concerned candidates shall be required to submit an undertaking that their University/ Institution does not give marks for the said qualifying examination.

1.3 A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-abled/Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.

*** For details regarding school specific eligibility criteria, candidates may refer to school wise details.**

*** Ph.D. Research fellowships are available for eligible full time Ph.D. research scholars (conditions apply).**

*** Number of available Ph.D. slots:** The final Ph.D. slots for academic session 2026-27 will be notified on University website by the O/o Research & Development Cell prior to the conduct of the Ph. D. entrance tests.

* The eligibility criteria and procedure for admission as specified in this admission brochure are subject to changes made in the ordinances, rules and regulations by the University from time to time as per the decision of University and/or statutory bodies governing various programmes. The reservation policy shall be implemented in accordance with the Govt. of India and Govt. of NCT rules as applicable.

2. Procedure for Admission to Ph.D. Programmes

2.1. Admission to the Ph.D. programme in various University Schools of Study and Centres of Excellence in the University shall be through a Ph.D. Entrance Test (PET) conducted by the University or any designated agency by the University in the relevant disciplines of study. The Ph.D. Entrance Test will be conducted online (CBT) / offline on OMR Sheet based upon MCQ's. It is an online (CBT) / offline mode of examination that will be conducted at designated centres only. Mode of examination will be notified later on the University website by the Examination Branch.

2.2. Those students, who have qualified for fellowship/scholarship in UGC-NET/UGC-CSIR NET /GATE/CEED and other similar National Level Tests, shall be exempted from the entrance test conducted by the University for admission to the Ph.D. programme. The merit list of such candidates will be prepared on the basis of Interview/Viva-voce and scaled up to 100 marks.

2.3. Those students, who have obtained valid NET Score in accordance with the UGC circular no. F.4- 1(UGC-NET Review Committee/2024(NET)/1406-48 dated 27.3.24, shall also be exempted from the entrance test conducted by the University for admission to the Ph.D. programme. For the students who qualify in Category 2 (Appointment as Assistant Professor and admission to Ph.D.) and Category 3 (Admission to Ph.D. only), 70% weightage will be given for test scores and 30% weightage for the interview for admission to Ph.D. programmes. The Ph.D. admission will be based on the combined merit of NET marks and the marks obtained in the interview/viva voce. The marks obtained in the NET by the candidates in Categories 2 and 3 will be valid for a period of one year for admission to Ph.D. The NET score should be valid on the date of Interview in the respective discipline for admission to Ph.D. programme.

2.4 All candidates shall have to apply for admission to the University by filling up the online application form available at the University website.

2.5. Reservation shall be as per the State Reservation Policy, notified by the University from time to time. The admission to the Ph.D. programmes shall be done on an All-India basis.

2.6. The Entrance Test syllabus shall consist of 50% of research methodology and 50% shall be subject-specific. The written entrance test shall be qualifying for admission to the Ph.D. programme

with 50% as the qualifying cut-off. A relaxation of 5% marks will be allowed in the entrance examination for the candidates belonging to SC/ST/OBC/ differently-abled category/ Economically Weaker Section (EWS), and other categories of candidates as per the decision of the Commission from time to time. Please refer to school-wise details for syllabus of the respective PET.

2.7. An interview / viva-voce shall be organized where candidates are required to discuss their research interest / area through a presentation before a duly constituted Ph.D. Admission Committee.

2.8. The University may decide the number of eligible students to be called for interview based on the number of Ph.D. seats/slots available.

2.9 The admission shall be based on the performance / merit of the candidate in the interview/viva-voce. The interview/viva-voce shall consider the following aspects, viz. whether:

(a) The candidate possesses the basic knowledge and aptitude for the proposed research work;
(b) The candidate possesses the competence for the proposed research work;
(c) The proposed plan of research can contribute to new/additional knowledge in the area of research.

For written entrance test qualified candidates, the merit list (out of 100 marks), will be prepared for the candidates whose research proposals are accepted by the admission committee as per the following criteria:

(i) 70% weightage will be given to the marks obtained in written entrance test (PET/NET Score for students who qualify in Categories 2 and 3 as per UGC circular no. F.4- 1(UGC-NET Review Committee/2024(NET)/1406-48 dated 27.3.24) ;

(ii) 30% weightage will be given to interview/Viva-voce.

For candidates who have qualified for fellowship/scholarship in UGC-NET/UGC-CSIR NET /GATE/CEED and other similar National Level Tests, who are exempted from the written entrance test, the merit list of such candidates whose research proposals are accepted by the Admission Committee will be prepared on the basis of interview/Viva-voce and scaled up to 100 marks.

*** The PET shall be of 2 hours duration with 100 number of MCQ-type questions. Each question shall carry 4 marks and there shall be no negative marking.**

2.10 Employed candidates including permanent faculty members of the University Schools or affiliated colleges/institutions, who wish to seek Ph.D. admission as full-time research scholars, must obtain leave for a period of at least three years to fulfil the minimum registration period of the University. Candidates, who need a proof of selection to obtain leave from their employers, may use the selection/admission list displayed on the University website for this purpose, but admission shall only be granted upon submission of the leave sanction letter in original. All employed candidates (full-time / part-time) in regular employment must submit a "No Objection Certificate" from the appropriate authority in the Organization where the candidate is employed, for the purpose of pursuing Ph.D. programme. The "No Objection Certificate" should clearly state that:

i. The candidate is permitted to pursue studies on a full-time/part-time basis.
ii. His/her official duties permit him/her to devote sufficient time for research.
iii. If required, he/she will be relieved from the duty to complete the coursework.

The "No Objection Certificate" must be submitted to the Ph.D. Admission Committee at the time of interview for admission.

2.11 All personnel(s) working in research projects in GGSIP University can pursue full time Ph.D. in GGSIP University, subject to their fulfilling the eligibility conditions for admission to the Ph.D.

programme of GGSIP University. However, they will have to submit a "No Objection Certificate" from the respective Principal Investigator (PI) of the research project in which they are working for the purpose of pursuing Ph.D. programme, and the same must be submitted at the time of interview for admission.

* The University reserves the right to cancel any PET. The University also reserves the right not to fill any or all the available / notified Ph.D. slots.

3. Important Instructions:

1. The term "University" in this admission brochure shall mean Guru Gobind Singh Indraprastha University.

2. The application forms shall be available in the online mode only on the University Website: http://www.ipu.ac.in.

3. The last date of application may be extended for any programme or programme group for which a common entrance test is to be conducted by the University.

4. It is the responsibility of the candidates to ascertain whether he/she possess the requisite eligibility and qualifications for admission. Applying for a particular PET, appearing for the written examination and qualifying the same does not necessarily mean acceptance of eligibility (as defined earlier). Every applicant for a particular PET must satisfy the eligibility criterion as specified in this brochure (or its amendments / corrections).

5. The applicants are advised that since the form filling as well as admit cards shall be made available through the online mode only they must keep the details of their login id and the password secure and safe.

6. Applicants should be careful in choosing the PETs that they apply for, as no change would be permissible after the application has been submitted.

7. The language of the PET shall be **English**.

8. From the merit of a specific PET Code, admissions are in general made to a specific set of programmes of studies.

9. After the application for any PET is submitted, if there is any mistake in date of birth, spelling mistake in name of applicants or the parents name or in the choice of category/region claimed for the purpose of availing reservation, the applicant can correct the details online within 3 days of closing the registration window by using own individual account login ID and Password. The date of registration open and close will be notified later on.

10. A Separate Application Form has to be filled-in for each programme (s) having distinct PET Code.

11. **No separate intimation will be sent to the candidates regarding declaration of results and commencement of interview/ admission. Final Merit list will be declared on University Website (http://www.ipu.ac.in).**

Detailed schedule of interview/admissions will be notified on the University Website (http://www.ipu.ac.in).

12. Applicants should retain a printout of the PET application form as proof of application.

13. In all communications regarding submission of application or otherwise related to admission, the copy of the application form must be submitted as otherwise the communication would be deemed incomplete and no processing would be performed on the communication, without any notice to the applicant.

14. There will be no rounding-off of the percentage of marks of qualifying examination while deciding the basic eligibility of any candidate for admission e.g. if a candidate obtained 49.99% marks in his/her qualifying examination, then it will not be rounded-off to 50%.

15. For any programme of study, if the University or the statutory regulatory body of the programme of study specifies the medical examination of the candidate, then all admitted students must present themselves for medical examination. If the student/candidate fails the medical examination, the admission of the candidate/student shall be cancelled by the University.

16. The candidates are advised to check the status of their application with the help of the login id and password.

17. Write the complete e-mail address and phone number in the form carefully. Please note that this email address and phone number may be used by the University for future communication.

18. The nomenclature of degrees to the admitted programmes of studies shall be as per the notification of the University Grants Commission for "Specification of Degrees".

19. The University shall not issue any certificate of equivalence to any other programme of study. That is, if a student is awarded a degree by the University and desires a certificate regarding its equivalence to some other degree, then the request of the student for such equivalence certificate shall be summarily rejected.

20. No admitted student pursuing a programme of study from Guru Gobind Singh Indraprastha University is allowed to pursue any other (2nd or more) degree / diploma programme of study from any University including GGSIPU. If at any stage it is found that an admitted student has registered for more than one programme of study in GGSIPU or any other University, the admission of such a candidate shall be cancelled from all programmes of studies of GGSIPU.

21. All candidates desirous of seeking admission to any programme of study and/or any institution (including the University Schools of Studies) affiliated to the University, shall be bound by the conditions as laid down in this admission brochure; and the rules and regulations as enshrined in the University Act, Statutes, Ordinances, notifications and guidelines issued from time to time.

22. The medium of instruction for all programmes of studies offered in the University shall be English unless otherwise specified in the Scheme and Syllabi of Examinations of the concerned programme of study.

23. If it is found at any stage during the entire period of the programme that the candidate has furnished any false or incorrect information in the application form or at the time of counselling/admission, his/her candidature for the programme will be cancelled summarily. In addition, disciplinary action may be taken against him/her as per the University rules.

24. If the University is not satisfied with the character, past behaviour or antecedents of a candidate, it can refuse to admit him/her to any course of study of the University.

25. The Vice Chancellor may cancel the admission of any student for specific reasons and debar him/her for a certain period.

26. Only qualifying the PET shall not, ipso facto, entitle a candidate to get admission to a programme.

27. It will also be the sole responsibility of the candidates themselves to make sure that they are eligible and fulfill all the conditions prescribed for admission.

28. The merit of the PET will be valid only for the programme for which the candidate has appeared and cannot be utilized for admission to any other programme. Further, the merit of the PET - 2026 shall be valid only for the academic session 2026-27. No waiting list of candidates shall be prepared by any University Schools of Study.

29. **RAGGING :** Rules in terms of ordinance relating to maintenance of discipline amongst students of the University are as under :

1. Ragging in any form shall be strictly prohibited within the premises of the University, a college or an Institute, as the case may be, or in any part of the University system as well as on public transport, or at any other place, public or private.

2. Any individual or collective act or practice of ragging shall constitute an act of gross indiscipline and shall be dealt with under the provisions of ordinance under reference.

3. Ragging, for the purposes of ordinance under reference, shall ordinarily mean act, conduct or practice by which the dominant power or status of senior students is brought to bear upon the students who are in any way considered junior or inferior by the former and includes individual or collective acts or practices which:

(a). Involve physical assault or threat to use physical force.

(b). Violate the status, dignity and honour of students, in particular female students and those belonging to a schedule caste or a schedule tribe.

(c). Expose students to ridicule or contempt or commit an act which may lower their self-esteem; and

(d). Entail verbal abuse, mental or physical torture, aggression, corporal punishment, harassment, trauma, indecent gesture and obscene behaviour.

4. **Anti Ragging - undertaking (Academic Session 2026-27)**

In pursuance of UGC DO letter No. F.1-15/2009 (ARC) Pt. III dated 14th December, 2023, it is compulsory for each student and every parent to submit an online undertaking every academic year at www.antiragging.in**.**

After registration, the candidates will receive an email with his/her registration number and then candidate will forward that e-mail to the Nodal Officer in the University/College at the time of reporting in the USSs/ affiliated Institute/ College.

It is again reiterated that it is compulsory/mandatory for each student to submit an online undertaking at www.antiragging.in. Subsequently, an Anti Ragging Undertaking Reference Number is generated by the UGC which is required to be filled by the candidates in the online application form.

NOTE:

IT IS ONCE AGAIN RETIERATED FOR THE BENEFIT OF ALL THE STAKEHOLDERS THAT RAGGING IS A CRIMINAL OFFENCE AND THE CULPRITS WILL ATTRACT PUNITIVE ACTION AS MENTIONED IN THE SAID UGC REGULATIONS.

30. The various terms and conditions mentioned in the Admission Brochure are subject to change made in the ordinances, rules and regulations by the University from time to time as per the decision of University and/or statutory bodies governing various programmes.

31. PET Admit Card: The Admit Card will be available online or through e-mail, on or before 3 days of the date of the PET.

32. No candidate will be allowed to enter the Examination Hall without the valid PET Admit Card 2026, issued by the University or any designated agency authorised to conduct PET 2026.

33. Candidates are required to carry two print outs of the admit card at the time of PET. One copy of the admit card must be retained by the candidate after getting it signed by the Invigilator. The second copy should be handed over to the Invigilator for University records. Both the copies shall require that a passport sized photograph of the candidate is pasted on it. Candidates are advised to keep two copies of the same photograph uploaded at the time of form filling for this purpose for each PET applied for.

34. Candidate must preserve the PET Admit Card till the admission procedure is over as it has to be handed over to the Admission Officer at the time of counselling/admission.

35. Request for issue of duplicate Admit Card will not be entertained after the Ph.D. Entrance Test (PET) (under any circumstances).

36. No claim of having filled up the Application Form and non-receipt of admit card will be admissible after the PET.

37. Impersonation is a punishable offence. No candidate will be permitted to appear in PET without the Admit Card. The admit card should be presented to the invigilator(s) for verification. The candidate's identity will be verified in respect of his/her details on the admit card/centre verification record. If the identity is doubtful, the candidate may not be allowed to appear in the examination. The authorities may permit the candidates to appear for the examination after completing the necessary formalities (visible mark of identification) at their discretion. No extra time will be allowed for these formalities to be completed. Police action will be initiated in case of dubious identity.

38. In case of non-receipt of Admit Card, the candidate may contact Office of Controller of Examinations / Nodal Officer PET 2026 at GGSIP University, Sector 16C, Dwarka, New Delhi 110078 at least 2 days before the scheduled commencement of respective PET. The application in this regard must be supported by a copy of the printed version of the application form and proof of payment of requisite fee for the PET. Without the submission of these two documents, no application

in regard to non-receipt of admit cards shall be entertained, the application in this regard shall be deemed incomplete and rejected without intimation to the applicant.

39. MANDATORY CREATION OF IDs OF ACADEMIC BANK OF CREDITS/ AUTOMATED PERMANENT ACADEMIC ACCOUNT REGISTRY (ABC/APAAR ID)

- Academic Bank of Credit (ABC) is a virtual/digital storehouse that contains the information for all the credits earned by individual students throughout their learning journey. It will enable students to open their accounts and give multiple options for entering and leaving colleges or universities.

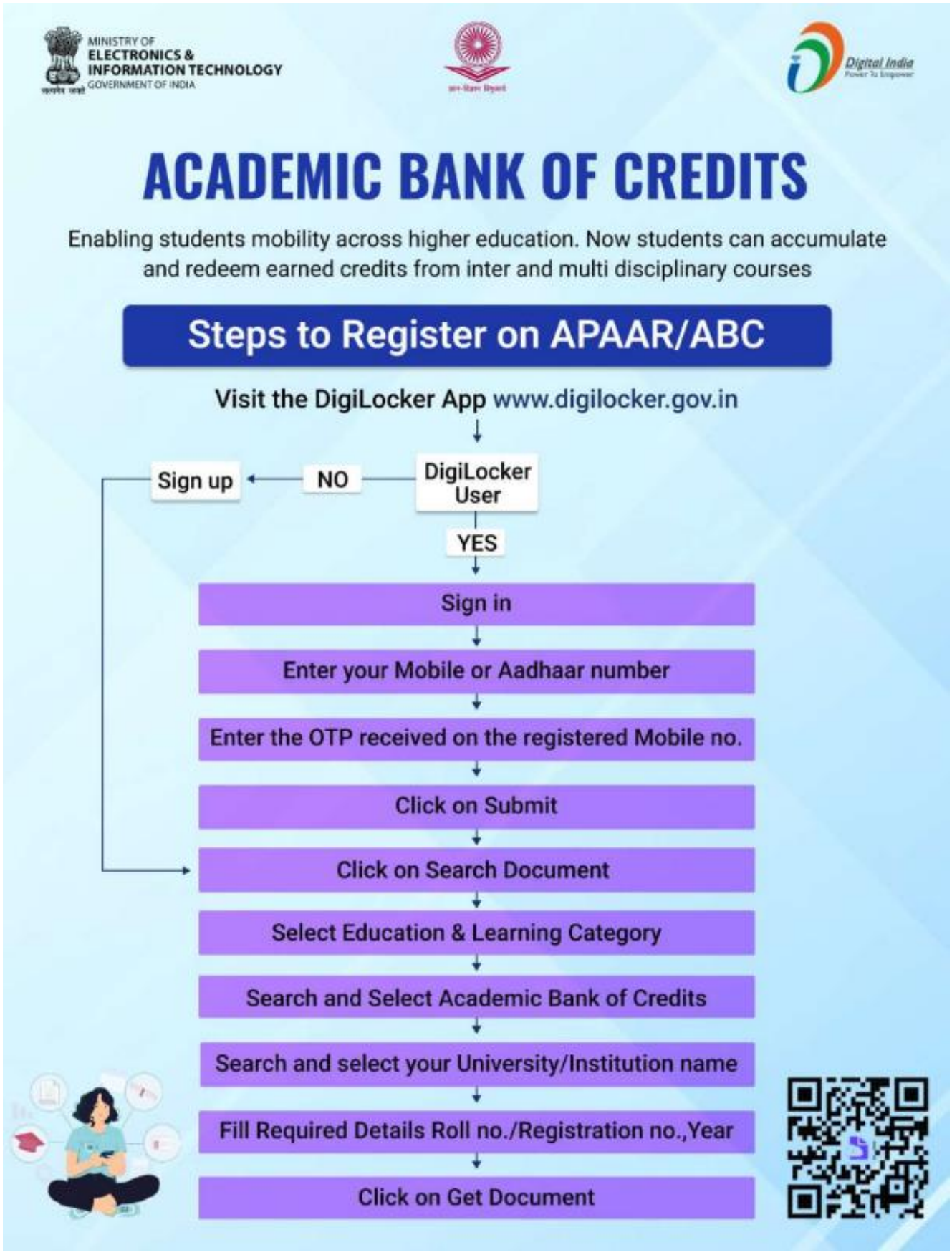
- The APAAR/ABC ID acts as a link to download the Grade Card and Degree from the DigiLocker, an online repository where students can securely store essential documents. It is linked to the Academic Bank of Credits (ABC) via the APAAR/ABC ID, and will receive academic credits from institutions through applications, simplifying the verification of academic records etc.

- Every student is required to register for APAAR/ABC ID - a unique 12-digit code to store, manage and access all their academic credits, including degrees, diplomas, certificates training details and co-curricular accomplishments etc.

- The steps for registering themself with the DigiLocker is provided below. Therefore, students are requested to create the ABC ID themselves with the DigiLocker for their future reference. While filling the admission form.

STEPS TO CREATE AN ABC/APAAR ID THROUGH DIGI LOCKER:

- Visit the Digi-Locker website https://www.digilocker.gov.in/
- For details regarding creating of ABC/APAAR ID can be sought from the link given below https://www.abc.gov.in/assets/resources/Step_by_Step_Guide_ABCID_Institutions.pdf
- After login into DigiLocker click on Search Documents.
- Navigate to the Academic Bank of Credits section.
- Fill out academic details such as school of University or institute name, course and other information.
- Submit the form to generate the ABC/APAAR ID.
- The ABC/APAAR ID generated can be downloaded and preserved for future use.


MINISTRY OF
ELECTRONICS &
INFORMATION TECHNOLOGY
GOVERNMENT OF INDIA
Digital India
ACADEMIC BANK OF CREDITS
Enabling students mobility across higher education. Now students can accumulate and redeem earned credits from inter and multi disciplinary courses
Steps to Register on APAAR/ABC
Visit the DigiLocker App www.digilocker.gov.in
DigiLocker User
NO
Sign up
YES
Sign in
Enter your Mobile or Aadhaar number
Enter the OTP received on the registered Mobile no.
Click on Submit
Click on Search Document
Select Education & Learning Category
Search and Select Academic Bank of Credits
Search and select your University/Institution name
Fill Required Details Roll no./Registration no.,Year
Click on Get Document

40. **Instructions for the PET:**

GENERAL GUIDELINES FOR Ph.D ENTRANCE TEST.

1. **Mode of Examination will be Offline OMR based test and date of GGSIPU PET 2026 will be tentatively between 25th April to 17th May, 2026, candidates are advised to visit University Website regularly for updates.**
2. The rules of examinations as enshrined in the University Act, Statutes, Ordinances, Regulations and procedures or as approved by the Vice Chancellor of the University shall be applicable on all candidates.
3. After registration for PETs, the E-Admit Cards will be made available on GGSIPU website: http://www.ipu.ac.infor downloading and printing by candidates. In case the E–Admit card is without photograph, you are advised to bring 02 recent passport size photographs at the examination center along with photo Identification proof for pasting in attendance sheet/admit card by the Invigilator.
4. The candidate must bring print out of the E-Admit Card to the allocated examination center on the Date and Time mentioned along with at least one valid ORIGINAL PHOTO IDENTIFICATION CARD viz. Voter Identity Card, Driving License, PAN Card, Passport, Aadhaar Card, Employer ID (Government) issued by Government Authorities. **(NO COLOUR PHOTOCOPY / SCANNED COPY / SOFT COPY OF THE IDENTITY CARD SHALL BE ACCEPTED UNDER ANY CIRCUMSTANCES).** No candidate will be allowed entry without valid E-Admit Card and Photo Identification Card (in original). Please retain this E–Admit Card carefully for future records
5. The questions will be only in English.
6. For rough work, candidates should bring at least two pens.
7. **NO REQUESTS FOR CHANGE IN EXAMINATION DATE/SESSION/CENTRE/ VENUE WILL BE CONSIDERED UNDER ANY CIRCUMSTANCES ONCE DECLARED BY THE UNIVERSITY.**
8. The Offline Examination will be of 120 Minutes and shall consist of Objective Type 100 Questions with 4 Multiple Choice Responses (Answers) out of which candidate has to choose one correct response (answer) only. Each question shall carry Four Marks. There shall be no negative marking.
9. Candidates are advised to reach their allotted examination center on or before reporting time as mentioned in Admit Card so that entry formalities i.e. frisking can be done prior to allotment of seat for appearing in examination. The entry gates of examination center will be closed before half an hour before commencement of examinations. **NO LATE COMING IS ALLOWED UNDER ANY CIRCUMSTANCES.**
10. The candidates should check the particulars viz., Name, Date of Birth, Category, Sub-category, etc. mentioned in Admit Card carefully and also eligibility in all respects as per admission process in **ADMISSION BROCHURE.**

    In case of grievance w. r. t. particulars i.e., Name, Date of Birth, Category, Sub-category, any admit card related query, etc. as mentioned in online application is not resolved, then the candidate is advised to personally report at the '**Facilitation Counter'** in the University Campus at Dwarka from 10:00 AM to 02:00 PM with copies of documentary proofs i.e., copy of online application form, certificate, testimonials, etc. along with **two (2) passport size photographs** and photo identity card so that necessary corrections are made.
11. Your candidature in the whole admission process /selection process is **"PURELY PROVISIONAL"** pending scrutiny of your eligibility as mentioned in the **Admission**

Brochure for the programme. In case, it is found at any stage of selection that the candidate does not fulfill the eligibility criteria and any information provided by the candidate is found to be false or is not in conformity with the eligibility criteria mentioned in the Admission Brochure including Age, Caste Category, Sub-Category, Application Fee, Educational Qualification, etc. the candidature of such a candidate will be rejected at any stage of selection process and even after admission.

12. **The candidate should bring print out of Admit Card, Identity Proof (in original), 2 recent coloured passport size photographs to the Examination Centre. In case of post marriage change in name, the candidate must bring the original matriculation certificate along with marriage registration certificate / other documentary proof (in original) to establish the Identity after marriage.**

    Frisking will be done at entry gates and during examination. Candidates are strictly advised not to bring any electronic devices viz., mobile or cellular phones, electronic gadgets, earphones or microphones, all type of watches, electronic or non-electronic communication devices, hand bags, purse, calculator, log tables/pager, digital diary, book/notes, pen and any type of metallic items etc. which are strictly prohibited in the examination center. If any candidate is found in possession of any of these devices/documents, his/her candidature is liable to be disqualified. Candidates are also advised not to bring any valuable costly items to the examination center as arrangement of safe keeping of the same cannot be assured and exam center will not be responsible for safe custody, loss or theft.

13. The candidate should retain the E–Admit Card carefully for future records as the same is required to be produced at the time of counseling and verification of documents.
14. The candidates as per government guidelines who have disability of 40% or more may opt for his/her own scribe for marking responses (answers) on their behalf, if so desired, provided that they produce original medical certificate issued by competent medical authority regarding such disability at the time of entry to the examination center. All the candidates with disabilities will be allowed "compensatory time" of 40 minutes (over and above the normal duration of examination i.e., 2:00 Hrs.). A scribe declaration form will be provided on the GGSIPU website, which is to be downloaded, filled and brought along with admit card on the day of examination.
15. After conduct of PET, any query/objection related to any question and its option(s)/answer by the candidates will be addressed by payment of Rs.200/- per question through ONLINE 'Objection Link' within three (03) days from the scheduled date, the link will be provided at GGSIPU website: http://www.ipu.ac.in. Any representation of any type, thereafter (i.e after declaration of PET result) will not be entertained. Objection/complaint received through any other mode of communication/channel will not be entertained under any circumstances. Any other query/representation should be brought into the notice of University within 03 days of conduct of PET.
16. The candidates should regularly visit GGSIPU website http://www.ipu.ac.in for latest updates through notifications, instructions, circulars related to examination/PET process.
17. No travelling expenses will be admissible for appearing in PET.

CENTRE OF Ph.D ENTRANCE TEST:

i. Examination Centre once allotted by the University will not be changed and no request in this regard will be entertained under any circumstances. **In case the first and second option for centre are not invoked or due to any other reason, then the candidate will be allocated Delhi Centre only.**

ii. Tentative List of **Centre of Ph.D Entrance Test**:

S.No.	State	City	Remarks
1	Delhi NCR	Delhi NCR	Faridabad, Delhi, Noida, Greater Noida, Ghaziabad, Gurugram
2	Chandigarh	Chandigarh	
3	Karnataka	Bengaluru	
4	West Bengal	Kolkata	
5	Rajasthan	Jaipur	
6	Uttar Pradesh	Lucknow	
7	Maharashtra	Mumbai	

(iii) The outstation centre will be operational only when, in a particular shift if there are 100 or more candidates including all courses. Further, on the same day if there is any candidate(s) who is appearing in both shifts of the day, then also the centre shall operate irrespective of the condition of 100 or more candidates.

(iv) A candidate has to give option for three centres, in the order of priority. No request for change of centre will be considered later under any circumstances. Hence, the candidate should select the centres, carefully and indicate the same correctly in their application form.

(iv) The GGSIP University will endeavour to accommodate the candidates in centres opted by them. However, the GGSIP University reserves the right to cancel any Centre and ask the candidates of that centre to appear from another centre/city. GGSIP University also reserves the right to divert candidates of any centre to some other Centre to take the examination

Expected Behaviour and Discipline during GGSIPU PET 2026 (Ph. D Entrance Test)

1. If any candidate is found using any UNFAIR MEANS or does not observe discipline during conduct of the Ph.D Entrance Test, the University will take necessary disciplinary action against such candidate(s).
2. No candidate should carry any textual material, printed or written, bits of papers or any other material except the admit card (without envelope) inside the examination hall. If the candidate is found to be copying or conversing with other candidate(s) or having in his/her possession papers, notes or books/ any electronic material with or without relevant text, he/she will be disqualified from taking the Test and the next one or two such Tests depending on the nature of offense. This shall be treated as the use of unfair means.
3. Carrying of cell phone, pager, calculator pen or any other electronic gadgets to the Examination Centre is strictly prohibited. The University will neither make any arrangement for the safe custody of any of these items nor will be responsible for loss of any such item. Hence, the parents may counsel their wards for not carrying such items with them while going to respective examination centres for taking the PET. If the candidate is found in possession of such gadgets during the examination/test, it shall be treated as the use of unfair means.
4. Candidates must not obtain or give or attempt to obtain or to give undesirable assistance of any kind during the Test, as it shall be treated as the use of unfair means.
5. Any attempt to note down questions during the test or to take away pages from the Test Booklet will be viewed very seriously, and invite legal action. This shall be treated as the use of unfair means.
6. Candidate shall maintain perfect silence during examination/PET; attend to their papers only. Any conversation, gesticulation or causing disturbance during the Test will be deemed to be an act of misbehavior and is, therefore, strictly prohibited. Also, if a candidate is found impersonating or using unfair means, he/she will be disqualified from taking the test.
7. The decision in regard of usage of unfair means shall be taken by the University on the report of the centre superintendent of the test centre, on the recommendation of a constituted committee by the Controller of Examinations (Operations) of the University. The constitution

of the committee shall be done by the Controller of Examinations (Operations). The decision of the Controller of Examinations shall be final.

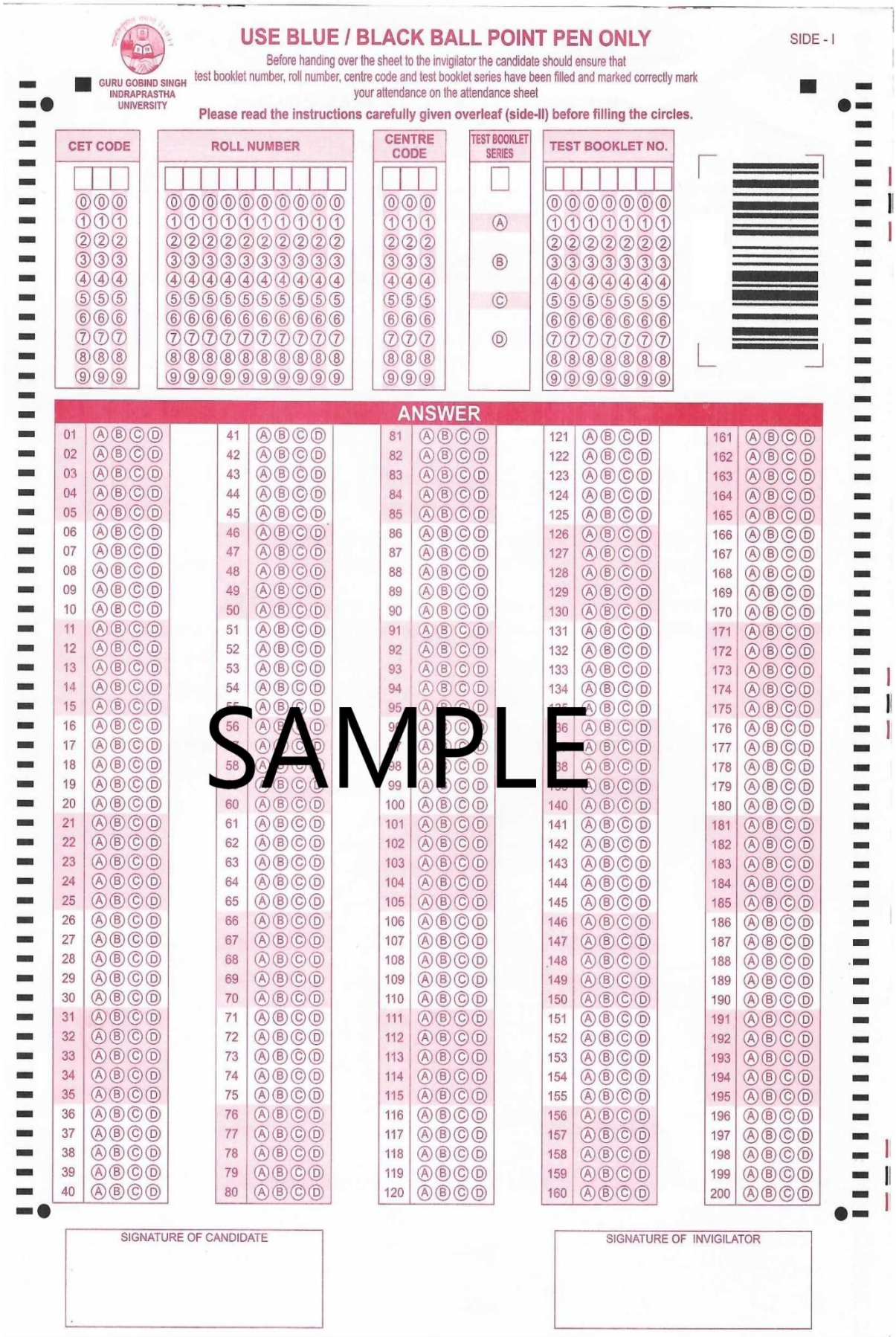
INSTRUCTIONS FOR THE Ph.D. ENTRANCE TEST.

1. The Ph. D Entrance Test shall be based on the topics as specified in the PET syllabus section.
2. The candidates are required to report at their respective Examination Centre at least half an hour before the PET along with two copies of their Admit Card issued by the University. No candidate will be allowed to enter the PET Centre after the commencement of PET.
3. Each candidate will be given a sealed Test Booklet and OMR answer sheet five minutes before the commencement of the test. The PET will be of 02 hours duration comprising of 100 MCQs.
4. The OMR answer sheet is of special type which will be scanned by an optical scanner.
5. Immediately on receipt of the Test Booklet, each candidate shall fill in the required particulars on the cover page of the Test Booklet with a black/blue ballpoint pen only. He/she shall not open the seal of the Test Booklet until asked to do so by the invigilator.
6. Candidates will write the required particulars on OMR answer sheet with a black/blue ballpoint pen. After this, they will wait for the signal by the invigilator to start marking the responses.
7. The Test will start exactly at the time mentioned on the Admit Card and an announcement to start will be made by the invigilator.
8. While the test is in progress, the invigilator will check the Admit Cards of the candidates to satisfy himself/herself about the identity of each candidate. The invigilator will also put his/her signature in the space provided for the purpose on the OMR answer sheet as well as on the Admit Card.
9. The candidate will have to sign the Attendance Sheet against his/her PET Roll Number.
10. A signal will be given at the beginning of the Test. A signal will also be given at the closing time when the candidates must stop marking the responses.
11. After completing the Test and before handing over the Test Booklet and the OMR answer sheet to the invigilator, the candidates shall make sure that all the particulars required in the Test Booklet and the OMR answer sheet have been correctly written, i.e.PET Roll Number, Name of the Candidate, PET Code, Centre Code, Test Booklet Number, Test Booklet Code, PET name.
12. No candidate will move out of the examination hall until the time prescribed for the Test is over.
13. No candidate will take away the Test Booklet and/or the OMR answer sheet from the examination hall. Taking away of the test booklet or the OMR answer sheet shall be treated as the usage of unfair means.
14. A candidate must bring his/her own black/blue ball point pen to fill the answers in ovals of OMR answer sheet. In case the ovals are filled by any instrument other than the black/blue ball point pen, then the answer sheet may be rejected by the optical scanner when the same is being scanned. In all such cases, the responsibility shall rest on the candidates.
15. The candidate must ensure that the answer sheet is not folded. Also, he/she should not make any marks or write any kind of description on it.
16. Candidates are advised to be sure about the correct answer before they darken the oval with black/blue ball point pen. They should also ensure that the each oval is completely darkened with black ball point pen, partially or faintly darkened ovals may be rejected by the optical scanner. It may also be negatively marked.
17. A question in which multiple ovals are darkened shall be deemed to be answered wrong.
18. The Test Booklet Code filled in by the candidate in the OMR answer-sheet will be accepted as final for the purpose of evaluation. When the space for the Booklet Code is left blank or more than one booklet code is indicated therein, it will be deemed to be an incorrect booklet code and the answer sheet will not be evaluated. The candidate himself/herself will be solely responsible for all the consequences arising out of any error or omission in writing the Test Booklet Code.

19. No candidate should do any rough work on the OMR answer-sheet. Rough work, if any, is to be done only in the Test Booklet at the space provided.
20. Candidates should check to make sure that the Test Booklet contains the number of pages as mentioned on the top of the first page. In case the numbers do not tally, it should be immediately brought to the notice of the invigilator. The candidates shall not remove any page(s) from the Test Booklet and if any page(s) is (are) found missing from a candidate's booklet, he/she shall be liable for prosecution under relevant provisions of Indian Penal Code.
21. In case of any confusion, invigilator may be contacted.
22. No candidate, without the specific permission of the Centre Superintendent or the invigilator concerned, shall leave his/her seat in the examination hall until he/she has finished his/ her paper and handed over the Test Booklet and the OMR answer-sheet to the invigilator on duty. Failure to do so may be treated as usage of unfair means.
23. Smoking in the examination hall during the hours of the Test is strictly prohibited.
24. Tea, coffee, cold drinks or snacks are not allowed inside the examination hall during the Test.
25. Candidates shall maintain perfect silence and attend to their papers only. Any conversation, gesticulation or causing disturbance in the examination will be deemed to be an act of misbehaviour and is, therefore, strictly prohibited. Also, if a candidate is found impersonating or using unfair means, his/ her candidature shall be cancelled and he/she will be liable to be debarred from taking the entrance tests either permanently or for a specified period depending upon the nature of the offense, in addition to any other action which may be taken under the Indian Penal Code.
26. If any candidate is found using any unfair means at any stage of admission process or does not observe discipline during the conduct of the Entrance Test, his/her candidature is liable to be cancelled, as such behaviour shall be deemed as the usage of unfair means.

Tentative Dates for GGSIPU PET 2026

The GGSIPU PET 2026 will be tentatively conducted in between 25th April to 17th May, 2026. However, the final schedule of Ph.D Entrance Tests will be notified later by Examination Branch, GGSIPU. The candidates are requested to visit University website regularly for updates.



GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

USE BLUE / BLACK BALL POINT PEN ONLY

SIDE - I

Before handing over the sheet to the invigilator the candidate should ensure that test booklet number, roll number, centre code and test booklet series have been filled and marked correctly mark your attendance on the attendance sheet

Please read the instructions carefully given overleaf (side-II) before filling the circles.

CET CODE	ROLL NUMBER	CENTRE CODE	TEST BOOKLET SERIES	TEST BOOKLET NO.
0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	A B C D	0 1 2 3 4 5 6 7 8 9

ANSWER

01 Ⓐ Ⓑ Ⓒ Ⓓ	41 Ⓐ Ⓑ Ⓒ Ⓓ	81 Ⓐ Ⓑ Ⓒ Ⓓ	121 Ⓐ Ⓑ Ⓒ Ⓓ	161 Ⓐ Ⓑ Ⓒ Ⓓ
02 Ⓐ Ⓑ Ⓒ Ⓓ	42 Ⓐ Ⓑ Ⓒ Ⓓ	82 Ⓐ Ⓑ Ⓒ Ⓓ	122 Ⓐ Ⓑ Ⓒ Ⓓ	162 Ⓐ Ⓑ Ⓒ Ⓓ
03 Ⓐ Ⓑ Ⓒ Ⓓ	43 Ⓐ Ⓑ Ⓒ Ⓓ	83 Ⓐ Ⓑ Ⓒ Ⓓ	123 Ⓐ Ⓑ Ⓒ Ⓓ	163 Ⓐ Ⓑ Ⓒ Ⓓ
04 Ⓐ Ⓑ Ⓒ Ⓓ	44 Ⓐ Ⓑ Ⓒ Ⓓ	84 Ⓐ Ⓑ Ⓒ Ⓓ	124 Ⓐ Ⓑ Ⓒ Ⓓ	164 Ⓐ Ⓑ Ⓒ Ⓓ
05 Ⓐ Ⓑ Ⓒ Ⓓ	45 Ⓐ Ⓑ Ⓒ Ⓓ	85 Ⓐ Ⓑ Ⓒ Ⓓ	125 Ⓐ Ⓑ Ⓒ Ⓓ	165 Ⓐ Ⓑ Ⓒ Ⓓ
06 Ⓐ Ⓑ Ⓒ Ⓓ	46 Ⓐ Ⓑ Ⓒ Ⓓ	86 Ⓐ Ⓑ Ⓒ Ⓓ	126 Ⓐ Ⓑ Ⓒ Ⓓ	166 Ⓐ Ⓑ Ⓒ Ⓓ
07 Ⓐ Ⓑ Ⓒ Ⓓ	47 Ⓐ Ⓑ Ⓒ Ⓓ	87 Ⓐ Ⓑ Ⓒ Ⓓ	127 Ⓐ Ⓑ Ⓒ Ⓓ	167 Ⓐ Ⓑ Ⓒ Ⓓ
08 Ⓐ Ⓑ Ⓒ Ⓓ	48 Ⓐ Ⓑ Ⓒ Ⓓ	88 Ⓐ Ⓑ Ⓒ Ⓓ	128 Ⓐ Ⓑ Ⓒ Ⓓ	168 Ⓐ Ⓑ Ⓒ Ⓓ
09 Ⓐ Ⓑ Ⓒ Ⓓ	49 Ⓐ Ⓑ Ⓒ Ⓓ	89 Ⓐ Ⓑ Ⓒ Ⓓ	129 Ⓐ Ⓑ Ⓒ Ⓓ	169 Ⓐ Ⓑ Ⓒ Ⓓ
10 Ⓐ Ⓑ Ⓒ Ⓓ	50 Ⓐ Ⓑ Ⓒ Ⓓ	90 Ⓐ Ⓑ Ⓒ Ⓓ	130 Ⓐ Ⓑ Ⓒ Ⓓ	170 Ⓐ Ⓑ Ⓒ Ⓓ
11 Ⓐ Ⓑ Ⓒ Ⓓ	51 Ⓐ Ⓑ Ⓒ Ⓓ	91 Ⓐ Ⓑ Ⓒ Ⓓ	131 Ⓐ Ⓑ Ⓒ Ⓓ	171 Ⓐ Ⓑ Ⓒ Ⓓ
12 Ⓐ Ⓑ Ⓒ Ⓓ	52 Ⓐ Ⓑ Ⓒ Ⓓ	92 Ⓐ Ⓑ Ⓒ Ⓓ	132 Ⓐ Ⓑ Ⓒ Ⓓ	172 Ⓐ Ⓑ Ⓒ Ⓓ
13 Ⓐ Ⓑ Ⓒ Ⓓ	53 Ⓐ Ⓑ Ⓒ Ⓓ	93 Ⓐ Ⓑ Ⓒ Ⓓ	133 Ⓐ Ⓑ Ⓒ Ⓓ	173 Ⓐ Ⓑ Ⓒ Ⓓ
14 Ⓐ Ⓑ Ⓒ Ⓓ	54 Ⓐ Ⓑ Ⓒ Ⓓ	94 Ⓐ Ⓑ Ⓒ Ⓓ	134 Ⓐ Ⓑ Ⓒ Ⓓ	174 Ⓐ Ⓑ Ⓒ Ⓓ
15 Ⓐ Ⓑ Ⓒ Ⓓ	55 Ⓐ Ⓑ Ⓒ Ⓓ	95 Ⓐ Ⓑ Ⓒ Ⓓ	135 Ⓐ Ⓑ Ⓒ Ⓓ	175 Ⓐ Ⓑ Ⓒ Ⓓ
16 Ⓐ Ⓑ Ⓒ Ⓓ	56 Ⓐ Ⓑ Ⓒ Ⓓ	96 Ⓐ Ⓑ Ⓒ Ⓓ	136 Ⓐ Ⓑ Ⓒ Ⓓ	176 Ⓐ Ⓑ Ⓒ Ⓓ
17 Ⓐ Ⓑ Ⓒ Ⓓ	57 Ⓐ Ⓑ Ⓒ Ⓓ	97 Ⓐ Ⓑ Ⓒ Ⓓ	137 Ⓐ Ⓑ Ⓒ Ⓓ	177 Ⓐ Ⓑ Ⓒ Ⓓ
18 Ⓐ Ⓑ Ⓒ Ⓓ	58 Ⓐ Ⓑ Ⓒ Ⓓ	98 Ⓐ Ⓑ Ⓒ Ⓓ	138 Ⓐ Ⓑ Ⓒ Ⓓ	178 Ⓐ Ⓑ Ⓒ Ⓓ
19 Ⓐ Ⓑ Ⓒ Ⓓ	59 Ⓐ Ⓑ Ⓒ Ⓓ	99 Ⓐ Ⓑ Ⓒ Ⓓ	139 Ⓐ Ⓑ Ⓒ Ⓓ	179 Ⓐ Ⓑ Ⓒ Ⓓ
20 Ⓐ Ⓑ Ⓒ Ⓓ	60 Ⓐ Ⓑ Ⓒ Ⓓ	100 Ⓐ Ⓑ Ⓒ Ⓓ	140 Ⓐ Ⓑ Ⓒ Ⓓ	180 Ⓐ Ⓑ Ⓒ Ⓓ
21 Ⓐ Ⓑ Ⓒ Ⓓ	61 Ⓐ Ⓑ Ⓒ Ⓓ	101 Ⓐ Ⓑ Ⓒ Ⓓ	141 Ⓐ Ⓑ Ⓒ Ⓓ	181 Ⓐ Ⓑ Ⓒ Ⓓ
22 Ⓐ Ⓑ Ⓒ Ⓓ	62 Ⓐ Ⓑ Ⓒ Ⓓ	102 Ⓐ Ⓑ Ⓒ Ⓓ	142 Ⓐ Ⓑ Ⓒ Ⓓ	182 Ⓐ Ⓑ Ⓒ Ⓓ
23 Ⓐ Ⓑ Ⓒ Ⓓ	63 Ⓐ Ⓑ Ⓒ Ⓓ	103 Ⓐ Ⓑ Ⓒ Ⓓ	143 Ⓐ Ⓑ Ⓒ Ⓓ	183 Ⓐ Ⓑ Ⓒ Ⓓ
24 Ⓐ Ⓑ Ⓒ Ⓓ	64 Ⓐ Ⓑ Ⓒ Ⓓ	104 Ⓐ Ⓑ Ⓒ Ⓓ	144 Ⓐ Ⓑ Ⓒ Ⓓ	184 Ⓐ Ⓑ Ⓒ Ⓓ
25 Ⓐ Ⓑ Ⓒ Ⓓ	65 Ⓐ Ⓑ Ⓒ Ⓓ	105 Ⓐ Ⓑ Ⓒ Ⓓ	145 Ⓐ Ⓑ Ⓒ Ⓓ	185 Ⓐ Ⓑ Ⓒ Ⓓ
26 Ⓐ Ⓑ Ⓒ Ⓓ	66 Ⓐ Ⓑ Ⓒ Ⓓ	106 Ⓐ Ⓑ Ⓒ Ⓓ	146 Ⓐ Ⓑ Ⓒ Ⓓ	186 Ⓐ Ⓑ Ⓒ Ⓓ
27 Ⓐ Ⓑ Ⓒ Ⓓ	67 Ⓐ Ⓑ Ⓒ Ⓓ	107 Ⓐ Ⓑ Ⓒ Ⓓ	147 Ⓐ Ⓑ Ⓒ Ⓓ	187 Ⓐ Ⓑ Ⓒ Ⓓ
28 Ⓐ Ⓑ Ⓒ Ⓓ	68 Ⓐ Ⓑ Ⓒ Ⓓ	108 Ⓐ Ⓑ Ⓒ Ⓓ	148 Ⓐ Ⓑ Ⓒ Ⓓ	188 Ⓐ Ⓑ Ⓒ Ⓓ
29 Ⓐ Ⓑ Ⓒ Ⓓ	69 Ⓐ Ⓑ Ⓒ Ⓓ	109 Ⓐ Ⓑ Ⓒ Ⓓ	149 Ⓐ Ⓑ Ⓒ Ⓓ	189 Ⓐ Ⓑ Ⓒ Ⓓ
30 Ⓐ Ⓑ Ⓒ Ⓓ	70 Ⓐ Ⓑ Ⓒ Ⓓ	110 Ⓐ Ⓑ Ⓒ Ⓓ	150 Ⓐ Ⓑ Ⓒ Ⓓ	190 Ⓐ Ⓑ Ⓒ Ⓓ
31 Ⓐ Ⓑ Ⓒ Ⓓ	71 Ⓐ Ⓑ Ⓒ Ⓓ	111 Ⓐ Ⓑ Ⓒ Ⓓ	151 Ⓐ Ⓑ Ⓒ Ⓓ	191 Ⓐ Ⓑ Ⓒ Ⓓ
32 Ⓐ Ⓑ Ⓒ Ⓓ	72 Ⓐ Ⓑ Ⓒ Ⓓ	112 Ⓐ Ⓑ Ⓒ Ⓓ	152 Ⓐ Ⓑ Ⓒ Ⓓ	192 Ⓐ Ⓑ Ⓒ Ⓓ
33 Ⓐ Ⓑ Ⓒ Ⓓ	73 Ⓐ Ⓑ Ⓒ Ⓓ	113 Ⓐ Ⓑ Ⓒ Ⓓ	153 Ⓐ Ⓑ Ⓒ Ⓓ	193 Ⓐ Ⓑ Ⓒ Ⓓ
34 Ⓐ Ⓑ Ⓒ Ⓓ	74 Ⓐ Ⓑ Ⓒ Ⓓ	114 Ⓐ Ⓑ Ⓒ Ⓓ	154 Ⓐ Ⓑ Ⓒ Ⓓ	194 Ⓐ Ⓑ Ⓒ Ⓓ
35 Ⓐ Ⓑ Ⓒ Ⓓ	75 Ⓐ Ⓑ Ⓒ Ⓓ	115 Ⓐ Ⓑ Ⓒ Ⓓ	155 Ⓐ Ⓑ Ⓒ Ⓓ	195 Ⓐ Ⓑ Ⓒ Ⓓ
36 Ⓐ Ⓑ Ⓒ Ⓓ	76 Ⓐ Ⓑ Ⓒ Ⓓ	116 Ⓐ Ⓑ Ⓒ Ⓓ	156 Ⓐ Ⓑ Ⓒ Ⓓ	196 Ⓐ Ⓑ Ⓒ Ⓓ
37 Ⓐ Ⓑ Ⓒ Ⓓ	77 Ⓐ Ⓑ Ⓒ Ⓓ	117 Ⓐ Ⓑ Ⓒ Ⓓ	157 Ⓐ Ⓑ Ⓒ Ⓓ	197 Ⓐ Ⓑ Ⓒ Ⓓ
38 Ⓐ Ⓑ Ⓒ Ⓓ	78 Ⓐ Ⓑ Ⓒ Ⓓ	118 Ⓐ Ⓑ Ⓒ Ⓓ	158 Ⓐ Ⓑ Ⓒ Ⓓ	198 Ⓐ Ⓑ Ⓒ Ⓓ
39 Ⓐ Ⓑ Ⓒ Ⓓ	79 Ⓐ Ⓑ Ⓒ Ⓓ	119 Ⓐ Ⓑ Ⓒ Ⓓ	159 Ⓐ Ⓑ Ⓒ Ⓓ	199 Ⓐ Ⓑ Ⓒ Ⓓ
40 Ⓐ Ⓑ Ⓒ Ⓓ	80 Ⓐ Ⓑ Ⓒ Ⓓ	120 Ⓐ Ⓑ Ⓒ Ⓓ	160 Ⓐ Ⓑ Ⓒ Ⓓ	200 Ⓐ Ⓑ Ⓒ Ⓓ

SAMPLE

SIGNATURE OF CANDIDATE

SIGNATURE OF INVIGILATOR

INSTRUCTIONS FOR MARKING

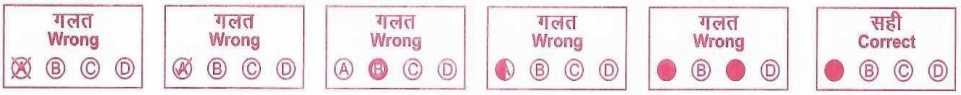
SIDE - II

USE BLUE / BLACK BALL POINT PEN ONLY

1. बाक्स के अंदर लिखने व गोले को काला करने के लिए नीला / काला बॉल प्वाइंट पेन का प्रयोग करें।
   Use Blue/Black ball point pen only to fill the boxes and darken the circles.

2. गोले को पूरी तरह से काला करें ताकि गोले के अन्दर लिखे अक्षर / संख्या न दिखें।
   Mark should be DARK and completely fill the circles so that the letter / number inside the circle is not visible.

3. प्रत्येक प्रश्न का उत्तर उस प्रश्न संख्या के सामने दिये गये किसी एक गोले को ही काला करें। एक से अधिक गोले को काला करने पर उत्तर गलत माना जायेगा।
   Darken only ONE circle for each question as shown in the example below. If you darken more than one circle. Your answer will be treated as wrong.



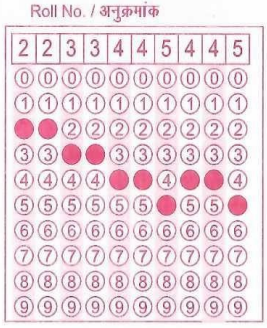
4. केवल दिये गये उचित स्थान पर ही लिखें। कृपया इस उत्तर पत्रक पर छुट–पुट कुछ न लिखें।
   Make mark only in the space provided. Please do not make any stray marks on the answer sheet.

5. उत्तर पत्रक पर रफ कार्य कदापि न करें। रफ कार्य के लिए प्रश्न पत्र में अन्त में दिये गये पन्ने का प्रयोग करें।
   Rought work MUST NOT be done on the answer sheet. Use the blank space on Question Paper for rough work.

6. जिस प्रश्न संख्या का उत्तर देना है, उत्तर पत्रक में ठीक उसी उत्तर संख्या के सामने दिये गये गोले को गाढ़ा काला करें।
   Mark your answer only in the appropriate space against the number corresponding to the question you are answering.

उदाहरण
EXAMPLE
यदि आपका अनुक्रमांक 2233445445
है तो निम्न तरीके से अंकित करें।

Roll No. / अनुक्रमांक



NOTE : IN CASE OF ANY MISSING OR INCOMPLETE INFORMATION THE CANDIDATURE IS LIABLE TO BE NULLIFIED.

4. Important Dates :

S. No.	Description	Tentative Date(s)
1.	Start date for receipt of application (Online mode) (Online Registration followed by Submission of Online Application Form along with payment of Registration Fee of Rs.2500/- plus taxes/ service charges as applicable for Ph.D. Programme.)	1st Week of February, 2026*
2.	Last date for receipt of application (Online mode)	31.03.2026*
3.	Last date for submission of documents by candidates requesting exemption from PET at the office of Dean/Directors of respective University Schools of Study/Centre of Excellence through offline mode/email	15.04.2026*
4.	List of Exempted Candidate from PET to be uploaded by respective University Schools of Study/Centre of Excellence on the University website	20.04.2026*
5.	Date of Entrance Test	25.04.2026 – 17.05.2026* (Tentative)
6.	Admission (Ph.D) Notification of interview schedule on University website, conduct of interview and completion of all formalities of admission by respective schools/centres.	31.07.2026*
*Subject to change (Candidates are advised to keep themselves updated with notifications on the University website)		

5. Submission of Application Form :

- All the candidates (whether exempted or not exempted as in point 3.2 above) have to apply online for admission to Ph.D. programme by filling up the online application form as available on University website http://www.ipu.ac.in. The application fee shall be notified by the Examination Branch.

- Appearing in Ph.D. Entrance Test (PET) is mandatory for all non-exempted applicants (refer Point 3.2 above). However admit card would be issued to all the applicants including the exempted applicants (refer Point 3.2 above).

- All the applicants need to download the admit card from the link used for filling up the application form using their respective login id and password. The applicants who are exempted from Ph.D. Entrance Test should keep the admit card with them and the same has to be produced at the time of interview. The candidates are advised to take and retain a printout of the duly filled in application form.

The link for filling up the online application is as follows:

Homepage: http://www.ipu.ac.in

➡ Admission 2026 ➡ Apply Online

Note: Last date for submission of online application form shall be notified on the University website.

6. Instructions for filling up Ph.D. Application Form:

a. The candidates must read all the important instructions before filling up the Application Form.

b. A detailed procedure for filling up the application form is available on University website http://www.ipu.ac.in under the link "Procedure to fill online application forms."

c. The candidate should choose the "Exam Category" as "Ph.D." in the online application form.

d. The candidate should enter his or her relevant details and upload a recent clear photograph of size as mentioned with his or her scanned signature and left thumb impression.

e. Relevant course for Ph.D. Entrance Test PET should be chosen and payment of requisite application fee as notified by the Examination branch must be made online.

7. Schedule of Ph.D Entrance Test 2026-27

Sl. No.	Test Code	Test Name	Exam Date & Timings
1	211	Information Tech./ Computer Science & Engg./ Computer Applications / Artificial Intelligence- Data Science/ Artificial Intelligence- Machine Learning/ Industrial Internet of Things (IIoT)	25.04.26 to 17.05.26 (Tentatively)
2	212	Electronics & Comm. Engg./ Industrial Internet of Things (IIoT)	
3	213	Mechanical & Automation Engg.	
4	214	Automation & Robotics (A & R)	
5	221	Management	
6	231	Chemical Technology	
7	241	Biotechnology	
8	251	Environmental Science	
9	261	Mass Communication	
10	281	Mathematics	
11	282	Chemistry	
12	283	Physics	
13	291	English	
14	301	Law and Legal Studies	
15	321	Medical Sciences	
16	601	Economics	
17	602	Architecture & Planning	
18	340	History	
19	341	Design	
20	311	Education	
21	402	Disaster Management	
22	401	Pharmaceutical Chemistry	

* No admission in Sociology in the academic session (Summer) 2026-27.

8. Fee for Ph.D programmes :

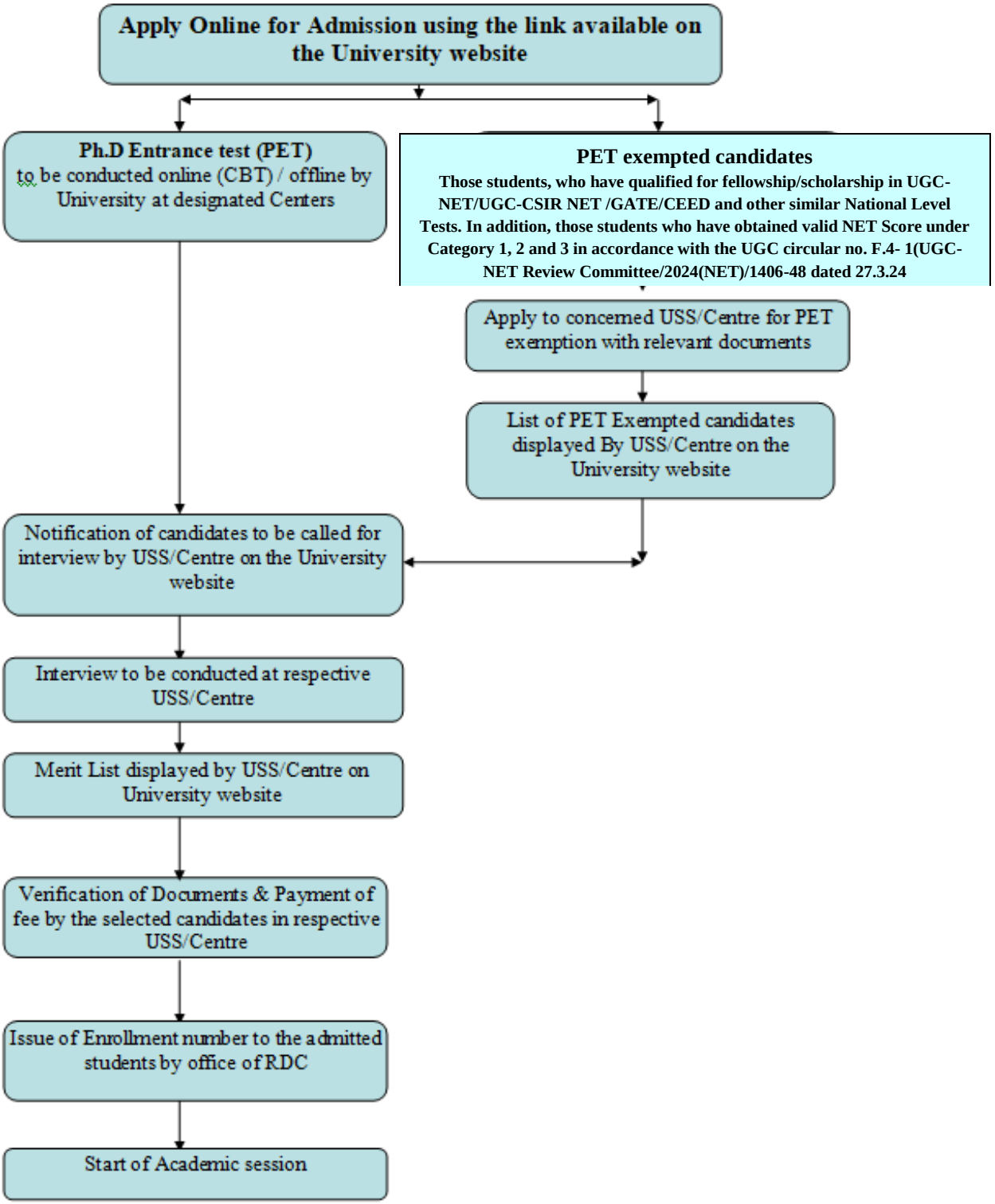
Sl. No.	Fee Head	Amount (Rs.)
1	Tuition Fee (Per Annum)	25,000/-
2	University's Charges (Per Annum)	20,000/-
3	Alumni Contribution Fund (One Time Non – refundable)	2,000/-
4	Security Deposit (One Time – Refundable)	10,000/-
5	Examination Fee	3,000/-
6	Innovation and Incubation Fee (Per Annum)	500/-
A	**Fee Payable per year (1+2+6)**	**45,500/-**
B	Fee Payable at the time of admission (3+4+5)	15,000/-
	Total fee payable at the time of admission (A + B)	**60,500/-**

9. Refund Policy:

Fee refund policy is applicable as per the University Grants Commission Notification on "Refund of Fees and Non-Retention of Original Certificates" published on 02.11.2018 (https://www.ugc.ac.in/pdfnews/5437737_UGC-Notice-reg-Fees-refund-Eng.pdf).

The relevant date for request of cancellation & refund of fee shall be that of the date on which the said request has been received from the applicant in the office of Dean of the School/Director of the Centre.

10. Ph.D. Admission Process at a Glance



11. Information Regarding Result Awaited Cases for Ph.D. Programmes:

i. All such candidates who have appeared in the qualifying examination (irrespective of the outcome of their final result) will be eligible to appear in the PET 2026-27 and all such candidates will be provisionally admitted in the respective programmes;

ii. The candidate will have to submit the final result of qualifying degree proving his/her eligibility on or before 31st October, 2026 to their concerned Dean/Director of their respective School/Centre of Excellence where the admission has been granted provisionally. The concerned Dean of USS/Director of Centre of Excellence must submit the details of the result of the provisionally admitted students within 7 days i.e. 7th November 2026 to Director, Research & Development Cell, GGSIPU, 16 C Dwarka, New Delhi 110078 for the issue of their enrolment number(s). In case the candidate fails to submit his/her final result of qualifying degree in the manner as prescribed above to prove his/her eligibility on or before 31st October 2026, whatsoever, the reason may be, his/her admission will be treated as null and void (cancelled) and the entire fee will be forfeited and under no any circumstances he/she will be allowed to appear in the End Term Exam. The Dean of USS/Director of Centre of Excellence will be responsible to ensure that the eligibility of all students are checked by them to ensure correctness of admissions especially in case of provisional students. The provisional admission will automatically stand cancelled if the candidates fail to submit result in time i.e. 31st October, 2026.

Note: Those candidates who are seeking provisional admission due to non-declaration of their final year/final semester (please see Appendix 1) will however have to provide proof of having passed all papers in all the previous years/ semesters of qualifying degree examinations (whichever relevant). The candidate shall give documentary proof of having appeared in the last semester/year of qualifying examination at the time of interview in the concerned USS/Centre of Excellence. The candidate shall undertake that he has appeared in the final semester/final year examination as on date of admission and result of which has not been declared and is expected to be declared latest by 31st October, 2026. He shall further declare that he has no compartment as on this date in his qualifying examination and he is seeking provisional admission only due to non declaration of result of final year/final semester of the qualifying examination by University and not on account of compartment in current or previous years of qualifying degree examination as on date of admission.

There will be no rounding-off of the percentage of marks of qualifying examination while deciding the basic eligibility of any candidate for admission for e.g. if a candidate obtained 49.9% marks in his/her qualifying examination, then it will not be rounded-off to 50%. Therefore, the candidate is not eligible for that programme where the minimum requirement of marks is 50%. In case candidate for any reason fills the minimum percentage wrongly in the Verification Form, he/she shall be solely responsible.

11. School-Wise Details:

11.1 University School of Biotechnology

11.1.1 Eligibility Criteria:

Candidates who have completed:

A 1-year/2-semester master's degree programme after a 4-year/8-semester bachelor's degree programme or a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution.
The concerned Degree, M.Sc./M. Tech/M.Phil/B.Tech should be in Biotechnology /Life Sciences/ Botany/ Zoology/ Genetics/ Microbiology/ Biochemistry/ Plant Molecular Biology/ Biochemical Engineering/ Bioinformatics/ or Allied Sciences.

OR

MD/MS/MDS in any branch of Medical Sciences,

OR

M. Pharma or equivalent degree

Provided that a candidate seeking admission after a 4-year/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed.

Candidates who have completed the M.Phil. programme with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of educational institutions, shall be eligible for admission to the Ph.D. programme.

A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS).

Pls note: Students who have qualified for fellowship/scholarship in UGC-NET/UGC- CSIR NET/GATE/CEED and similar National level tests will be exempt from the entrance exam and will be admitted based on based on an interview.

For students, who have qualified in Categories 2 and 3, 70% weightage will be given for test scores and 30% weightage for the interview for admission to Ph.D. programmes. The Ph.D. admission will be based on the combined merit of NET marks and the marks obtained in the interview/viva voce. This is in accordance with the UGC circular no. F.4-1(UGC-NET Review Committee/2024(NET)/1406-48 dated 27.3.24

11.1.2. Mode of Ph.D. Programme:

Full Time

11.1.3. Syllabus for Entrance Test:

Part A - Research methodology

Scientific Research: Meaning and characteristics of scientific research; Validity in research; Phases or stages in research; Various types of research: Quantitative, Qualitative, Experimental, Exploratory, Empirical, Descriptive, Ex-post facto, Case studies.

Review of literature: Purpose of the review, Sources of the review, Citing references, Ethical and IPR issues in research.

Data representation: Collection of data, Tabulation, Organization and graphical representation of quantitative data: Line Graphs, Bar Graphs, Pie Charts, Histograms; Probability concept and theories.

Sampling: Meaning and types of sampling, Probability and Non probability Sampling. Methods of drawing random samples, requisites of good sampling methods, Sample size, Sampling error.

Hypothesis testing: Null hypothesis, Alternate hypothesis, Steps of hypothesis testing, Level of significance, Type I and Type II error.

Measures of Variability: Range; Quartile Deviation; Standard Deviation; Average Deviation; and Coefficient of Variation; Measures of Relative position: Percentiles, Percentiles Ranks, Standard Scores, Stanine Scores, T- Scores; Normal Probability Distribution, properties of normal curve, applications of normal curve, Divergence from Normality : Skewness and Kurtosis.

Correlation and Regression: Karl Pearson's correlation Coefficient(r), Spearman's rank order correlation coefficient (rho), Partial and Multiple Correlation, Scatter diagrams, Regression and Prediction, Regression equations, linear regression, multiple regression analysis, Cause and effect-Path analysis

Statistical inference: Concept of Standard Error and it's uses; The Significance of Statistical Measures; Tests of Significance of Difference between two means Z-Test, T-test; Analysis of variance and analysis of covariance: Assumptions of Anova, One way Anova, Two way Anova, Post Hoc tests- Duncan's multiple range test, Tukey's test, Newmann-Keuls test; Non-parametric Tests: Chi-square test, Medium test, Mann Whitney U test, Kolmogorov- Smirnov two sample test; Multivariate analysis: Factor analysis, Cluster analysis and Discriminant analysis.

Experimental Designs: Meaning and purpose of research design, Criteria of research design, Basic principles of experimental design, General layout and Anova of experimental designs: Completely Randomized Design, Randomized Block Design, Latin Square Design, Split Plot, Factorial designs.

Preparation of Thesis: Introduction to scientific writing, Introduction to different softwares used for thesis preparation.

Part B – Biotechnology (Subject Specific Test)

Biochemistry: Organization of life; Importance of water; Structure and function of biomolecules: Amino acids, Carbohydrates, Lipids, Proteins and Nucleic acids; Protein structure, folding and function

Enzyme classification, kinetics including its regulation and inhibition, Vitamins and Coenzymes; Metabolism and bioenergetics; Generation and utilization of ATP; Metabolic pathways and their regulation: glycolysis, TCA cycle (Krebs' cycle), glycolysis, pentose phosphate pathway, oxidative phosphorylation, electron transport chain; gluconeogenesis, glycogen and fatty acid metabolism; Metabolism of nitrogen containing compounds: nitrogen fixation, amino acids and nucleotides. Photosynthesis: Calvin cycle, C4 Cycle, CAM

Cell Biology: Cell structure and organelles; Biological membranes; Transport across membranes; Signal transduction; Hormones and neurotransmitters; Prokaryotic and eukaryotic cell structure; Cell

cycle, cell division and cell growth control; Cell-Cell communication, Cell signaling and signal transduction

Molecular Biology and Genetics: Molecular structure of genes and chromosomes; Mutations and mutagenesis; Nucleic acid replication, transcription, translation and their regulatory mechanisms in prokaryotes and eukaryotes; Mendelian inheritance; organization of genome, sex determination and sex-linked characteristics, cytoplasmic inheritance, linkage, recombination and mapping of genes in eukaryotes, population genetics. Gene interaction; Complementation; Linkage, recombination and chromosome mapping; Extra chromosomal inheritance; Microbial genetics (plasmids, transformation, transduction, conjugation); Viruses, Retroviruses; Transposable elements; RNA interference; DNA damage and repair; Chromosomal variation; Molecular basis of genetic diseases Microarray, PCR, site directed mutagenesis, microarray, DNA sequencing

Analytical Techniques: Principles of microscopy-light, electron, fluorescent and confocal; Centrifugation- high speed and ultra; Principles of spectroscopy-UV, visible, CD, IR, FTIR, Raman, MS, NMR; Principles of chromatography- ion exchange, gel filtration, hydrophobic interaction, affinity, GC,HPLC, FPLC; Electrophoresis; Flowcytometry

Immunology: History of Immunology, Active and passive immunity; Innate, humoral and cell mediated immunity; Antigen; Antibody structure and function; Molecular basis of antibody diversity; Synthesis of antibody and secretion; Antigen-antibody reaction; Complement; Primary and secondary lymphoid organ; B and T cells and macrophages; Major histocompatibility complex (MHC); T cell receptor; Antigen processing and presentation; Polyclonal and monoclonal antibody; Regulation of immune response; Immune tolerance; Hypersensitivity; Autoimmunity; Graft versus host reaction. Immunological techniques: Immunodiffusion, immunoelectrophoresis, RIA and ELISA.

Bioinformatics: Major bioinformatic resources and search tools; Sequence and structure databases; Sequence analysis (biomolecular sequence file formats, scoring matrices, sequence alignment, phylogeny); Data mining and analytical tools for genomic and proteomic studies; Molecular dynamics and simulations (basic concepts including force fields, protein-protein, protein-nucleic acid, protein-ligand interaction)

Recombinant DNA Technology: Restriction and modification enzymes; Vectors; plasmid, bacteriophage and other viral vectors, cosmids, Ti plasmid, yeast artificial chromosome; mammalian and plant expression vectors; cDNA and genomic DNA library; Gene isolation, cloning and expression; Transposons and gene targeting; DNA labeling; DNA fingerprinting; Southern and northern blotting; In-situ hybridization; RAPD, RFLP, AFLP, SSRs, SNPs; Gene transfer technologies; Gene therapy

Plant and Animal Biotechnology: Totipotency; Regeneration of plants; Plant growth regulators and elicitors; Tissue culture and Cell suspension culture system: methodology, kinetics of growth and, nutrient optimization; Production of secondary metabolites by plant suspension cultures; Hairy root culture; transgenic plants; Plant products of industrial importance; Animal cell culture, media composition and growth conditions; Animal cell and tissue preservation; Anchorage and non-anchorage dependent cell culture; Kinetics of cell growth; Micro & macro-carrier culture; Hybridoma technology; Stem cell technology; Animal cloning; Transgenic plants and animals

Bioprocess Engineering and Process Biotechnology: Chemical engineering principles applied to biological system, Principle of reactor design, ideal and non-ideal multiphase bioreactors, mass and heat transfer; Rheology of fermentation fluids, Aeration and agitation; Media formulation and optimization; Kinetics of microbial growth, substrate utilization and product formation; Sterilization of air and media; Batch, fed-batch and continuous processes; Various types of microbial and enzyme reactors; Instrumentation control and optimization; Unit operations in solid-liquid separation and liquid-liquid extraction; Process scale-up, economics and feasibility analysis

Engineering principle of bioprocessing: Upstream production and downstream; Bioprocess design and development from lab to industrial scale; Microbial, animal and plant cell culture platforms; Production of biomass and primary/secondary metabolites; Biofuels, Bioplastics, industrial enzymes, antibiotics; Large scale production and purification of recombinant proteins; Industrial application of chromatographic and membrane based bioseparation methods; Immobilization of biocatalysts (enzymes and cells) for bioconversion processes; Bioremediation-Aerobic and anaerobic processes for stabilization of solid / liquid wastes.

Evolution: Origin and history of life on earth, theories of evolution, natural selection, adaptation, speciation.

Developmental Biology: Embryonic development, cellular differentiation, organogenesis, metamorphosis, genetic basis of development,

Microbiology: Discovery of microbial world: Landmark discoveries relevant to the field of microbiology; Controversy over spontaneous generation; Role of microorganisms in transformation of organic matter and in the causation of diseases. Methods in Microbiology: Pure culture techniques; Theory and practice of sterilization; Principles of microbial nutrition; Enrichment culture techniques for isolation of microorganisms; Light-, phase contrast- and electron-microscopy. Microbial Taxonomy and Diversity: Bacteria, Archea and their broad classification; Eukaryotic microbes: Yeasts, molds and protozoa; Viruses and their classification; Molecular approaches to microbial taxonomy. Microbial Growth: Definition of growth; Growth curve; Mathematical expression of exponential growth phase; Measurement of growth and growth yields; Synchronous growth; Continuous culture; Effect of environmental factors on growth. Control of Micro-organisms: Effect of physical and chemical agents; Evaluation of effectiveness of antimicrobial agents. Microbial Diseases and Host Pathogen Interaction: Normal microbiota; Classification of infectious diseases; Reservoirs of infection; Nosocomial infection; Emerging infectious diseases; Mechanism of microbial pathogenicity; Nonspecific defense of host; Vaccines; Immune deficiency; Human diseases caused by viruses, bacteria, and pathogenic fungi; Chemotherapy/Antibiotics: General characteristics of antimicrobial drugs; Antibiotics: Classification, mode of action and resistance; Antifungal and antiviral drugs; Microbial Ecology: Microbial interactions; Carbon, sulphur and nitrogen cycles; Soil microorganisms associated with vascular plants.

Plant Systematics: Nomenclature; Major systems of classification, plant groups, phylogenetic relationships and molecular systematics.

Plant Anatomy: Plant cell structure and its components; cell wall and membranes; organization, organelles, cytoskeleton, anatomy of root, stem and leaves, floral parts, embryo and young seedlings, meristems, vascular system, their ontogeny, structure and functions, secondary growth in plants and stellar organization.

Plant Morphogenesis & Development: Life cycle of angiosperms, pollination, fertilization, embryogenesis, seed formation, seed storage proteins, seed dormancy and germination.

Plant Physiology: Plant water relations, transport of minerals and solutes, stress physiology, stomatal physiology, signal transduction, N2 metabolism, photosynthesis, photorespiration; respiration, Flowering: photoperiodism and vernalization, biochemical mechanisms involved in flowering; molecular mechanism of senecence and aging, biosynthesis, mechanism of action and physiological effects of plant growth regulators

Plant Breeding and Genetic Modification: Principles, methods – selection, hybridization, heterosis; male sterility, genetic maps and molecular markers, sporophytic and gametophytic self incompability, haploidy, triploidy, somatic cell hybridization, marker-assisted selection, gene transfer methods viz. direct and vector-mediated, plastid transformation, transgenic plants and their application in agriculture, molecular pharming, plantibodies.

Economic Botany: A general account of economically and medicinally important plants- cereals, pulses, plants yielding fibers, timber, sugar, beverages, oils, rubber, pigments, dyes, gums, drugs and narcotics; Economic importance of algae, fungi, lichen and bacteria.

Plant Pathology: Nature and classification of plant diseases, diseases of important crops caused by fungi, bacteria, nematodes and viruses, and their control measures, mechanism(s) of pathogenesis and resistance, molecular detection of pathogens; plant-microbe beneficial interactions.

Ecology and Environment: Ecosystems – types, dynamics, degradation, ecological succession; food chains and energy flow; vegetation types of the world, pollution and global warming, speciation and extinction, conservation strategies, cryopreservation, phytoremediation.

Food Chemistry and Nutrition: Carbohydrates: structure and functional properties of mono-, oligo-, & poly- saccharides including starch, cellulose, pectic substances and dietary fibre, gelatinization and retrogradation of starch. Proteins: classification and structure of proteins in food, biochemical changes in post mortem and tenderization of muscles. Lipids: classification and structure of lipids, rancidity, polymerization and polymorphism. Pigments: carotenoids, chlorophylls, anthocyanins, tannins and myoglobin. Food flavours: terpenes, esters, aldehydes, ketones and quinines. Enzymes: specificity, simple and inhibition kinetics, coenzymes, enzymatic and non- enzymatic browning. Nutrition: balanced diet, essential amino acids and essential fatty acids, protein efficiency ratio, water soluble and fat soluble vitamins, role of minerals in nutrition, co-factors, anti-nutrients, nutraceuticals, nutrient deficiency diseases. Chemical and biochemical changes: changes occur in foods during different processing. Food Microbiology: Characteristics of microorganisms: morphology of bacteria, yeast, mold and actinomycetes, spores and vegetative cells, gram-staining. Microbial growt h: growth and death kinetics, serial dilution technique. Food spoilage: spoilage microorganisms in different food products including milk, fish, meat, egg, cereals and their products. Toxins from microbes: pathogens and non-pathogens including Staphylococcus, Salmonella, Shigella, Escherichia, Bacillus, Clostridium, and Aspergillus genera. Fermented foods and beverages: curd, yoghurt, cheese, pickles, soya-sauce, sauerkraut, idli, dosa, vinegar, alcoholic beverages and sausage.

Food Products Technology: Processing principles: thermal processing, chilling, freezing, dehydration, addition of preservatives and food additives, irradiation, fermentation, hurdle technology, intermediate moisture foods. Food pack aging and storage: packaging materials, aseptic packaging, controlled and modified atmosphere storage. Cereal processing and products: milling of rice, wheat, and maize, parboiling of paddy, bread, biscuits, extruded products and ready to eat breakfast cereals. Oil processing: expelling, solvent extraction, refining and hydrogenation. Fruits and vegetables processing: extraction, clarification, concentration and packaging of fruit juice, jam, jelly, marmalade, squash, candies, tomato sauce, ketchup, and puree, potato chips, pickles. Plantation crops processing and products: tea, coffee, cocoa, spice, extraction of essential oils and oleoresins from spices. Milk and milk products processing: pasteurization and sterilization, cream, butter, ghee, ice- cream, cheese and milk powder. Processing of animal products: drying, canning, and freezing of fish and meat; production of egg powder. Waste utilization: pectin from fruit wastes, uses of by-products from rice milling. Food standards and quality maintenance: FPO, PFA, Agmark, ISI, HACCP, food plant sanitation and cleaning in place (CIP).

11.1.4. Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.2 University School of Chemical Technology

11.2.1. Additional Eligibility Criteria:

Candidates for admission to the Ph.D. programme should have

A 1-year/2-semester master's degree programme after a 4-year/8-semester bachelor's degree programme or a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree in Chemical Technology/Biotechnology/Food Technology/Environmental and/or Energy Engineering/Polymer Engineering/Biochemical Engineering/Chemical Engineering and Allied field by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution.

A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.

Provided that a candidate seeking admission after a 4-year/8-semester bachelor's degree programme in Chemical Technology/Biotechnology/Food Technology/Environmental and/or Energy Engineering/Polymer Engineering/Biochemical Engineering/Chemical Engineering and Allied field by the corresponding statutory regulatory body should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.

11.2.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.2.3. Syllabus for Entrance Test:

Part A - Research Methodology

Linear Algebra: Solution of linear algebraic equation, Matrices, Eigen values and Eigenvectors.

Calculus: Functions of single variable, Limit, Continuity and differentiability, Mean value theorems, Maxima and Minima.

Differential equations: Ordinary differential equation; Initial and boundary value problems, Partial differential equation.

Introduction to Statistics: Statistical concept, Statistical Inference, Statistical Hypotheses, Statistical Estimation, Point Estimates, Interval Estimates, Quantitative Data Graphs. Qualitative Data Graphs, Graphical Depiction of Two-Variable, Numerical Data, Scatter Plots.

Descriptive Statistics: Measures of Central Tendency-mean, Median and Mode, Measures of Variability- Data range, Variance and standard deviation, Measures of shape of distribution of data, Tests and estimates on statistical variance.

Research Ethics: Research honesty and integrity, Authorship, Acknowledgement and citation, Funding agencies and sponsorship, Sources of data, Sensitive materials and safety, Patents and copyright, Confidentiality and privacy, Human rights, Environmental laws, Fabrication of data and misrepresentation, Plagiarism.

Part B - Chemical Technology (Subject Specific Test)

Process Calculations

Steady and unsteady state mass and energy balances including multiphase, Multi Component, Reacting and non-reacting systems. Use of tie components; Recycle and bypass; Gibb's phase rule and degree of freedom analysis.

Thermodynamics

First and Second laws of thermodynamics, Applications of first law to close and open systems, Second law and Entropy, Thermodynamic properties of pure substances, Equation of State, Properties of mixtures, Partial molar properties, Fugacity, Excess properties and activity coefficients, Phase Equilibrium: Chemical reaction equilibrium.

Fluid Mechanics

Fluid statics, Newtonian and non-Newtonian fluids, Basic equation of fluid flow, Macroscopic friction factors, Dimensional analysis, Flow through pipes and channels, Flow meters, Pumps, Elementary boundary layer theory, Flow past immersed bodies including packed and fluidized beds.

Heat Transfer

Conduction, Convection and Radiation, Thermal boundary layer, Heat transfer coefficients, Boiling, Condensation and Evaporation, Design of double pipe and shell and tube heat exchangers, Single and multiple effect evaporators.

Mass Transfer

Fick's laws, Molecular diffusion in fluids, Mass transfer coefficients, Film, Penetration and surface renewal theories; Momentum, heat and mass transfer analogies; Stage-wise and continuous contacting and stage efficiencies; HTU & NTU concepts; Design and operation of equipment for distillation, Absorption.

Chemical Reaction Engineering

Theories of reaction rates, Kinetics of homogeneous reactions, Interpretation of kinetic data, Single and multiple reactions in ideal reactors, Residence time distribution.

Instrumentation and Process Control

Measurement of process variables; Sensors, Transducers and their dynamics, Process modelling and linearization, Transfer functions and dynamic responses of various systems, Systems with inverse response, Process reaction curve, Controller modes (P, PI, and PID); Control valves; Analysis of

closed loop systems including stability, Frequency response, Controller tuning, Cascade and feed forward control.

Chemical Technology

Inorganic chemical industries (Sulphuric acid, Phosphoric acid, Chloral-alkali industry), Fertilizers (Ammonia, Urea, SSP and TSP); Natural products industries (Pulp and Paper, Sugar, Oil, and Fats); Petroleum refining and petrochemicals; Polymerization industries (Polyethylene, Polypropylene, PVC and Polyester synthetic fibbers).

11.2.4. Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.3 University School of Management Studies

11.3.1. Additional Eligibility Criteria:

Candidates for admission to the Ph. D. programme shall have a Master Degree in Management or related field or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7 –point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions. Master Degree in Management field or related fields like Masters in Economics/Psychology/Sociology/ Commerce/Operation Research/ Statistics/IT/Computer Applications are eligible for Ph. D. Further more, sectoral MBA Programmes such as MBA (Rural Management), MBA (Real Estate), MBA (Energy Management), MBA (Environment Management), MBA (Disaster Management), MBA (Health Care Management), Masters in Hospital Administration / MBA (Banking & Insurance) etc shall also be eligible for admission to the Ph. D. Programme.

11.3.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.3.3. Syllabus for Ph.D (Management)

Part A – Research Methodology

Relevance and Scope of Business Research; Steps in Research Process; Statement of Research Problem, Research Question and Research Hypothesis; Research Designs- Functions, Exploratory, Descriptive, Experimental; Experimental Research Designs-Pre-Experimental, Quasi-Experimental, True Experimental; Qualitative Versus Quantitative Research; Types of Qualitative Data Collection Techniques; Types of Measurement Scales; Questionnaire Development; Types of Attitudes Scales; Validity of Research Instruments-Face, Content, Criterion, and Construct Validity; Reliability of Research Instruments; Sources and Methods of Data Collection; Sampling- Benefits and Limitations, Types of Probability and Non-Probability Sampling Methods, Sampling Frame, Sample Size Determination, Sampling Errors; Data Analysis- Descriptive Statistics, Overview of Univariate, Bivariate and Multivariate Techniques, Parametric Vs. Non-Parametric Tests, Correlation Analysis, Multiple Regression, Selection of Appropriate Statistical Tools for Hypothesis Testing, Types of

Errors; Guidelines for Report-Writing; Research Ethics; Management Research-Epistemological and Ontological Perspectives.

Part B – Specific Subject i.e Management

Managerial Economics- Demand Analysis, Production Function, Cost-Output Relations, Market Structures, Pricing Decisions;

Management Processes and Organization Behaviour- Classical, Neo – Classical and Modern Theories of Management; Personality, Perception, Values, Attitudes, Learning, Employee Motivation, Leadership, Managing Conflicts;

Human Resource Management- Human Resource Planning, Job Analysis, Recruitment and Selection, Training and Development, Performance Appraisal; Financial Management – Valuation Concepts and Valuation of Securities, Capital Budgeting Decisions, Capital Structure and Cost of Capital, Dividend Policy, Long-Term and Short Term Financing;

Marketing Management- Marketing Philosophies, Marketing Environment, Consumer and Industrial Markets, Market Segmentation, Targeting and Positioning, Product Decisions, Pricing Strategies, Promotion Decisions, Distribution Decisions, Customer Relationship Management;

Information Systems-Business Value of Information Systems, IS Organization and Strategy, Principal Methodologies in Building Information Systems, Trends in Information Technology;

Operations Management- Product Development, Process Strategies, Facility Location and Layout, Capacity Strategies, Production Planning and Control, Lean Management, Total Quality Management;

Legal Aspects of Business- Formation of Contract and Essentials of a Contract, Company Law & Corporate Governance, Consumer Protection and Competition Law;

Strategic Management- Concept of Corporate Strategy, Strategic Management Process, Environmental Analysis, Porter's Generic Strategies, Strategies in Industry Evolution, Global Entry Strategies;

Entrepreneurship Development- Entrepreneurship and Economic Development, Economic and Non-Economic Factors affecting Entrepreneurial Growth, Entrepreneurial Development Programs, Entrepreneurial Opportunity Identification, Feasibility Analysis, Preparation of a Business Plan, Role of Support Institutions.

11.3.4. Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.4 University School of Environment Management

11.4.1. Additional Eligibility Criteria:

M.Sc. degree in any branch of basic or applied sciences /M.Tech in Engineering/Science/M.Phil in Sciences with 55% marks or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission after a 4-year/ 8-semester bachelor's degree programme in any branch of basic or applied sciences/ engineering should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed.

Graduation in Sciences/Engineering is mandatory.
In case of B.Voc in Science stream (10+2 in science is mandatory).

* Refer Common minimum eligibility criteria in admission brochure for relaxation in marks and other details.

11.4.2. Mode of Ph. D. Programme:

Full Time/ Part Time

11.4.3. Syllabus for Entrance Test:

Part A – Research Methodology

1. Environmental Statistics and Research Design

Statistics: Probability, Measures of central tendency and their attributes, Descriptive statistics and Measurement Scales, Control Chart, Confidence interval, estimation of Mean, Tests of Hypothesis, Normal probability distribution, Z test with known variance, Sample t test: Correlation and Linear regression.

Sampling Design: deliberate, simple random, systematic, stratified, quota and cluster sampling, method of selecting Sample size, location and time.

Research Design: probability/non-probability design, exploratory/Formulative research, informal/Formal Design.

2. Instrumentation in Environmental Studies

Principles of photometry, laws governing photometry (Beer's and Lambert's Law), basics of Colorimeter and Spectrophotometer, fundamentals of Chromatography, thin layer chromatography (TLC), Gas Chromatography (GC), HPLC, Flame Photometer, atomic absorption spectroscopy.

Principles of microscopy: microtomy, compound microscopy, Basic principles of Scanning Electron Microscopy (SEM), principle, methodology and applications of electrophoresis, Polymerase Chain Reaction (PCR), cryopreservation.;

3. Ecological Methods

Phyto-sociological studies: vegetational study through survey methods- frequency, density, abundance, cover and basal area, IVI, dispersion; species diversity assessment through quadrat

method, point centre quarter method, biodiversity assessment and indices-Shannon-Wiener index, Simpson's Diversity Index, alpha, beta and gamma diversity.

Assessment of forest vegetation- vegetation profile, canopy cover measurement, tree height and biomass assessment, tree carbon assessment, leaf area index (LAI).

Ethnobotanical and ethnobiological survey method, walk through transect method.

Assessment of ecological parameters of wetland ecosystem (physical, chemical biological)

Field Techniques in wildlife studies: line/belt transect, Quadrat sampling, point count, scan sampling, focal sampling, Ad libitum sampling, wildlife telemetry, remotely triggered camera trapping, avian acoustics, population estimation methods, mark-recapture for closed populations, distance based sampling.

Socio- Economic Survey methods, participatory rural appraisals (PRA) methods, valuation of ecosystem services- travel cost method, market Price Method, Surrogate Market Approaches, Hedonic Pricing, Contingent Valuation method.

4. Environmental Analytical Methods

Air analysis: Objectives of air quality monitoring, location of sampling stations, physical site factors, period, frequency and duration of sampling. common sampling procedures and equipment, respirable dust sampler, monitoring of SO2, West and Gaeke method, monitoring of NO2, Jacobs and Hochheiser method, methods of CO monitoring, infrared CO analyser.

Water analysis: aims and objectives of water pollution monitoring, suspended solids, hardness, turbidity, TDS, pH, Eh, dissolved oxygen, BOD and COD monitoring, oil and grease, metals and persistent organic pollutants.

Soil analysis: color, texture, bulk density, soil conductivity, soil analysis for available phosphorus, nitrogen potassium, sulphur and estimation of soil organic carbon.

5. Taxonomy and Biogeography

Field collection, equipments, preservation and identification techniques of aquatic and terrestrial plant groups; herbarium handling and data Information Systems; herbarium policies; major herbaria, Botanical Gardens and Zoological Gardens/Zoo of the World and their significance in taxonomic research. Collection and preservation of curating specimens of various animal groups. use of taxonomic literature; taxonomic keys; identification through websites/internet.

6. Environmental Microbial Technology

Sterilization Methods: heat sterilization, radiation, filtration and chemical sterilization, principles of autoclave and biosafety cabinet, disinfection.

Culture Media: types-complex and defined media, role of various components, differential and selective media, solid media.

Basic Microbial Techniques: streaking, spreading, slant preparation, colony forming units, MPN method for coliforms, Gram staining, aseptic techniques.

Basic features of bacteria, fungi and algae, bacteria growth curve.

Instruments for basic microbiological studies: incubator, Laminar Flow, autoclave centrifuge, incubator shaker.

7. Remote Sensing and GIS Techniques

Basics and Principles of Remote Sensing, Electromagnetic spectrum, spectral signature, remote sensing platforms, Digital image processing, Image characteristics and interpretation. Basics and Principles of GIS, GIS data model. Functions of raster and vector data models. Applications of Remote Sensing and GIS in environment, natural resources and disaster management.

Part B - Environmental Science (Subject Specific Test)

8. General Environment and Ecology

Scope and application of Environmental Science.

Ecological Factors: Concept of limiting factors. biotic and abiotic factors.

Population Ecology: Properties of population, growth models, demographic model, concept of carrying capacity.

Community Ecology: Community structure, types of interaction between species, concept of habitat, niche and guild.

Ecosystem: Concept, trophic structure, energy flow, nutrient cycling, ecological foot print. Ecological succession, ecosystem regulation, integrity and resilience, Urban ecosystem, Ecosystem services.

Concepts of landscape ecology and its elements; ecosystem restoration.

9. Natural Resources

Classification of natural resources, ecological, social and economic dimension of resource management.

Land resources: Land as a resource. types of soils, properties, formation and distribution, soil erosion, soil conservation; mineral resources-types and uses.

Forest resources: Major forest types and their characteristics, forest ecology, afforestation, regeneration, sustainable forest management, deforestation, non-timber forest products.

Water resources: Properties of lentic and lotic aquatic resources, conflicts over water, wetlands, rain water harvesting.

Energy resources: Conventional energy resources, fossil fuels and their classification, characteristics of coal, petroleum and natural gas, Nuclear fission and fusion nuclear reactors.

Non–conventional renewable energy sources: solar energy, wind energy, geo-thermal, hydropower generation, tidal and Ocean Thermal Energy Conversion (OTEC), hydrogen energy, biomass conversion technologies, gasification of biomass, biogas technology.

Food resources: World food scenario, Environmental impacts of modern agriculture, Fish and other aquatic resources.

10. Environmental Pollution

Air Pollution: air quality and emission standards, primary and secondary pollutants, Air Quality Index, Environmental and adiabatic lapse rates, temperature inversion and atmospheric stability, transport and diffusion of pollutants.

Stationery and mobile sources, air pollution control methods, photochemical smog, acid rain health impacts of air pollutants.

Noise pollution: Sources of noise exposure, noise standards and noise control measures.

Water Pollution: Sources and impacts of water pollution, water quality standards, physcio-chemical and bacteriological characteristics of water, eutrophication, ground and surface water pollution, thermal pollution of water; water and wastewater treatment technologies.

Soil Pollution: Soil contaminants and Bioremediation of contaminated soils, soil salinity, bioreclamation of degraded soils.

11. Biodiversity and Conservation

Biodiversity –definition, levels and types; scope of biodiversity science, genetic diversity, species diversity, ecosystem diversity, landscape diversity, agro-biodiversity, bio-cultural diversity and urban biodiversity

History of the earth and biodiversity patterns through geological times, speciation, current centers of biodiversity, biodiversity hotspots in India and world

Value of Biodiversity: direct and indirect value of biodiversity, ecotourism, biodiversity and religion

Flora and Fauna of India

Threats to biodiversity: habitat destruction, fragmentation, transformation, degradation and loss of land and aquatic systems

Invasive species and biological impacts of invasive species on terrestrial and aquatic systems

Extinction and biological crisis; IUCN threatened categories.

Conservation strategies: principles and network of protected Areas, establishment and need for comprehensive, threats to protected areas; community conserved Areas (CCAs), in-situ and ex-situ conservation.

12. Taxonomy, Biosystematics and Evolution

Introduction and Basic principles of taxonomy (identification, description and nomenclature) and systematic, significance of systematics, The International Code of Nomenclature (ICBN/ICN). The International Code of Nomenclature of Bacteria (ICNB) or bacteriological Code (BC), phylogenetic Code of Classification (Phylocode), introduction to phenetic methods (Taxometrics), Phylogenetic Methods (Cladistics), molecular systematic, Major systems of classification of plants, animals and microbes

Origin and Evolution of Species, Taxonomy in the implementation of the Convention on Biological Diversity (CBD), Global Strategy for Plant Conservation (GSPC), Global Taxonomic Initiative (GTI), National Biodiversity Strategy Action Plan (NBSAP), Global Biodiversity Information Facility (GBIF), Sustainable Development Goals (SDG's).

Introduction to Biogeography; types of Biogeography their aim and scope; physical geography of earth, phytochoria (biomes, realms), Phytogeographic regions of India.

13. Environment Policy, Conventions, Law and Environmental Impact Assessment

Constitutional provisions for environment protection in India (Article 48A, 58A); Wildlife Protection Act, 1972; Forest Conservation Act (Revised), 1982; Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 as , amended 1987, Environment Protection Act, 1986; Motor Vehicle Act, 1988.

Hazardous Waste (Management and Handling) Rules, 1989; Biomedical Waste (Management and Handling) Rules, 1998, Green Tribunal Act 2010; Solid Waste (Management & Handling rules), 2000, Coastal Regulation Zone (CRZ), Wetland Regulation Rules, 2010)

Stockholm Conference 1972, Rio Declarations-Agenda 21, CITES, Montreal Protocol, Kyoto Protocol, Convention on Biological Diversity (CBD), Ramsar Convention, 1971.

Environmental Impact Assessment: definition, objectives, principles and types of EIA, Strategic Environmental Assessment (SEA), EIA methodology, environment auditing, EMS & ISO 14000, environment management plan.

14. Environmental Geosciences and Natural Disaster Management

Lithosphere, hydrosphere and atmosphere; internal structure of the earth, rock types, and soil loss equations

Renewable and non-renewable mineral resources and their distribution in India; ocean as a source of mineral resources.

Hydrological cycle and its components, watershed and its management, Geological work of air, river, glacier and ground water.

Climate of India: western disturbance, Indian monsoon, El Nino, La Nina.

Disaster Management: environmental hazards, causes and types, floods, landslides, earthquake, volcano, cyclones, tsunami, drought, forest fires and avalanche; Hyogo and Senedai Frameworks, Indian Agencies in Disaster Management, DM Act, 2005; Disaster Management Policy 2009.

15. Environment Education and Awareness

Need for Environmental education and awareness, Environmental ethics, Environment days and their significance, Environmental movements of India, Global Environmental issues, ozone depletion, global warming and climate change, Paris Agreement, sustainable development UNEP programmes toward sustainable development, Sustainable Development Goals, 2030.

Important Environmental missions of Govt. of India.

Environmental health issues and prevention.

11.4.4. Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.5 University School of Basic & Applied Sciences

11.5.1. Additional Eligibility Criteria :

Candidates for admission to the Ph.D. programme shall have successfully completed:
1. A 1-year/2-semester Master's degree programme (after 4 year undergraduate degree) with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 10- point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of educational institutions.

2. A 2-year/4-semester Master’s degree programme, with the same conditions as in clause 1 above.

3. A candidate seeking admission after a 4-year/8-semester Bachelor's degree with Research should have a minimum ~~CGPA of 7.5/10~~ 75% marks in aggregate or its equivalent grade on a point scale wherever grading system is followed.

11.5.2. Mode of Ph. D. Programme :

Full Time

11.5.3. Syllabus for Entrance Test :

Part A – Research Methodology (Physics)

Unit-I: Research Ethics: Research honesty and integrity, authorship, acknowledgment and citations, funding agencies and sponsorship, sources of data, sensitive materials and safety, patents & copyright, confidentiality and privacy, animal and human rights, environmental laws, scientific misconduct - fabrication of data and misrepresentation, plagiarism.

Unit II Experimental Techniques: High Vacuum: Diffusion Pump, Turbo Molecular Pump, and Gauges for measuring high vacuum, Preparation of Materials: Crystal Growth, Amorphous materials, Nanomaterials, Polymers, Thin films, Device Fabrication: Oxidation, Diffusion, Ion Implantation, Metallization, Lithography and Etching, Bipolar and MOS device fabrication, Characterization Techniques: XRD, AFM, TEM, SEM, UV-VIS, micro-Raman, Luminescence, Ellipsometry, NMR

Unit III Numerical and Computational techniques: Numerical solutions of differential equations - Euler's method, Runge-Kutta method, Numerical integration: Rectangular method, Simpson's rule, Root finding

Part B - Physics (Subject Specific Test)

Unit-I. Classical Mechanics: Rigid body dynamics, moment of inertia tensor, Non- inertial frames and pseudoforces, Small oscillations, normal modes, Variational principle, Generalized coordinates, Lagrangian and Hamiltonian formalism and equations of motion, phase space dynamics.

Unit-II Quantum Mechanics: Schrődinger equation (time-dependent and time-independent), Hydrogen atom, Eigen value problems (particle in a box, harmonic oscillator in 3D, etc.). Tunneling through a barrier. Time independent perturbation theory and applications, WKB approximation

Unit-III Electrodynamics: Electric fields, potentials, Maxwell's equations in free space and linear isotropic media, boundary conditions on the fields at interfaces, Dynamics of charged particles in static and uniform electromagnetic fields, Electromagnetic waves. Radiation from moving charges and dipoles and retarded potentials.

Unit-IV Thermodynamic and Statistical Physics: Phase space, micro- and macro-states, Micro-canonical, canonical and grand-canonical ensembles and partition functions, thermodynamical functions, Classical and quantum statistics, Ideal Bose and Fermi gases, Bose-Einstein condensation.

Unit-V Mathematical Physics: Vector calculus, Special functions and applications (Hermite, Bessel, Laguerre and Legendre functions). Fourier series, Fourier and Laplace transforms. Elements of

complex analysis, analytic functions, Partial differential equations (Laplace, wave and heat equations in two and three dimensions).

Unit VI Electronics and Experimental methods: Semiconductor devices, diodes, junctions, Field effect devices, Opto-electronic devices. Operational amplifiers and their applications. Digital techniques and applications. Microprocessors and Microcontrollers.

Unit-VII Atomic & Molecular Physics: Quantum states of an electron in an atom, Spectrum of Helium and alkali atoms, hyperfine structure and isotope shift, width of spectrum lines, LS and jj coupling, Zeeman, Electronic, rotational, vibrational and Raman spectra of diatomic molecules, selection rules, Basic physics of Lasers.

Unit VIII Condensed Matter Physics: Bravais lattices, Reciprocal lattice, Diffraction, Structure factor, phonons, lattice specific heat, Free electron theory and electronic specific heat, Drude model of electrical and thermal conductivity, Electron motion in a periodic potential, band theory of solids: metals, insulators and semiconductors, Superconductivity.

Part A – Research Methodology (Chemistry)

Unit-I: Types of data, description of data, frequency distributions, bar, pie charts, graphs, mean, median, mode, standard deviation, error bars, dependent and independent variables, discrete and continuous random variables, probability, sample space, outliers, statistical inference, standard normal distribution, statistical significance, chi square test, comparing data, correlations, curve fitting.

Unit-II: Research Ethics: Research honesty and integrity, authorship, acknowledgment and citations, funding agencies and sponsorship, sources of data, sensitive materials and safety, patents & copyright, confidentiality and privacy, animal and human rights, environmental laws, scientific misconduct-fabrication of data and misrepresentation, plagiarism.

Unit-III: Separation and Characterization techniques: Problems relating to structural analysis of chemical compounds and materials using, IR, UV-VIS, NMR, ESR, Mass spectroscopy, SEM-EDX, TEM and XRD (Powder and single crystal); Chromatographic techniques: GC-MS, LC-MS; Thermal analysis (TGA, DTA, DSC).

Unit-IV: Chemical Safety and Ethical Handling of Chemicals: Safe working procedure and protective environment, protective apparel. laboratory ventilation. Safe storage and use of hazardous chemicals, procedure for working with substances that pose hazards, flammable or explosive hazards, safe storage and disposal of waste chemicals, recovery, recycling and reuse of laboratory chemicals.

Part B – Chemistry (Subject Specific Test)

Organic Chemistry

1. IUPAC nomenclature of organic molecules including regio- and stereoisomers.
2. Principles of stereochcmistry: Configurational and conformational isomerism in acyclic and cyclic compounds: stereogenicity, stereoselectivity, enantioselectivity. diastereoselectivity and asymmetric induction.
3. Aromaticity: Benzenoid and non-benzenoid compounds — generation and reactions.

4. Organic reactive intermediates: Generation, stability and reactivity of carbocations, carbanions, free radicals. carbenes, benzynes and nitrenes.
5. Organic reaction mechanisms involving addition, elimination and substitution reactions with electrophilic, nucleophilic or radical species. Determination of reaction pathways.
6. Common named reactions and rearrangements - applications in organic synthesis
7. Chemistry of natural products: Carbohydrates, proteins, fatty acids, nucleic acids.

Inorganic Chemistry

1. Chemical periodicity
2. Structure and bonding in homo- and heteronuclear molecules, including shapes of molecules (VSEPR Theory).
3. Concepts of acids and bases. Hard-Soft acid base concept. Non-aqueous solvents.
4. Main group elements and their compounds: Allotropy. synthesis. Structure and bonding. Industrial importance of the compounds.
5. Transition elements and coordination compounds: structure, bonding theories, spectral and magnetic properties, reaction mechanisms.
6. Organometallic compounds: synthesis, bonding and structure. and reactivity. Organometallics in homogeneous catalysis.
7. Nuclear chemistry: nuclear reactions. fission and fusion.

Physical Chemistry

1. Atomic structure and Chemical bonding in diatomics: elementary concepts of MO and VB theories. Hückel theory for conjugated π-electron systems.

2. Chemical applications of group theory: symmetry elements point groups: character tables; selection rules. Molecular spectroscopy Rotational and vibrational spectra of diatomic molecules, electronic spectra, IR and Raman activities - selection rules; basic principles of nuclear magnetic resonance.

3. Chemical Thermodynamics: Laws, state and path functions & their applications; thermodynamic description of various types of processes, Maxwell's relations; spontaneity and equilibria; temperature and pressure dependence of thermodynamic quantities; Le Chatelier's principle.

4. Electrochemistry: Nernst equation, redox systems, electrochemical cells: Debye Hückel theory: electrolytic conductance - Kohlrausch's law and its applications; ionic equilibrium: conductometric and potentiometric titrations.

5. Chemical Kinetics: Empirical rate laws and temperature dependence; complex reactions: steady state approximation; determination of reaction mechanisms; collision and transition state theories of rate constants; unimolecular reactions; enzyme kinetics; salt effects; homogeneous & heterogeneous catalysis; photochemical reactions.

6. Solid State: Crystal structures; Bragg's law & its applications; band structure of solids.

7. Polymer Chemistry: Molar masses; kinetics of polymerization.

Part A - Research Methodology (Mathematics)

Unit-1: Basic quantitative concepts and techniques
Types of data, description of data, frequency distributions, bar, pie charts, graphs, mean, median, mode, standard deviation, error bars, dependent and independent variables, discrete and continuous random variables, probability, sample space, outliers, statistical inference, standard normal distribution, statistical significance, chi square test, comparing data, correlations, curve fitting'

This part shall contain questions-pertaining to General Aptitude with emphasis on logical reasoning, graphical analysis, analytical and numerical ability, quantitative comparison, series formation, puzzles etc.

Part B – Mathematics (Subject Specific Test)

Linear Algebra: Finite dimensional vector spaces, Linear transformations and their matrix representations, rank, systems of linear equations, eigen values and eigen vectors, minimal polynomial, Cayley-Hamilton Theorem, diagonalization, Hermitian, Skew-Herrnitian and Unitary matrices, Finite dimensional inner product spaces.

Complex Analysis: Analytic functions. conformal mappings, bilinear transformations, complex integration, Cauchy's integral theorem and formula, Liouville's theorem, maximum modulus principle, Taylor and Laurent's series, residue theorem and applications for evaluating real integrals, transcendental functions like trigonometric, exponential and hyperbolic.

Real Analysis: Sequences and series of functions, uniform convergence, power series, Fourier series, functions of several variables, maxima, minima. Riemann' integrations, multiple integrals, line, surface and volume integrals, Green's, Stokes and Gauss theorem, metric spaces, completeness, Weirstrass approximation theorem, compactness, Lebesgue measure, measurable functions, Lebesgue integral, Fatou's lemma dominated convergence theorem, Limit, continuity, Derivative, Partial Derivative.

Ordinary Differential Equations: First order ordinary differential equations, existences and uniqueness theorems, system of linear first order ordinary differential, equations, linear ordinary differential equations of higher order with constant coefficients, linear second order ordinary differential equations with variable coefficients, method of Laplace transformations for solving ordinary differential equations, series solutions, Legendre polynomial and Bessel functions with their properties.

Algebra: Normal subgroups and homomorphism theorems, automorphisms, Group actions, Sylow's theorems and their applications, Euclidean domains, Principle ideal domains and unique factorization domains Prime ideals and maximal ideals in commutative rings, Fields, finite fields.
Functional Analysis: Banach spaces, Hahn-Banach extension theorem, open mapping and closed graph theorems, principle of uniform boundedness, Hilbert spaces, orthonormal bases, Riesz representation theorem, bounded linear operators.

Numerical Analysis: Numerical solutions of algebraic and transcendental equations: bisection, secant method, Newton-Raphson method, fixed point iteration, interpolation, error of polynomial interpolations, Lagrange, Newton interpolations, numerical differentiation, numerical integration, Trapezoidal and Simpson rules, Gauss Legendre quadrature, method of undetermined parameters, least square polynomial approximation, numerical solutions of systems of linear equations, direct methods (Gauss eliminations, LU decomposition), iterative methods (Jacobi and Gauss-Seidel), matrix eigen value problems, power method, numerical solution of ordinary differential equations, initial value problems. Taylor series methods, Euler's method, Runge-Kutta methods.

Partial Differential Equations: Linear and quasilinear first order partial differential equations, method of characteristics, second order linear equations in two variables and their classifications, Cauchy, Dirichlet and Neumann problems, solutions of Laplace, wave and diffusion equations in two variables, Fourier transform, Laplace transform.

Mechanics: Generalized coordinates, Lagrange's equations, Hamiltonian canonical equations, Hamilton's principle and principle of least action, Two Dimensional motion of rigid bodies, Euler's dynamical equations for the motion of rigid body about an axis, Theory of small oscillations, Virtual work and moment of inertia.

Probability and Statistics: Probability space, conditional probability, Baye's theorem, independence, Random variables, joint and conditional distributions, standard probability distributions and their properties, expectations, conditional expectation, moments, Weak and Strong law of large numbers, central limit theorem, Sampling distributions, Testing of hypotheses, standard parametric tests based on normal, chi-square, t, F-distributions, Linear regression, interval estimation.

Linear programming: Linear programming problem and its formulation, convex sets and their properties, graphical method, basic feasible solution, simplex method,big-M and two phase methods, infeasible and unbounded solution, alternate optima, Dual problem and duality theorems, dual simplex method and its application in post optimality analysis, Balanced and unbalanced transportation problems, different methods for solving transportation problems, assignment problems, Sensitivity Analysis.

NB: The syllabus for Part-A is as defined by UGC/CSIR-NET for general aptitude paper Part A.

11.5.3. Slots :

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.6 University School of Humanities & Social Sciences

11.6.1. Mode of Ph. D. Programme (Ph.D. English):

Full Time/Part Time

11.6.2. Eligibility (Ph.D. English)

1.1 Candidates seeking admission to Ph.D. in English should have completed 1-year/2-semester MA in English after 4-year/8-semester bachelor's degree programme, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission to Ph.D. in English should have completed 2-year/4-semester MA in English after 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission to Ph.D. in English after a 4-year/8-semester bachelor's degree programme should have major in English at the UG level with a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed.

OR

Candidates possessing an M.Phil. in English or a degree considered equivalent to M.Phil. degree of an Indian institution, from a foreign educational institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. programme.

OR

Candidates who have an equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution shall be eligible for admission to Ph.D. programme.

1.2. A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, shall be allowed for those belonging to SC/ST/OBC (Non-Creamy layer)/differently abled (PWD)/EWS and other Categories as per the direction of the Commission from time to time.

11.6.3 *Admission Procedure:*

2.1 The admission to the Ph.D. in English will be done through an Entrance Test (PET) to be conducted by the University or any designated agency to be followed by a personal interaction/interview, as per the University norms.

2.2 Those candidates, who have qualified UGC-NET (category I, II and III)/GATE in English shall be exempt from the written entrance test (PET) to be conducted by the University for Admission to the Ph.D. programme. However, they shall have to apply for admission to the University. All other candidates should appear for the written entrance test (PET).

2.3 There is no exemption from the Ph.D. Entrance Test (PET) for candidates with M.Phil.

2.4 Those who qualify the PET (MCQ) or seek admissions through UGC-NET/GATE will be called for personal interaction/interview for the second stage of admission. This stage may also have a written component**.**

11.6.4 *Syllabus for Entrance Test*: (Ph.D. English)

This is a test to evaluate, appraise and assess the general understanding and comprehension of the students for research. The paper shall consist of 100 multiple-choice questions out of which 50% will be from Research methodology and 50% from subject-specific components.

The syllabus for the test is divided into two parts viz. Part A & Part B as elucidated below:

Part –A Research Methodology (English)

1. Practical Criticism
2. Literary Theory and its Application

Part –B English

a. Indian English Literature
b. Indian Literatures in English Translation
c. British Literature
d. American Literature
e. World Literatures in English and English Translation
f. Literary Criticism and Theory
g. Cultural Studies

h. Film Studies
i. Indian Drama & Theatre

11.6.5. *Mode of Ph. D. Programme Ph.D. (Economics)*:

Full Time/Part Time

1. Eligibility Criteria & Admission Procedure:

1.1 Candidates seeking admission to the Ph.D. in Economics should have completed 1-year/2-semester MA in Economics or any field of Social Sciences or any other related area, provided that the candidate has studied Economics as a subject at the undergraduate or postgraduate level after 4-year/8-semester bachelor's degree programme, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission to the Ph.D. in Economics should have completed 2-year/4-semester MA in Economics or any field of Social Sciences or any other related area, provided that the candidate has studied Economics as a subject at the undergraduate or postgraduate level after 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

OR

Candidates seeking admission to Ph.D. in Economics after a 4-year/8-semester bachelor's degree programme should have done major in Economics at the UG level with a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed.

OR

Candidates possessing an M.Phil. degree or a degree considered equivalent to M.Phil. degree of an Indian institution, from a foreign educational institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. programme, provided that the candidate has studied Economics as a subject at the undergraduate or postgraduate level.

OR

Candidates who have an equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution shall be eligible for admission to Ph.D. programme.

1.2. A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, shall be allowed for those belonging to SC/ST/OBC (Non-Creamy layer)/differently abled (PWD)/EWS and other Categories as per the direction of the Commission from time to time.

11.6.6 Admission Procedure:

2.1 The admission to Ph.D. in Economics will be done through an Entrance Test (PET) conducted by the University or any designated agency by the University to be followed by a personal interaction/interview, as per the University norms.

2.2 Those students, who have qualified UGC-NET (category I, II and IIII)/GATE in Economics shall be exempt from the written entrance test conducted by the University for Admission to the Ph.D. programme. However, they shall have to apply for admission to the University. All other candidates should appear for the written Entrance test (PET).

2.3 There is no exemption from the Ph.D. Entrance Test (PET) for candidates with M.Phil.

2.4 Those who qualify the PET (MCQ) or seek admissions through UGC-NET/GATE will be called for personal interaction/interview for the second stage of admission. This stage may also have a written component**.**

Syllabus for Entrance Test: Ph.D. (Economics)

This is a test to evaluate, appraise and assess the general understanding and comprehension of the students for research. The paper shall consist of 100 multiple-choice questions out of which 50% will be from Research methodology and 50% from subject-specific components.

The syllabus for the test is divided in two parts viz. Part A & Part B as elucidated below:

1. **Part- A Economics (Subject Specific Test):**
   Applied Micro Economics, Applied Macro Economics, Econometrics, Statistics, Mathematics, Public Finance, Indian Economy, Game Theory, Law and Economics, Health Economics, Financial Economics, Industrial Economics, Behavioural Economics, Management Economics, History of Economic Thought, Environmental Economics

2. **Part – B Research Methodology (Economics):** Research Methodology

   This part shall contain MCQ questions with emphasis on economic concepts, economic theories, derivations, graphical analysis, analytical and numerical ability, quantitative and qualitative analysis etc.

Note: Those who qualify the written Multiple-Choice Questions (MCQ) examination will be called for personal interaction/interview for the second stage of admission. This stage may also have a written component**.**

11.6.7. *Slots*

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.7 University School of Law & Legal Studies

11.7.1. Additional Eligibility Criteria:

LL.M. 2 years/1 year from an Indian/Foreign University recognized as per clause 1 of admission brochure.

11.7.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.7.3. Syllabus for Entrance Test:

This is a test to evaluate, appraise and assess general understanding and comprehension of the students as to Research and Law. The paper shall consist of 100 multiple choice questions out of which 50% will be from Research methodology (more inclination towards legal research) & 50% from Law which is inclusive of recent trends covering core and main stay areas like Constitutional law, Jurisprudence, Intellectual Property Rights, Corporate law, Criminal law etc.

The syllabus for the test is divided in two parts viz. Part A & Part B as elucidated below:

PART – A – Research Methodology

Part A is designed to assess knowledge of the students in area of Research specifically legal Research

Research Methodology and Legal Research: meaning, types, nature, objectives characteristics, Steps involved, tools and techniques for data collection, data interpretation and processing, qualitative and quantitative research, Ethical issues involved, analysis of current trends in legal research, diminishing ethical standards in legal research, inter disciplinary research etc

PART – B – Law (Subject Specific Test)

Part-B is designed to evaluate and examine subject specific knowledge of the candidate in Law:

1. Constitutional Law of India
(a) Preamble
(b) Fundamental Rights and Duties
(c) Directive Principles of State Policy
(d) Parliament
(e) Judiciary
(f) Emergency Provisions
(g) Amendment of the Constitution
(h) Writ Jurisdiction etc.

2. Jurisprudence
(a) Schools
(b) Sources
(c) Personality
(d) Rights & Duties
(e) Concepts of Possession and Ownership
(f) Principles of Liability etc.

3. Other Areas in Law and Contemporary issues :
(Other areas would include, corporate laws, criminal law, IPR, IT/Cyber Laws, personal laws and legal issues of contemporary importance)

11.7.4. Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.8 University School of Mass Communication

11.8.1. Additional Eligibility Criteria :

Candidates for admission to the Ph. D. Programme shall have a Master's Degree in Journalism/Mass Communication or related field or discipline or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7 –point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational Institution accredited

by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions.

11.8.2. Mode of Ph. D. Programme :

Full Time / Part Time

11.8.3. Syllabus for Entrance Test:

Part – A Research Methodology

Research: Definition;; Characteristics of Scientific Method; Facts, Trends, Perspectives & Ideology; Information, Knowledge & Customized Knowledge.

Mass Communication Research (MCR): Definition and Need; MCR & Scientific Method

Types of Research: Pure & Applied; Descriptive, Correlative, Explanatory & Exploratory; Qualitative & Quantitative.

Approaches to MCR: Social Science Approach & Critical Theory Approach; Critical Theory; Role of theory in Research.

Evolution of MCR-I: Critical Studies (Chicago School & Frankfurt School) ; Early Content Studies (Gatekeeping, Social Influences, Reporting-Sources Relationship).

Evolution of MCR-II: Powerful Effects (Magic Bullet), Limited Effects, Moderate Effects (Knowledge Gap, Newsgathering/News net), Political Effects (Agenda –setting, Spiral of Silence), Individual Effects (Cultivation Research, Dependency Theory), Contingent Effects; Uses & Gratification Research

.

Quantitative & Qualitative Research Methods: Participant Observation, Content Analysis, Textual Analysis, In-depth Interviews, Focus-group Discussion, Case Studies, Ethnography, Historical Analysis , Discourse Analysis, Experiments, Causation and Survey Method..

Variables: Definition; Types of variables & Types of Measurement Scales.

Sampling: Definition of population & Sample, Probability & Non-probability Sampling, Sample size & Sampling Errors.

Statistical Tools: Frequency distribution, Cumulative Frequency, Histogram/Bar Chart, Frequency Polygon, Frequency Curve, Normal Curve, Skewness, Mean, Median, Mode, Dispersion, Range, Variance, Standard Deviation; Tests of Significance, T-test, ANOVA, Chi-Square test, Z-Test, F-test.

Research Ethics: Theories & Principles; Plagiarism; Intellectual Property Rights.

Part – B Mass Communication (Subject Specific Test)

Communication & Mass Communication: Process, Models, Theories, Nature, Types, Media & Society, Media and Development, Media Effect Studies.

Print Journalism History of journalism in India and World, , Function in society, Role & Responsibility, Ethics, Media Laws, Careers, Function of various professionals in journalism, Self Regulation, Professional Organisations,, Press Commission, Press Council, RNI, IFWJ, NUJ, INS, PTI, UNI etc. News Agencies of world, ABC, Language Newspapers, Print production- lay out , design, use of software in production. Specialized areas in Journalism, writing for print, magazines, news agency journalism.

Broadcast Journalism(Radio & TV): Origin and growth of Radio and Television in world and India, Committees in broadcasting, Prasar Bharti, IBF, NBA, Broadcast Editors Association, SITE, Radio/TV broadcasting and development, broadcast journalism writing for Radio and Television, Public Service Broadcasting, Digital Broadcasting. Grammar of TV & Radio, Production team- role and responsibility, Program formats for Radio and Television, Writing for Radio and Television, Camera, Light, Composition, Visual Language, Cues and commands, Sound, Microphone, sets, use of software in radio/ TV production.

Development Communication Concept, Dominant Paradigms, Alternative theories, Approaches, Development Support Communication, Sustainable Development, Participatory approach. Communication and Development, Community media and alternative voices.
Integrated Marketing Communications (IMC) : Definitions and scope of IMC, Evolution of Advertising and Public Relations, Brand Management, , Advertising and PR Agencies Account Planning, Copywriting for Print Radio,TV and Web, Media Planning, Tools & Technique of PR, Theories in advertising and public relations. Advertising & Society., Effects of advertising, Advertising and youth, women, children, Ethics in Advertising, advertising literacy, Social Marketing, AI in Advertising & PR, ASCI, PRSI, IPRA.

Cinema : History of Cinema- World and India, Grammar of Cinema, Theories, Process of production, Professions in Cinema.

Media Organisation and Management Media Management, Ownership pattern, Organisational structure of Print, Broadcast media houses, Cinema and TV production houses, Advertising and PR agencies, Issues in media economics, Ethics, Regulation, Influence of Market, Political, Social forces and impact of national and world economy, mergers and acquisitions, Media policy & Governance.

Digital Media: Platformization of the digital sphere, digital economy and marketplace of ideas, Convergence and writing for digital media, Digital audio-visuals, podcasting, vodcasting, Digital futures, AI and VR, Data Journalism.

11.8.4. Slots :

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2025-26.

Broadcast Journalism(Radio & TV): Origin and growth of Radio and Television in world and India, Committees in broadcasting, Prasar Bharti, IBF, NBA, Broadcast Editors Association, SITE, Radio/TV broadcasting and development, broadcast journalism writing for Radio and Television, Public Service Broadcasting, Digital Broadcasting. Grammar of TV & Radio, Production team- role and responsibility, Program formats for Radio and Television, Writing for Radio and Television, Camera, Light, Composition, Visual Language, Cues and commands, Sound, Microphone, sets, use of softwarein radio/ TV production.

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Integrated Marketing Communications (IMC) : Definitions and scope of IMC, Evolution of Advertising and Public Relations, Brand Management, , Advertising and PR Agencies Account Planning, Copywriting for Print Radio,TV and Web, Media Planning, Tools & Technique of PR, Theories in advertising and public relations. Advertising & Society., Effects of advertising, Advertising and youth, women, children, Ethics in Advertising, advertising literacy, Social Marketing, AI in Advertising & PR, , ASCI, PRSI, IPRA,

Cinema : History of Cinema- World and India, Grammar of Cinema, Theories, Process of production, Professions in Cinema.

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Digital Media: Platformization of the digital sphere, digital economy and marketplace of ideas, Convergence and writing for digital media, Digital audio-visuals, podcasting, vodcasting, Digital futures, AI and VR, Data Journalism.

11.8.4. Slots :

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.9 University School of Information, Communication & Technology

11.9.1. Additional Eligibility Criteria :

S. No.	Ph.D. Discipline offered	Eligibility/Interview Criteria
1.	Computer Science & Engineering	**Eligibility Criteria:** M.Tech. (CSE or equivalent) with 60% marks/7 CGPA on a 10point scale; OR 4 year B.Tech. in CSE or equivalent with 75% marks in aggregate or its equivalent grade **Interview selection Criteria* (Atleast any one of the following)** 1. Qualified in PET 2. Qualified and Valid GATE Score in Computer Science & Information Technology 3. Valid UGC JRF in Computer Science & Application (Category 1) (Exempt from PET) 4. Qualified and Valid UGC – NET Score in Computer Science & Application (Category 2) ** (Exempt from PET) 5. Qualified and Valid UGC – NET Score in Computer Science & Application (Category 3) ** (Exempt from PET)
2.	Information Technology	**Eligibility Criteria:** M.Tech. (IT or equivalent) with 60% marks/7 CGPA on a 10point scale; OR 4 year B.Tech. in IT or equivalent with 75% marks in aggregate or its equivalent grade **Interview Criteria* (At least any one of the following)** 1. Qualified in PET 2. Qualified and Valid GATE Score in Computer Science & Information Technology 3. Valid UGC JRF in Computer Science & Application (Category 1) (Exempt from PET) 4. Qualified and Valid UGC – NET Score in Computer Science & Application (Category 2) ** (Exempt from

		PET) 5. Qualified and Valid UGC – NET Score in Computer Science & Application (Category 3) ** (Exempt from PET)
3.	Computer Application	**Eligibility Criteria:** MCA with 60% marks/7 CGPA on a 10 point scale **Interview Criteria* (At least any one of the following)** 1. Qualified in PET 2. Qualified and Valid GATE Score in Computer Science & Information Technology 3. Valid UGC JRF in Computer Science & Application (Category 1) (Exempt from PET) 4. Qualified and Valid UGC – NET Score in Computer Science & Application (Category 2) ** (Exempt from PET) 5. Qualified and Valid UGC – NET Score in Computer Science & Application (Category 3) ** (Exempt from PET)
4.	Electronics & Communication Engineering	**Eligibility Criteria:** M.Tech. (ECE or equivalent) with 60% marks/7 CGPA on a 10point scale; OR 4 year B.Tech in ECE or equivalent with 75% marks in aggregate or its equivalent grade **Interview Criteria* (At least any one of the following)** 1. Qualified in PET 2. Qualified and Valid GATE Score in Electronics & Communication Engineering 3. Valid UGC JRF in Electronic Science (Category 1) (Exempt from PET) 4. Qualified and Valid UGC – NET Score in Electronic Science (Category 2) ** (Exempt from PET) 5. Qualified and Valid UGC – NET Score in Electronic Science (Category 3) ** (Exempt from PET)
5.	Mechanical & Automation Engineering	M.Tech. in Mechanical Engineering/Production Engineering/Design Engineering/Thermal Engineering/Tool Engineering/Robotics & Automation Engineering/ Robotics & AI Engineering/AI & Robotics Engineering or equivalent with 60% marks/7 CGPA on a 10point scale; OR 4 year B.Tech in MAE or equivalent with 75% marks in aggregate or its equivalent grade **Interview Criteria* (At least any one of the following)** 1. Qualified in PET 2.Qualified and Valid GATE Score in any of the eligible Engineering discipline.

**** The candidate must fulfil at least one of the enumerated criterion to be called for the interview as a part of the selection process for Ph.D. admissions.***

***** As per UGC NET guidelines for Category 2 and Category 3:*** *"For admission to Ph.D., the marks obtained in the NET by the candidates in category-2 and category-3 will be valid for a period of one year from the date of declaration of the result of UGC-NET."*

Note:

1. *Equivalent discipline for 4 year B.Tech and/or M.Tech shall be decided as specified in the AICTE Process handbook*

2. *In case of candidate having M.Tech (Robotics & Automation Engineering/ Robotics & AI Engineering) degree, candidate can qualify GATE examination based on his/her B.Tech degree discipline.*

11.9.2. Mode of Ph. D. Programme :

Full Time / Part Time

11.9.3. Syllabus for Entrance Test :

Part-A Research Methodology (Common to CSE/IT/CA, ECE & MAE discipline)

Linear Algebra: Matrices, determinants, system of linear equations, eigenvalues and eigenvectors, LU decomposition.
Calculus: Limits, continuity and differentiability, Maxima and minima, Mean value theorem, Integration.

Probability and Statistics: Random variables, Uniform, normal, exponential, Poisson and binomial distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.

Part – B CSE/IT/CA (Subject Specific Test)

Digital Logic
Boolean algebra. Combinational and sequential circuits. Minimization. Number representations and computer arithmetic (fixed and floating point).
Computer Organization and Architecture
Machine instructions and addressing modes. ALU, data-path and control unit. Instruction pipelining. Pipeline hazards. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).
Programming and Data Structures
Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.
Algorithms
Searching, sorting, hashing. Asymptotic worst-case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide-and-conquer. Graph traversals, minimum spanning trees, shortest paths.
Theory of Computation
Regular expressions and finite automata. Context-free grammars and push-down automata. Regular and context-free languages, pumping lemma. Turing machines and undecidability.
Compiler Design
Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation. Local optimisation, Data flow analyses: constant propagation, liveness analysis, common subexpression elimination.
Operating System
System calls, processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU and I/O scheduling. Memory management and virtual memory. File systems.
Databases

ER-model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control.

Computer Networks

Concept of layering: OSI and TCP/IP Protocol Stacks; Basics of packet, circuit and virtual circuit switching; Data link layer: framing, error detection, Medium Access Control, Ethernet bridging; Routing protocols: shortest path, flooding, distance vector and link state routing; Fragmentation and IP addressing, IPv4, CIDR notation, Basics of IP support protocols (ARP, DHCP, ICMP),Network Address Translation (NAT); Transport layer: flow control and congestion control, UDP,TCP, sockets; Application layer protocols: DNS, SMTP, HTTP, FTP, Email.

Part – B - Electronics & Communication Engineering (Subject Specific Test)

Networks, Signals and Systems

Circuit Analysis: Node and mesh analysis, superposition, Thevenin's theorem, Norton's theorem, reciprocity. Sinusoidal steady state analysis: phasors, complex power, maximum power transfer. Time and frequency domain analysis of linear circuits: RL, RC and RLC circuits, solution of network equations using Laplace transform. Linear 2-port network parameters, wye-delta transformation.

Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem and applications; Discrete-time Signals: DTFT, DFT, z-transform, discrete-time processing of continuous-time signals. LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeroes, frequency response, group delay, phase delay.

Electronic Devices

Energy bands in intrinsic and extrinsic silicon; equilibrium carrier concentration, direct and indirect band-gap semiconductors. Carrier transport: diffusion current, drift current, mobility and resistivity; Generation and recombination of carriers; Poisson and continuity equations; P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell;

Analog Circuits

Diode circuits: clipping, clamping and rectifiers; BJT and MOSFET amplifiers: biasing, ac coupling, small signal analysis, frequency response. Current Mirrors &differential amplifiers; Op-amp Circuits: Amplifiers, summers, differentiators, integrators, active filters, Schmitt triggers and oscillators.

Digital Circuits

Number Representations: binary, integer and floating-point- numbers. Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates and their static CMOS implementations, arithmetic circuits, code converters, multiplexers, decoders. Sequential Circuits: latches and flip-flops, counters, shift-registers, finite state machines, propagation delay, setup and hold time, critical path delay. Data Converters: sample and hold circuits, ADCs and DACs. Semiconductor Memories: ROM, SRAM, DRAM. Computer Organization: Machine instructions and addressing modes, ALU, data-path and control-unit, instruction pipelining.

Control Systems

Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal flow graph; Transient and steady-state analysis of LTI systems; Frequency response; Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Lag, lead and lag-lead compensation; State variable model and solution of state equation of LTI systems.

Communications

Random Processes: auto correlation and power spectral density, properties of white noise, filtering of random signals through LTI systems. Analog Communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, super heterodyne receivers.

Information Theory: entropy, mutual information and channel capacity theorem. Digital Communications: PCM, DPCM, digital modulation schemes (ASK, PSK, FSK, QAM), bandwidth, inter-symbol interference, MAP, ML detection, matched filter receiver, SNR and BER. Fundamentals of error correction, Hamming codes, CRC.

Electromagnetics

Maxwell's Equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting vector. Plane Waves and Properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth. Transmission Lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart. Rectangular and circular waveguides, light propagation in optical fibres, dipole and mono-pole antennas, linear antenna arrays.

Part B - Mechanical & Automation Engineering (Subject Specific Test)

Free-body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, collisions. Mechanics of Materials: Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.

Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.

Vibrations: Free and forced vibration of single degree of freedom systems, effect of damping; vibration isolation; resonance; critical speeds of shafts. Machine Design: Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.

Fluid Mechanics and Thermal Sciences Fluid Mechanics: Fluid properties; fluid statics, manometry, buoyancy, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings. Heat-Transfer: Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence; heat exchanger performance, LMTD and NTU methods; radiative heat transfer, Stefan Boltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis.

Thermodynamics: Thermodynamic systems and processes; properties of pure substances, behaviour of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.

Applications: Power Engineering: Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. I.C. Engines: Air-standard Otto, Diesel and dual cycles. Refrigeration and air-conditioning: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes. Turbomachinery: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines.

Materials, Manufacturing and Industrial Engineering Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials. Casting, Forming and Joining Processes: Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding.

Machining and Machine Tool Operations: Mechanics of machining; basic machine tools; single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, design of jigs and fixtures. Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly. Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools. Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning. Inventory Control: Deterministic models; safety stock inventory control systems.
Operations Research: Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

11.9.4. Slots :

The slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.10 University School of Medicine and Allied Health Sciences

Candidates with Master's degree or a professional degree equivalent to Master's degree in the subject or a related field or those who have passed M.D., M.S., M.D.S., D.M., M.Ch., or Ph.D. programme from a recognized University shall be eligible for admission to Ph.D. programme of University School of Medicine and Allied Health Sciences if they qualify PET conducted by GGSIP University or meet with the criteria of PET exemption even if their pass certificates do not state the percentage of marks in the passing examination.

S. No.	Name of the Programme	Eligibility for appearing for Entrance Test (PET)	*Syllabus for Entrance Test (PET)
1	**Ph.D. (Anatomy/ Physiology/ Microbiology/ Pathology/ Forensic Medicine & Toxicology/ Community Medicine/ Pharmacology/ Anaesthesiology& Critical Care/ Paediatrics/ Obstetrics and Gynaecology/ Psychiatry/ Endocrinology/ Plastic & Reconstructive Surgery/ Neonatology/ Radio diagnosis/ Nuclear Medicine/ Neurology**	A Master's degree or a professional degree equivalent to Master's degree in the subject or a related field with at least 55% marks in aggregate or its equivalent grade "B" in a point scale wherever grading system is followed. Or M.D., M.S., M.D.S., D.M., M.Ch. in the field or related area with at least 55% marks in aggregate in B.D.S. or M.B.B.S. *A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and categories of candidates as per the decision of the Commission from time to time.*	**(i) Subject Specific 50%** **(ii) Research Methodology 50%**
2.	**Ph.D. Sports Medicine**	A Master's degree in Orthopaedics or a professional degree equivalent to Master's degree in the subject or a related field with at least 55% marks in aggregate or its equivalent grade "B" in a point scale wherever grading system is followed. Or M.D., M.S., M.D.S., D.M., M.Ch. in the field or related area with at least 55% marks in aggregate in B.D.S. or M.B.B.S. *A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and categories of candidates as per the decision of the Commission from time to time.*	**(i) Subject Specific 50%** **(ii) Research Methodology 50%**
3.	**Ph.D. Physiotherapy**	A Master's degree in Physiotherapy or a professional degree equivalent to Master's degree in the subject or a related field with at least 55% marks in aggregate or its equivalent grade "B" in a point scale wherever grading system is followed. *A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-*	**(i) Subject Specific 50%** **(ii) Research Methodology 50%**

		Abled, Economically Weaker Section (EWS) and categories of candidates as per the decision of the Commission from time to time.	
4..	**Ph.D. Occupational Therapy**	A Master's degree or a professional degree equivalent to Master's degree in the subject or a related field with at least 55% marks in aggregate or its equivalent grade "B" in a point scale wherever grading system is followed. *A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and categories of candidates as per the decision of the Commission from time to time.*	**(i) Subject Specific 50%** **(ii) Research Methodology 50%**

*SYLLABUS FOR Ph.D. ENTRANCE EXAM (PET)

Part A- Research Methodology

1. Introduction to Biostatistics
2. Overview of Data Types and Presentation
3. Measures of Disease Frequency
4. Probability and Distributions
5. Measures of Central Tendency
6. Measures of Dispersion
7. Sampling Methods (Sample size and techniques)
8. Epidemiological designs of research
9. Principles of Data Collection
10. Data Collection tools
11. Graphical and tabular representation of data
12. Hypothesis testing
13. Parametric tests
14. Non Parametric tests
15. Correlation and Regression
16. Ethical issues in biostatistics and research
17. Longitudinal data analysis-repeated measures, mixed-effect models
18. Research paper writing referencing styles
19. Basics of SPSS

Part B- Subject Specific Test

1. **Cell Structure and Function:**
    a. Cell theory and cell as the basic unit of life, functions of cell
    b. Prokaryotic and Eukaryotic cell
    c. Cell membrane and Cell wall, Transport across cell membrane
    d. Cell organelles and Cytoskeleton
    e. Cell cycle and cell division and its Phases
    f. Mitosis, Meiosis and their significance

2. **Human Physiology:**
    a. **Digestive system:** Parts of digestive system, Process of digestion and absorption, Common Disorders of digestive system.
    b. **Respiratory system:** Parts of Respiratory system, Mechanism of breathing, Exchange and transport of gases, Respiratory volumes and capacities, Regulation of respiration, Common Disorders of Respiratory system.
    c. **Body fluids and circulation:** Blood and its components, Blood grouping and related disorders, Rh incompatibility, Lymph, Circulatory system, Cardiac cycle, Electrocardiograph (ECG), Double circulation, Regulation of cardiac activity and Disorders of circulatory system.
    d. **Excretory system:** Parts of Excretory system, Mechanism underlying urine formation, Parts of nephron and their respective functions, Counter current mechanism, Regulation of kidney function, Disorders of excretory system.
    e. **Locomotion and movement**: Muscle (Types, structure and function), Mechanism of muscle contraction, Axial and appendicular Skeleton, Joints, Disorders of Musculoskeletal system.
    f. **Nervous system:** Components of Nervous system, Structure and function of a Neuron, Nerve impulse, Parts of human brain (Forebrain, midbrain and hindbrain), Reflex action and reflex arc, Sense organs
    g. **Endocrine system**: Endocrine glands (Hypothalamus, Pituitary gland, Pineal gland, Thyroid gland, Parathyroid gland, Thymus, Adrenal gland, Pancreas, Testis and Ovary), Hormones secreted by them and mechanism of their actions, Disorders related to the Endocrine system.
    h. **Nutrition and Exercise**

3. **Human Reproduction and Reproductive Health:**
    a. Male and Female reproductive systems
    b. Gametogenesis: Spermatogenesis, Oogenesis and their hormonal regulation
    c. Fertilization and Implantation
    d. Parturition and lactation
    e. Placenta
    f. Menstrual cycle
    g. Problems and strategies related to Reproductive health
    h. Population stabilization and birth control
    i. Medical termination of pregnancy (MTP)
    j. Sexually transmitted Infections
    k. Infertility and Assisted Reproductive Technologies (ART)

4. **Human Health and Diseases:**
    a. **Basic concepts of Immunology:**
        i Immunity and its types: Innate, Acquired, Active and Passive

ii. Immunization-Vaccines

b. **Microorganisms causing human diseases**: Tuberculosis, Cholera, Malaria, Filariais, Ascariasis, Typhoid, Pneumonia, Common cold, Amoebiasis, Dermatophytosis, candidiasis etc.
c. **Non communicable diseases, Cancer**
d. HIV and AIDS
e. Genetic disorders
f. Drugs and Alcohol Abuse
g. Common Management modalities in communicable and non-communicable diseases
h. National Programs of the Government of India.

5. **Common Diagnostic testing towards diagnosis of communicable and non-communicable diseases.**

6. **Applications of Biotechnology in Human Health and Disease**
   a. Biotechnology and its principles
   b. Tools and Processes of Recombinant DNA technology
   c. Applications of Biotechnology in Medicine
   d. Gene therapy
   e. Molecular diagnosis using Recombinant DNA technology, Polymerase chain reaction (PCR) and Enzyme Linked Immuno-Sorbent Assay(ELISA)

Mode of Ph. D. Programme

Part Time / Full Time

Slots

The slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.11 Centre for Excellence in Disaster Management

11.11.1. Mode of Ph. D. Programme

Part Time / Full Time

11.11.2. Eligibility Criteria for admission to Doctoral program at CEDM

1. Candidates for admission to the Ph.D. Programme shall have a Master's Degree* or a professional degree declared equivalent to the Master's degree by the corresponding Statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing accrediting or assuring quality and standards of educational institutions.

(Candidates having Master's Degree in Management/ Natural Science/ Social Sciences/ Engineering Technology/ Medical Law/ and allied field related to Disaster/ Emergency services)

2. A relaxation of 5% of marks, from 55% to 50%, or equivalent relaxation of grade, shall be allowed for those belonging to SC/ST/OBC (Non-Creamy layer/Differently-abled (PWD)/EWS Categories and other categories of candidates as per decision of the Commission from time to time.

3. Candidates, who have cleared the M.Phil. course work with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed) and successfully completing the M.Phil Degree shall be eligible to proceed to do research work leading to the Ph.D. Degree in an integrated programme.

4. All other Eligibility Conditions and Admission Criteria for admission in Ph.D. will be as per University norms given in Ordinance 12 of the University Act.

11.11.3. Slots

The slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.11.4. Syllabus for Entrance Examination

Part A- Research Methodology

Meaning and Characteristics of Scientific Research: Introduction to research, different methods used in research, research design- functions, exploratory, descriptive, experimental; experimental research design-pre experimental, quasi experimental, true experimental. Statistical research design. Various types of research categories- qualitative, quantitative, experimental, exploratory, empirical. **Hypothesis testing-** Null and alternate hypothesis, steps of hypothesis testing, level of significance, type I and type II error, scale of measurement, questionnaire design. **Sampling-** Meaning and types of Sampling, sampling design, sampling size and sampling error. **Types of Sampling-** simple random, systematic, stratified, cluster, quota, judgemental samplings. **Interpretation of Data**: Data representation, Collection of data-primary and secondary data collection, data tabulation, organization and graphical representation of qualitative data—line graph, bar graph, pie chart, histogram, scattered plot. Measure of central tendency, range, dispersion, frequency and distribution, binomial distribution, Poisson distribution, description of continuous variable, normal distribution, exponential distribution. Ethics-Fabrication of data and misrepresentation, plagiarism, IPR issues in research.

Part B- Subject Specific Test

Disasters: Natural & Human Induced Disasters

Types of natural and human induced disasters, Disaster Management Cycle, Disaster Profile of India. **Earthquakes**: Causes and their effects. **Landslides**: Causes, prevention & mitigation, **Avalanches**: Formulation, types, hazard mitigation and management. **Volcano**: Causes, mitigation. **Floods**: Causes, vulnerability, types of floods, impacts of flood, Flood management (Mitigation, Preparedness and Response), Urban floods. **Cyclones and Tsunami**: Difference between cyclone, Typhoon and hurricanes, Causes, characteristics, hazard zonation, factors, hazard potential and impact assessment of cyclones an tsunami, coastal zone management, Early warning system for cyclones and Tsunamis. **Drought**: Causes, vulnerability, types of famines, desserts, and desertification; **Industrial**, chemical and hazardous material disasters; **Forest fires**.

Industry security, Safety and Disaster Risk Reduction

Principles of industrial security management, Security operations management, security basics and principles of security design, Physical security measures security surveillance CCTV, security gadgets; security control room. Industry security and law, emergency management protocol, anti-sabotage check, security review & up-gradation, bomb threats & search procedures, explosives & IEDs search procedure;

Disasters Management Governance, Law and Policies – International and National

Legal framework for disaster management in India, Important statutes with provisions relevant to Disaster Management: Role of legislations in Disaster Management, Environment Protection Act, 1986. Disaster Management Act 2005. NDMA, NIDM, SDMAs, DDMAs, Nodal Ministry/Coordination of Response, NDRF, SDRF, Armed forces, CAPFs, Local level. National Disaster Management Plan, 2016, National Disaster Management Policy, 2009. International Initiatives by UN, International Decade of Disaster Risk Reduction, Sendai Framework (2013-2030).

Fire Risk, Safety and Response

Classification of fire, causes of fire, general provision of fire & life safety as per National Building Code of India, passive fire safety, fire safety rules and building evacuation plans, fire prevention methods and techniques, electric hazard shock and protection. Various types of fire-fighting equipment's personal protective equipment's (PPE), portable fire extinguisher (water, foam, CO2, ABC) and fixed fire installation, fire tenders, automatic sprinkler systems, provision of fire safety measures for LPG, CNG and PNG. NDMA guidelines on scaling, fire safety and prevention, on-site and off-site emergency plans, burn victim and first-aids.

Public health in Disaster Management

Public health and its role in disaster management, epidemiology, public emergencies in disaster- water borne, vector borne and zoonotic diseases, avian flu, Ebola, dengue etc. hospital preparedness for mass casualty management, critical care facilities, NDMA guidelines for hospital safety, public health emergency and disaster, public health policies and emergent health threats.

Role of information and communication technology

Role of satellite base navigation system in disaster management, Disaster management information system, emergency operation centre, early warning system, HAM radio, GPS application in emergency communication, emergency communication system, remotes sensing and GIS application in disaster management.

11.12 Centre of Excellence in Pharmaceutical Sciences

11.12.1 Additional Eligibility Criteria:

Eligibility Criteria for admission to the Ph.D. Programme in Pharmaceutical Sciences

M.Pharm./ M.S.(Pharm.) (Pharmaceutical Chemistry/Medicinal Chemistry/Natural Products/ Pharmaceutical Analysis/Quality Assurance); M.Tech. (Pharm.) (Bulk Drugs/Process Chemistry); M.Sc. (Medicinal chemistry and Drug Design), M.Sc. (Bioinformatics) with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

The Entrance Test syllabus shall consist of 50% of research methodology and 50% shall be subject specific. Students who have secured 50% marks in the entrance test are eligible to be called for the interview.

University may decide the number of eligible students to be called for an interview based on the number of Ph.D. seats available in the respective departments/ approved research centres.

Provided that for the selection of candidates a weightage of 70% for the Academic Performance Index and 30% for the performance in the interview / viva-voce shall be given.

3. Interview Criteria* (At least any one of the following)

1. Qualified in PET

2. Qualified and Valid GATE/GPAT Score.

3. Candidates who have already cleared any of the National Test for the eligibility of lectureship like UGC/ CSIR NET including JRF, GATE, CSIR, DST, DBT, ICMR etc, or any other prestigious test for National level scholarship / fellowship conducted by Govt. of India.

11.12.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.12.3. Syllabus for Entrance Test:

PHARMACEUTICAL CHEMISTRY

Part A – Research Methodology

Basics of Research: Definition, characteristics, types, need of research. Identification of the problem, assessing the status of the problem, formulating the objectives, preparing design (experimental or otherwise), and actual investigation.

Literature Review: Importance of literature review, methods, and sources of literature review, review the literature selected, formulating the research problem based on extensive literature survey, developing the hypothesis, preparing the research design, development of a theoretical and conceptual framework, writing up the synopsis of the proposed Ph.D. program.

Data representation: Collection of data, Tabulation, Organization and graphical representation of quantitative data: Line Graphs, Bar Graphs, Pie Charts, Histograms; Probability concept and theories.

Writing a Research Proposal: Research grant funding agencies, preparation of study protocols, preparing for application to funding agencies (Preamble, problem, objectives, hypothesis to be tested,

design of study, measurement procedures, analysis of data, organization of report, displaying data tables, graphs, and charts).

Research Ethics, IPR and Scientific Communication: Ethics-ethical issues, ethical committees (human and animal); prewriting considerations, thesis writing, formats of report writing, preparing posters for scientific presentation, preparing, and delivering of oral presentation. Scholarly publishing-IMRAD concept and design of research paper, citation and acknowledgement, plagiarism, reproducibility and accountability, general consideration of IPR for patent drafting and submission.

Probability and Distributions: Sample space, events, Equally likely events. Probability and types; Different Approaches, Independent Events, Addition and multiplication rules, Rules for Calculating Probabilities. Hypothesis testing: Null hypothesis, Alternate hypothesis, Steps of hypothesis testing, Level of significance, Type I and Type II error.

Analysis of Variance and Testing Hypothesis: Introduction to hypothesis, procedure for hypothesis testing, sample size, statistical tests of significance, parametric tests (students "t" test, ANOVA, correlation coefficient, regression), non–parametric tests (Wilcoxan rank tests, analysis of variance, correlation, chi-square test), null hypothesis, P-values, degree of freedom, interpretation of P-values.

Part B– Pharmaceutical Chemistry (Subject Specific Test)

UV-Visible Spectroscopy: Introduction, Beers law and its limitations, molar extinction coefficient, Woodward's Fiesher rules for calculating absorption maximum, instrumentation, and applications, Rule for 1,3- butadienes, cyclic dienes and, carbonyl compounds and interpretation compounds of enones. ATR-IR, IR Interpretation of organic compounds.

FTIR Spectroscopy: Principles-molecular vibrations, vibrational frequency and its influencing factors, sampling techniques, instrumentation, and applications of FTIR.

NMR Spectroscopy: Principle, chemical shifts, shielding and deshielding effects, splitting of signals, computing constants, instrumentations, and applications (H- & C-NMR). 1-D and 2-D NMR, NOESY and COSY, HECTOR, INADEQUATE techniques, Interpretation of organic compounds.

Mass Spectroscopy: Principle, ionization Techniques, Fragmentation pattern, instrumentation, and applications. Mass fragmentation and its rules, Fragmentation of important functional groups like alcohols, amines, carbonyl groups and alkanes, Meta stable ions, Mc Lafferty rearrangement, Ring rule, Isotopic peaks, Interpretation of organic compounds.

GLC and HPLC: Principles, instrumentation with special emphasis on different columns and detectors and applications. HPTLC, Ion-Exchange Chromatography and Gel Filtration: Principle, instrumentation, and applications.

Potentiometry and Conductometry: Principle, instrumentation, and applications. Polarimetry, Fluorimetry and Refractometry: Principle, instrumentation, and applications with suitable examples.

Thermal methods of analysis: Introduction, principle, instrumentation and application of DSC, DTA and TGA. Radioimmunoassay Biological standardization, bioassay, ELISA, Radioimmunoassay of digitalis and insulin.

Chromatography: Principle, apparatus, instrumentation, chromatographic parameters, factors affecting resolution, isolation of drug from excipients, data interpretation and applications of the following:

TLC, HPLC, Ion exchange chromatography, Column chromatography, Gas chromatography, Ultra High-Performance Liquid chromatography, Affinity chromatography and Gel Chromatography.

Study of mechanism and synthetic applications of following named Reactions Ugi reaction, Brook rearrangement, Ullmann coupling reactions, Dieckmann Reaction, Doebner-Miller Reaction, Sandmeyer Reaction, Mitsunobu reaction, Mannich reaction, Vilsmeyer-Haack Reaction, Sharpless asymmetric epoxidation, Baeyer-Villiger oxidation, Shapiro and Suzuki reaction, Ozonolysis and Michael addition reaction

Heterocyclic Chemistry: Organic Name reactions with their respective mechanism and application involved in synthesis of drugs containing ve, six membered and fused hetrocyclics such as Debus Radziszewski imidazole synthesis, Knorr Pyrazole Synthesis, Pinner Pyrimidine Synthesis, Combes Quinoline Synthesis, Bernthsen Acridine Synthesis, Smiles rearrangement and Traube purine synthesis.

Green Chemistry: Introduction, principles of green chemistry; Working principle, advantages and synthetic applications of Microwave assisted reactions, Ultrasound assisted reactions, Continuous flow reactors.

Chemistry of peptides: Coupling reactions in peptide synthesis, Principles of solid phase peptide synthesis, t-BOC and FMOC protocols, various solid supports and linkers: Activation procedures, peptide bond formation, deprotection and cleavage from resin, low and high HF cleavage protocols, formation of free peptides and peptide amides, puri cation and case studies, site-specific chemical modifications of peptides.

Stereochemistry & Asymmetric Synthesis: Basic concepts in stereochemistry optical activity, specific rotation, racemates and resolution of racemates, the Cahn, Ingold, Prelog (CIP) sequence rule, meso compounds, pseudo asymmetric centres, axes of symmetry, Fischer's D and L notation, cis-trans isomerism, E and Z notation; Methods of asymmetric synthesis using chiral pool, chiral auxiliaries and catalytic asymmetric synthesis, enantiopure separation and Stereo selective synthesis with examples.

Synthesis of few representative drugs containing these hetrocyclic nucleus such as Ketoconazole, Metronidazole, Miconazole, celecoxib, antipyrine, Metamizole sodium, Terconazole, Alprazolam, Triamterene, Sulfamerazine, Trimethoprim, Hydroxychloroquine, Quinine, Chloroquine, Quinacrine, Amsacrine, Prochlorperazine, Promazine, Chlorpromazine, Theophylline, Mercaptopurine and Thioguanine.

Synthon approach and retrosynthesis applications: Basic principles, terminologies and advantages of retrosynthesis; Drug discovery: Stages of drug discovery, lead discovery; identification, validation and diversity of drug targets. Biological drug targets: Receptors, types, binding and activation, theories of drug receptor interaction, drug receptor interactions, agonists vs antagonists, artificial enzymes.

Prodrug Design and Analog design: Prodrug design: Basic concept, Types of prodrugs, and its applications. Rationale of prodrug design and practical consideration of prodrug design; Analog Design; Bioisosterism.

Medicinal chemistry aspects of the following class of drugs: Anti-hypertensive drugs, Psychoactive drugs, Anticonvulsant drugs, Antihistamine drugs, COX1 and COX2 inhibitors, Adrenergic and

Cholinergic agents, Antineoplastic and Antiviral agents; Stereochemistry and Drug action; Case studies, Enantioselectivity in drug adsorption, metabolism, distribution and elimination.

Peptidomimetics: Therapeutic values of Peptidomimetics, design of peptidomimetics by manipulation of the amino acids, modification of the peptide backbone, incorporating conformational constraints locally or globally. Chemistry of prostaglandins, leukotrienes and thromboxones.

Study of Natural products as leads for new pharmaceuticals for the following class of drugs: Drugs Acting the Central Nervous System: Morphine, Alkaloids; Anticancer Drugs: Paclitaxel and Docetaxel, Etoposide, and Teniposide; Cardiovascular Drugs: Lovastatin, Teprotide and Dicoumarol. d) Neuromuscular Blocking Drugs: Curare alkaloids; Anti-malarial drugs and Analogues; Chemistry of macrolide antibiotics (Erythromycin, Azithromycin, Roxithromycin, and Clarithromycin) and-Lactam antibiotics (Cephalosporins and Carbapenem).

General introduction, classification, isolation, puri cation, molecular modification, biological activity and structural elucidation and stereochemistry of alkaloids, flavonoids, Steroids, Terpenoids and vitamins. Recombinant DNA technology and drug discovery rDNA technology, hybridoma technology, new pharmaceuticals derived from biotechnology; Oligonucleotide therapy.

Introduction to Computer Aided Drug Design (CADD): QSAR, Applications of Hansch analysis, Free Wilson analysis and relationship between them, Advantages and disadvantages; Deriving 2D-QSAR equations. 3D-QSAR approaches and contour map analysis. Statistical methods used in QSAR analysis and importance of statistical parameters.

Molecular Modeling and Docking: Molecular and Quantum Mechanics in drug design; Energy Minimization Methods, Rigid docking, flexible docking and extra-precision docking; Agents acting on enzymes such as DHFR, HMG-CoA reductase and HIV protease, choline esterase (AchE & BchE).

Molecular Properties and Drug Design: Prediction and analysis of ADMET properties and its importance in drug design, De novo drug design, Homology modeling and generation of 3D-structure of protein. Pharmacophore Mapping and Virtual Screening, In Silico Drug Design and Virtual Screening Techniques.

11.12.4. Slots

The slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.13 University School of Education

11.13.1. Additional Eligibility Criteria:

Eligibility criteria for admission to the Ph.D. Programme.

The following are eligible to seek admission to the Ph.D. programme: (1) Candidates who have completed: i. A 1-year/2-semester master's degree programme after a 4-year/8-semester bachelor's degree programme or a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time. Provided that a candidate seeking admission after a 4-year/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.(2) Candidates who have completed the M.Phil. programme with at least 55% marks in aggregate or its 10 THE GAZETTE OF INDIA : EXTRAORDINARY [PART III—SEC.4] equivalent grade in apoint scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of educational institutions, shall be eligible for admission to the Ph.D. programme. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.

11.13.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.13.3. Syllabus for Entrance Test:

Part – A Research Methodology

Elementary statistics including mean, medium, mode, SD variance, normal distribution, poissondistribution, exponential distribution, correlation, covariance, Educational Research: Meaning, nature, types, scope, and limitations.

- Tests of Hypothesis
- Data Analysis
- Sampling design
- Research design & procedure
- Quantitative techniques
- Interpretation of data

Part – B Subject Specific Test

- Philosophical and sociological perspective of education
- Advance Educational Psychology
- Methodology of Educational Research
- Curriculum & Evaluation
- Educational Management, Planning & Finance
- Teacher Education in India: Growth and Development

- Educational Technology
- Educational Evaluation
- Environmental Education
- Educational Leadership and management
- Educational and Vocational Guidance
- Education for Special Focused Groups
- Language and Communication Technology in Education
- Social Science Education
- Science Education
- Education for Human Rights, Peace, International Understanding and Value Education

11.13.4. Slots

The slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.14 University School of Architecture and Planning (USAP)

11.14.1. Mode of Ph. D. Programme

Part time/Full time

11.14.2. Eligibility Criteria for admission to Doctoral program at USAP

Candidates who have cleared Masters in Architecture/ Planning or equivalent are eligible with at least 55% marks in aggregate (or equivalent grade in a point scale wherever grading system is followed)

Procedure for admission

i. Admission to the Ph.D. program shall be through an Entrance test conducted by the University in the Architecture and Planning disciplines of study.

ii. Reservations shall be as per the University policy, notified by the university from time to time.

iii. The written test shall be the qualifying examination for admission to Ph.D. programme with 50% as qualifying cut-off. The Syllabus of the written entrance test shall consist of 50% Research Methodology and 50% shall be subject specific.

iv. An interview shall be organized where the candidates are required to discuss their research interest/ area through a presentation before a duly constituted Admission committee

v. The admission shall be based on the performance/ merit of the candidate in the interview/ viva voce.

The interview / viva voce shall consider the following aspects:

a) The candidate possesses the basic knowledge and aptitude for the proposed research work

b) The candidate possesses the competence for the proposed research work

c) The proposed plan of research can contribute to new/additional knowledge in the area of research. For both written entrance test and interview, qualified candidates and fellowship holders (as mentioned above) the merit list (out of 100 marks), for admission will be prepared as per the Ph.D. ordinance 12.

d) The interview/ viva voce shall be conducted by the admission committee of USAP

Employed candidates, including permanent faculty members of the university school, affiliated colleges/institutions who wish to seek Ph.D. admission as full time research scholars must obtain leave for a period of at least three years to fulfill the minimum registration period of the University. Candidates who need a proof of selection to obtain leave from their employers may use the selection/ admission list displayed on the university website for this purpose, but admission shall only be granted upon submission of leave sanction letter in original. All employed candidates (full time/ part-time) in regular employment must obtain a “No Objection certificate” for the purpose of pursuing Ph.D. Programme, the same must be submitted at the time of the interview for admission.

11.14.3. Slots

The slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.14.4. Syllabus for Entrance Examination

1. **Part-A** will consist of 50 objective type questions and will include research methodology, general awareness/knowledge, reasoning, analytical ability.

2. **Part-B** will consist of 50 objective questions covering various subjects that an Architect with experience and/or Masters Qualification is expected to know including but not limited to:

a) Research Methods for Architecture, Mathematical Intelligence, Reasoning, Basic Vocabulary of Architects and Planners, Professional and Technical Writing Skills, Presentation skills etc.

b) Professional Practice, Guidelines of Council of Architecture related to professional services, appointment of Architects, Education etc.

c) Provisions of National Building Code, Space Standards, URDPFI guidelines, EIA, Legal provisions related to Health Safety and Environment, Building Regulations.

d) Sustainable Architecture, Energy Efficient Building Designs, Green Building Rating systems in India and abroad, Solar Passive Architecture.

e) Urban Infrastructure, Urban Environmental Services, Urban Transportation, Transport Oriented Design. Major Policies, Mission and schemes of Government of India related to Housing, SMART cities, HRIDAY cities, Swachh Bharat Abhiyan, AMRUT, JNNURM, Slum Upgradation etc.

f) Gender issues in Architecture, Urban Planning, Housing, Urban Transport, Landscape Architecture, Public Realms, etc.

g) General Awareness about Environment, Ecology, Climate Change, Global Warming Sustainable Development Goals, Disaster Management, Natural and Bult Heritage, Urban Economics, etc.

h) Waste Management Technologies, Water Management, Renewable Energy Technologies, Vernacular and traditional solar passive Design of buildings.

i) Contemporary and Traditional examples of sustainable/ energy efficient architecture/settlement planning In India and other parts of the world

j) Basics of Project Management, Construction Management, Real Estate Management, Contemporary Materials and construction technologies, Structural Systems, High Rise and Long Span structures, Project Finance, Contracts, Public Private Partnerships, Participatory Approaches to Development, Community Participation etc. History of Architecture and Human Settlements- Ancient Civilizations.

11.15 University School of Liberal Arts

11.15.1. Mode of Ph. D. in History

Part time/Full time

11.15.2. Eligibility Criteria for admission

1. Candidates seeking admission to the Ph.D. programme should have a Master's Degree in History with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade on a point scale wherever grading system is followed) or an equivalent degree from a foreign educational institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing accrediting or assuring quality and standards of educational institutions.

2. A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, shall be allowed for those belonging to SC/ST/OBC (Non-Creamy layer)/differently abled (PWD)/EWS and other Categories as per the direction of the Commission from time to time.

3. Candidates possessing an M.Phil. in History or a degree considered equivalent to M.Phil. degree of an Indian institution, from a foreign educational institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. programme.

4. Candidates with a '4 years' Bachelor's Degree (with research)' with major in History will be eligible to join the Ph.D. Programme directly minimum of 75% marks in aggregate or its equivalent grade point scale wherever the grading system is followed, but would have to appear for PET.

Admission Procedure:

The admission to the Ph.D. in History will be done through an Entrance Test (PET) conducted by the University or any designated agency to be followed by a personal interaction/interview, as per the University norms.

Those students, who have qualified JRF under UGC-NET-JRF or UGC-CSIR NET-JRF shall be exempt from the written entrance test conducted by the University for Admission to Ph.D. programme. However, they shall have to apply for admission to the University. All other candidates should appear for the written entrance test (PET).

11.15.3. Syllabus for Entrance Test:

This is a test to evaluate, appraise and assess the general understanding and comprehension of the students for research. The paper shall consist of 100 multiple-choice questions out of which 50% will be from Research methodology and 50% from subject-specific components.

The syllabus for the test is divided into two parts viz. Part A & Part B as elucidated below:

Part –A Research Methodology (History)

1. Historiography
2. Historical Method

Part –B History

a. Trends in Historiography
b. Themes in Ancient India
c. Social and Cultural History
d. Debates in History
e. Aspects of Medieval Indian History
f. Environment History
g. History of Spaces
h. History of Modern India
i. Urban History

Note: Those who qualify the written PET examination will be called for personal interaction/interview for the second stage of admission. This stage may also have a written component**.**

11.16 University School of Design and Innovation

11.16.1. Additional Eligibility Criteria:

Masters degree like M.Des / M. Arch / M.Tech / MFA / MA Design/ MURP / M.Sc Design/ MFA or Post Graduation Diploma [2 Years] or equivalent degree in Design related disciplines* from any recognized University/ College/ Institution with Bachelor's Degree from any discipline.

OR

Masters degree from any discipline and Bachelor's Degree or 4 years Diploma [after class 12th] in Design Related disciplines* from any recognized University/ College/ Institution.

*Design related Disciplines
Design/ Product Design/ Industrial Design/Visual Communication/Interaction Design/Interior Design/Fine Arts/Applied Arts/Architecture/ New Media Studies/Design Management/ Management/ Ergonomics/ Human Factors Engineering/India Craft Studies/ Sculpture/ Fashion Making/ Design / Pattern Garment Manufacturing/ Entrepreneurship Innovation and Venture Development/ Architecture and related fields of Engineering or Design

Students who have qualified for fellowship/scholarship in UGC-NET/JRF/UGC-CSIR NET/GATE can be exempted from the entrance exam and may be admitted based on an interview.

11.16.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.16.3. Syllabus for Entrance Test:

Part-A

Research Methodology- Quantitative and Qualitative Research methods, Components of Research, Types of Research, Research Design, Methods of Data Collection. Ethics and IPR. Meaning, Nature, Scope, Need and Process of Research. Identification of Data sources, Questionnaire and Schedule designing, Interview and Observation methods, Sampling design, Reliability and Measurement Techniques, Hypothesis development and Testing. Stages of the design process.
Identify needs and requirements for users, develop and describe new design methods, modify design methods to fit the context, needs of users, plan design projects with respect to design goals.
Knowledge of Series and Sequences of numbers, shapes, patterns, figures, and words; Identifying missing numbers, words, or figures; Blood relations; Direction and Distance; Alphabet test; Cause and effect; Clocks and Calendars; Coding and Decoding of Analogy Series; Matrix Completion; Incomplete Pattern; Spotting embedded figures; Classification Rules Detection; Identical figure groupings; Forming figures and analysis.

Part- B

Visualization and spatial reasoning: Ability to visualise and transform 2D shapes and 3D objects and their spatial relationships.

Practical and scientific knowledge: Know-how of scientific principles and everyday objects.

Observation and design sensitivity: The capacity to detect concealed properties in daily life and think critically about them. Attention to detail, classification, analysis, inference and prediction.

Environment and society: Awareness of environmental, social and cultural connections with design.

Creativity: Grasp of verbal and non-verbal analogies, metaphors, signs and symbols.

Drawing: Ability to draw products, people or scenes in proportion with good line quality, composition, proportion, perspective and shading. Cutting cubes and dice; Scale and perspective and vanishing point; Water and Mirror images. Projection of Solids, isometric drawing.

Design aptitude: Capability to practically and appropriately respond to problems/situations with ingenuity and empathy.

** The entrance test syllabus consists of 50% of Research Methodology and 50% Design specific knowledge. For details, please refer 2.4 of PhD Admissions Brochure 2026-27.*

11.16.4.Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.17 University School of Automation and Robotics

11.17.1. Additional Eligibility Criteria:

S. No.	Ph.D. Discipline offered	Eligibility Criteria
1.	Artificial Intelligence- Data Science/ Artificial Intelligence- Machine Learning (Test Code – 211)	1. M.Tech. in CSE/IT/Computer Systems/ Data Science/Machine Learning or equivalent with 60% marks/7 CGPA; OR 4 year B.Tech in CSE/IT/Computer Systems/ Data Science/Machine Learning or equivalent with 75% marks in aggregate or its equivalent grade OR MCA with 60% marks/7 CGPA OR M.Sc(Computer Science/Informatics) 2. Qualified in PET/*GATE in Computer Science & Information Technology/Data Science and Artificial Intelligence/UGC JRF in Computer Science & Application
2	Industrial Internet of Things (IIOT) (Test Code – 212)** ** * Candidates seeking admission in IIOT can appear in test code 212 or 211 as per their B.Tech degree*	1 M.Tech in ECE/VLSI Design/Embedded Systems/Microelectronics and Instrumentation/ Digital Comm./ Electronics and Instrumentation/ Electrical And Electronics/ Electrical Engineering/ Signal Processing/RF & Microwave/ Power Electronics/ Power system or equivalent with 60% marks/7 CGPA; OR 4-year B.Tech in IIoT/ECE/ Electrical and Electronics /Electrical Engineering/ Electronics and Instrumentation/ Data Science/Machine Learning / Automation and Robotics or equivalent with 75% marks in aggregate or its equivalent grade OR M.Sc.(Electronics/ Electronics Science) 2. Qualified in PET/*GATE in ECE/EE/IN/ Data Science and Artificial Intelligence/ CSE/IT/ UGC JRF in Electronic Science.
	Industrial Internet of Things (IIOT) (Test Code – 211)** ** * Candidates seeking admission in IIOT can appear in test code 212 or 211 as per their B.Tech degree*	1. M.Tech. in CSE/IT/Computer Systems/ Data Science/Machine Learning or equivalent with 60% marks/7 CGPA; OR 4 year B.Tech in CSE/IT/Computer Systems/ Data Science/Machine Learning or equivalent with 75% marks in aggregate or its equivalent grade OR MCA with 60% marks/7 CGPA OR M.Sc. (Computer Science/Informatics) 2. Qualified in PET/*GATE in Computer Science & Information Technology/Data Science and ArtificialIntelligence/UGC JRF in Computer Science & Application

3.	Automation and Robotics (A&R) (Test Code – 214)	M.Tech. or Equivalent in Mechanical Engineering/ Mechanical and Automation Engineering/Automation Engineering/ Production Engineering/Industrial Engineering/ Design Engineering/ Thermal Engineering/ Mechatronics Engineering/ Tool Engineering/ Robotics/ Robotics and AI/ Robotics & Automation/ Automation & Robotics or equivalent with 60% marks/7 CGPA; OR 4 year B.Tech. or equivalent in Automation & Robotics (A&R)/MAE/ME or equivalent with 75% marks in aggregate or its equivalent grade Qualified in PET/*GATE in Mechanical Engineering or Production and Industrial Engineering

** Valid and Qualified GATE/JRF score at the time of Ph.D interview. Such Candidates are exempted from PET*

Note:

In case of M.Tech (Information Security/Software Engineering/Cyber Security/software systems/Artificial Intelligence/Data Science/Machine Learning/ Industrial Internet of Things (IIOT))/ Automation and Robotics (AR), candidate shall be offered discipline in Ph.D programme based on B.Tech. Degree.

1. *In case of candidate having M.Tech (Robotics & Automation Engineering) degree, candidate can qualify GATE examination based on his/her B.Tech. degree discipline.*
2. Equivalent discipline of 4 year B.Tech shall be decided as specified in "Annexure-6 Major Disciplines, their corresponding Courses and Relevant/Appropriate Branch of Under Graduate Degree in Engineering and Technology" of the AICTE Approval Process handbook 2023-24.
3. The Syllabus of the PET Test Codes (211/212) is as per the existing syllabi in PhD PET at University School of Information, Communication & Technology.

11.17.2. Mode of Ph. D. Programme:

Full Time/Part Time

11.17.3. Syllabus for Entrance Test:

The Syllabus of the PET Test Codes (211) is same as given in University School of Information, Communication & Technology for CSE/ IT/ CA. (refer page at 50) The Syllabus of the PET Test Code (212) is same as given in University School of Information, Communication & Technology for Electronics and Communication Engineering. (refer page at 51) .

The Syllabus of PET test code 214 for Ph.D. in Automation and Robotics is as follows:"

Part-A Research Methodology (Automation & Robotics) (PET Code 214)

Linear Algebra: Solution of linear algebraic equation, Matrices, Eigen values and Eigenvectors.

Calculus: Function of single variable, Limit, continuity and differentiability, Mean value theorems, Maxima and Minima.

Differential Equations: Ordinary differential equation; Initial and boundary value problems, partial differential equation.

Introduction to Statistics: Statistical concept, Statistical Inference, Statistical Hypotheses, Statistical Estimation, Point Estimates, Interval Estimates, Quantitative Data Graphs. Qualitative Data Graphs, Graphical Depiction of Two-Variable, Numerical Data, Scatter Plots.

Descriptive Statistics: Measures of Central Tendency-mean, Median and Mode, Measures of Variability Data range, Variance and standard deviation, Measures of shape of distribution of data, Tests and estimates on statistical variance.

Part B – Automation and Robotics (Subject Specific Test)

Engineering Materials: Structure, physical and mechanical properties, and applications of common engineering materials (metals and alloys, semiconductors, ceramics, polymers, and composites – metal, polymer and ceramic based); Iron-carbon equilibrium phase diagram; Heat treatment of metals and alloys and its influence on mechanical properties; Stress-strain behavior of metals and alloys.

Applied Mechanics & Theory of Machines: Engineering mechanics – equivalent force systems, free body concepts, equations of equilibrium; Trusses; Strength of materials – stress, strain and their relationship; Failure theories; Mohr's circle (stress); Deflection of beams, bending and shear stresses; Euler's theory of columns; Thick and thin cylinders; Torsion. Analysis of planar mechanisms, cams and followers; Governors and fly wheels;

Casting: Types of casting processes and applications; Sand casting: patterns – types, materials and allowances; molds and cores–materials, making, and testing; design of gating system and riser; casting techniques of cast iron, steels, and nonferrous metals and alloys; analysis of solidification and microstructure development; Other casting techniques: Pressure die casting, Centrifugal casting, Investment casting, Shell mold casting; Casting defects and their inspection by non- destructive testing.

Metal Forming: Stress-strain relations in elastic and plastic deformation; von Mises and Tresca yield criteria, Concept of flow stress; Hot, warm and cold working; Bulk forming processes – forging, rolling, extrusion and wire drawing; Sheet metal working processes – blanking, punching, bending, stretch forming, spinning and deep drawing; Ideal work and slab analysis; Defects in metal working and their causes.

Joining of Materials: Classification of joining processes; Principles of fusion welding processes using different heat sources (flame, arc, resistance, laser, electron beam), Heat transfer and associated losses; Arc welding processes - SMAW, GMAW, GTAW, plasma arc, submerged arc welding processes; Principles of solid state welding processes - friction welding, friction stir welding, ultrasonic welding; Welding defects - causes and inspection; Principles of adhesive joining, brazing and soldering processes.

Advanced Manufacturing: Principles and applications of USM, AJM, WJM, AWJM, EDM and Wire EDM, LBM, EBM, PAM, CHM, ECM; Effect of process parameters on material removal rate, surface roughness and power consumption; Additive manufacturing techniques.

Computer Integrated Manufacturing: Basic concepts of CAD and CAM, Geometric modeling, CNC; Automation in Manufacturing; Industrial Robots – configurations, drives and controls; Cellular manufacturing and FMS - Group Technology, CAPP.

Robotics: Robot anatomy, Robot configurations, Degrees of freedom of robots, Robot workspace, Resolution, Repeatability and Accuracy, Fundamental rotations and translations, Forward and Inverse kinematics.

Quality Management: Quality – concept and costs; Statistical quality control – process capability analysis, control charts for variables and attributes and acceptance sampling; Six sigma; Total quality management; Quality assurance and certification - ISO 9000, ISO14000.

Reliability and Maintenance: Reliability, availability and maintainability; Distribution of failure and repair times; Determination of MTBF and MTTR, Reliability models; Determination of system reliability; Preventive and predictive maintenance and replacement, Total productive maintenance.

Product Design and Development: Principles of product design, tolerance design; Quality and cost considerations; Product life cycle; Standardization, simplification, diversification; Value engineering and analysis; Concurrent engineering; Design for "X".

Work System Design: Taylor's scientific management, Gilbreths's contributions; Productivity – concepts and measurements; Method study, Micro-motion study, Principles of motion economy; Work measurement – time study, Work sampling, Standard data, PMTS; Ergonomics; Job evaluation and merit rating.

Facility Design: Facility location factors and evaluation of alternate locations; Types of plant layout and their evaluation; Computer aided layout design techniques; Assembly line balancing; Materials handling systems.

Operation Research: Linear programming – problem formulation, simplex method, duality and sensitivity analysis; Transportation and assignment models; Integer programming; Constrained and unconstrained nonlinear optimization; Markovian queuing models; Simulation – manufacturing applications.

Engineering Economy and Costing: Elementary cost accounting and methods of depreciation; Breakeven analysis; Techniques for evaluation of capital investments; Financial statements; Activity based costing.

Production Control: Forecasting techniques – causal and time series models, moving average, exponential smoothing, trend and seasonality; Aggregate production planning; Master production scheduling; MRP, MRP-II and ERP; Routing, scheduling and priority dispatching; Push and pull production systems, concepts of Lean and JIT manufacturing systems; Logistics, distribution, and supply chain management; Inventory – functions, costs, classifications, deterministic inventory models, quantity discount; Perpetual and periodic inventory control systems.

Project Management: Scheduling techniques – Gantt chart, CPM, PERT and GERT.

11.17.4.Slots:

The Slots shall be declared on the University website before the beginning of the conduct of the PET for the academic session 2026-27.

11.18 Eligibility and admission guidelines for Ph.D. admission of international candidates in University School of Studies

Admission of International Candidates to Ph.D. Programme of the University

1. The international candidate shall apply for admission to the Ph.D. Programme on a prescribed proforma to the Directorate of International Affairs (Once in a year) in response to the advertisement published on University website / Newspapers. The application shall be accompanied by translated attested copies of certificates (if in language, other than English), passport and research proposal.
2. International Candidates shall be exempted from the Ph.D. Entrance Test (PET) entrance test of the University for Ph.D. Programme.
3. All International candidates admitted to the Ph.D Programme shall have to complete the course work offered by the University.
4. The international candidates have to enroll themselves in the Foreign Regional Registration Office (FRRO) immediately after the admission into Ph.D. programme of the University.

Eligibility Criteria for Admission to the Ph.D. Programme

1. The eligibility conditions for the international candidates seeking admission in Ph.D. Programme shall be same as mentioned in the Ordinance 12 of the University for the Indian Students of the current academic year.
2. Candidate for admission to the Ph.D. Programme shall have a Master's Degree or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body.
3. The qualifying degree of the Candidate must be recognized by the Association of Indian Universities (AIU) and equivalence certificate should be provided by the candidate at the time of interview.
4. The detailed Eligibility conditions for Ph.D programme in a specific discipline shall be the same as specified in the regular Admission Brochure for Ph.D. Programme for Indian Nationals issued by Research Development Cell (RDC) of the University.
5. Permission to leave the country shall only be granted to the part-time scholars and only with the approval of the concerned Research Advisory Committee (RAC) of the School.

Guidelines for Admission

1. All the international candidates seeking admission in the Ph.D. programme as foreign candidate through ICCR / Study in India or Direct Mode shall be exempted from English Proficiency Test i.e. TOEFL / IELTS subject to meeting the minimum eligibility criteria for admission in Ph.D. programmes. However, the concerned SRC of the School during the interaction with the candidate should ascertain the writing, communication and language proficiency skills in English and take appropriate decision.

2. The candidates may be admitted on the basis of their research proposal, subject to fulfilling the minimum eligibility criteria. They must submit the research proposal along with the application form to be examined by the Admission Committee / School Research Committee (SRC) of the concerned school.
3. The Admission Committee / SRC of the concerned School shall examine the research proposal of the candidate and if the proposal is found satisfactory then the candidate may be permitted to appear before the Committee for interview / viva-voce in the online / offline mode.

4. The admission shall be made in accordance with the Ordinance 12 of the University and as per the norms of the Board of Studies of the Concerned School / Department.
5. The Annual Fee for the international candidates admitted in the Ph.D. programme of the University is as under:

   (i) USD 2000 equivalent to INR (per year) – For Developed Countries
   (ii) USD 1000 equivalent to INR (per year) – For Developing Countries

6. The monitoring and evaluation of the Research Scholar admitted under foreign category shall be as per the conditions of Ph.D. Ordinance 12 of the University.
7. In addition, the candidature of the Ph.D. Research Scholar shall abide the procedure / rules / regulations / ordinance / statutes and the act of the university and statutory bodies and instructions from Government of India from time to time.
8. The Directorate of International Affairs, GGSIP University shall forward the applications received from International Ph.D. Candidates to the concerned School through Research & Development Cell (RDC) well in advance.

11.19 Application Form for Ph. D. (International Candidates) (2026-27)

Appendix-I

Directorate of International Affairs
Guru Gobind Singh Indraprastha University
Room No. D-306, D-Block, 3rd Floor, GGSIPU
Sector 16-C Dwarka, New Delhi 110 078
[Website: www.ipu.ac.in]

Passport Size Photograph

Application Form for Ph.D. (International Candidates) (2026-27)

[Foreign Students / Foreign Nationals / Persons of Indian Origin]

1. Name of the Programme. ……..……
2. Name of University School of Studies. …...……
3. Name of the Candidate(Mr/Ms)……..…….……
4. Nationality. ……Category (**Foreign Student / Foreign National /PIO**)……..……..…
5. Passport No.……... Date of Issue…… Date of Expiry……. Place of Issue……
6. Father's Name ……..Mother's Name……...……
7. Date of Birth (DD/MM/YY)……Age ason1-8-2026 **Years**……..……**Months**…..……**days**…….……
8. Address as per Passport.…….
   (Attach Address Proof (Any document from Embassy / Foreign Ministry / Govt. Authority)
   …….
9. Address (In India) …..…….
   …….
10. Telephone No. with ISD Code……Whatsapp No..……
11. Email ……..……..…..…Mobile No.……..…… ……
12. Visible Mark of Identification…….
13. Whether Passed or Appearing in the Qualifying Exam (**Passed / Appearing**) **Passing Year**…….
14. Aggregate percentage in Qualifying Examination ……..……
15. **Scholarship** (If any, please specify) ……

Documents required to be submitted alongwith Application Form

- ❑ Copy of Proof of date of birth (Valid Passport / Certificate from Embassy / Document from School, Board /University).
- ❑ Copy of Passing Certificate and detailed mark sheets of the qualifying examination issued by the Board/University. If the marks are in grading system, obtain a "Percentage Certificate" from the concerned Board /University.
- ❑ Original Conduct and Character Certificate from where the qualifying examination has been passed or from concerned Embassy or Foreign Ministry.
- ❑ Copy of Proof of English proficiency

ABOVE DOCUMENTS MUST BE ATTESTED BY THE GAZETTED OFFICER / CONCERNED EMBASSY / FOREIGN MINISTRY

- ❑ Original Certificate of Medical Fitness to be signed by a Registered Medical Practitioner holding a degree not lower than MBBS in the format as given in Appendix II (Refer Admission Brochure).
- ❑ Copy of Student Visa & Passport **duly attested by the concerned Embassy or Foreign Ministry**.

I solemnly affirm that the information furnished above is true and correct in all respects. I have not concealed any information. I realize that if any information furnished herein is found to be incorrect or untrue, I shall be liable to criminal prosecution and also for go my claim to the seat in the college. Further, that my candidature for examination/ selection and admission to the course is liable to be cancelled. I agree to abide by the rules & regulations of the University.

Date:_____

Signature of Candidate _____

12. Undertaking from result awaited candidates for seeking provisional admission for academic session 2024-25

I/My Ward _____ (Name of the candidate), Son/Daughter/Wife of _____(Father's/Husband's name), Application No/PET Application No _____ and Rank _____ Resident _____ (Permanent Address) seeking admission to _____ Name of the Programme of GGSIP University, hereby solemnly affirm and declare:

i) that I/My ward have/has appeared in the (name of the qualifying degree) _____ Examination, 2026 of (Board/University) during the time of reporting in allotted College/ Institute, the result of which has not yet been declared and is expected to be declared latest by 31st October, 2026 ;

ii) I have passed all the papers of the qualifying degree _____ (name of the qualifying degree) examination other that the final year /final semester examination.

iii) I have no compartment as on this date in the qualifying degree examination.

iv) I am seeking provisional admission due to non-declaration of result of final year/final semester of the qualifying degree examination by University and not on account of compartment in current or previous years of the qualifying degree examination as on date of admission.

v) That I/My ward have/has carefully gone through the rules regarding provisional admission and fully understand that in the event of my/my ward's failure to submit to the concerned Dean/Director of the concerned School/Centre where the admission has been granted, appropriate proof of my/my ward securing at least _____ marks in the qualifying examination for admission to _____(Name of the Course) of GGSIP University by 31st October, 2026, my/my wards provisional admission to the said course will automatically get cancelled and full fee deposited will be forfeited.

Deponent

Deponent Verification: Verified at _____ on this _____ day of _____, 2026 that the contents of the above Undertaking are true and correct to the best of my knowledge and belief. No part of it is false and nothing material has been concealed therefrom.

Deponent

Please note :

Submission of false Undertaking is a punishable offence. If it is found at any stage that false Undertaking was submitted, admission shall be cancelled and legal proceedings shall be initiated, for which candidate/parent/guardian shall be responsible.

More than 50 Professional Programmes Offered

1998 - 2023

University Schools:

USIC&T || USCT || USBT || USMS || USEM
USBA&S || USH&SS || USL&LS || USE || USAP
USM&PMS || USMC || USDI || USAR

More than 50+ Professional Programmes Offered

QS WORLD UNIVERSITY RANKINGS

University Ranking
Southern Asia
Year - 2026
Rank - 56

University Schools of Studies :

- Information, Communication & Technology
- Chemical Technology
- Bio-Technology
- Management Studies
- Environment Management
- Basic and Applied Sciences
- Humanities and Social Sciences
- Law and Legal Studies
- Education
- Architecture and Planning
- Medicine and Allied Health Sciences
- Mass Communication
- Design and Innovation
- Automation and Robotics
- Liberal Arts
- Ayush
- Fire and Industrial Safety
- Film Making

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- Pharmaceutical Sciences
- Disaster Management