WEST BENGAL JOINT ENTRANCE EXAMINATIONS BOARD
AQ-13/1, Sector-V, Salt Lake, Kolkata-700 091
Tel ph. (0330) 2367 1198/99/59/48 Toll free no. - 18003450050
Website: www.wbjeeb.in

INFORMATION BROCHURE – PUBDET & PUMDET - 2016

The West Bengal Joint Entrance Examinations Board was formed in the year 1962 for the purpose of holding Common Entrance Examinations for admission to the Undergraduate Level Engineering Courses in the State of West Bengal and was reconstituted in 2014 for the purpose of conducting joint entrance examinations for selecting students for admission to the under graduate and post graduate course in engineering, technology, management and such other professional, vocational and general degree courses in various educational institutions rendering professional, vocational and general education in West Bengal.

The endeavour of the Board has always been directed towards enhancement of transparency in conducting Common Entrance Examinations for various Undergraduate and Postgraduate level courses in the State through effective state-of-the-art technology.

The Office of the Board functions from AQ-13/1, Sector-V, Salt Lake City, Kolkata - 700 091. **Phone: (033) 2367 1159/ 1198, email: wbjeeb@gmail.com**

Presidency University has a unique place in history. It was one of the first institutes of Western-type higher education in Asia. In 1817, a group of enlightened Indians and Englishmen set up the Hindoo College. This was taken over by the British Government in 1855 as the College of the Bengal Presidency, and placed in 1857 under the newly founded Calcutta University. Although a Constituent College of Calcutta University, it preserved a tradition of research matched by few universities in India. This gave a unique dimension to its undergraduate teaching. The formal establishment of Presidency University in July 2010 allows it to refashion its venerable traditions and continuing strengths into a leading institution of the future. Detailed information is available on www.presiuniv.ac.in .

For any queries related to admission, the candidate may email to **help.admission@presiuniv.ac.in**

PUBDET & PUMDET – 2016:

For 2016–2017 academic sessions, the Board will conduct common entrance examinations for admission to three year B.A. /B.Sc. (Honours) course (PUBDET) and two year M.A. / M.Sc. course (PUMDET) in the Presidency University. The medium of admission tests will be English except for vernacular subjects like Hindi and Bengali.

The application for this examination will be received **ONLINE** at the portal of the Board at http://www.wbjeeb.in

SCHEDULE:

On-line form fill up	05.04.2016 to 05.05.2016
Fee payment	07.04.2016 to 05.05.2016
Admit card (downloadable)	30.05.2016 to 06.06.2016
Examinations	06.06.2016 to 12.06.2016 *
Publication of result	05.07.2016 (PUBDET) 13.07.16 (PUMDET)
Counselling	09.07.2016 (PUBDET) 22.07.16 (PUMDET)

NB:

The subject wise schedule of examinations will be notified at the time of publication of admit card through the Board's website – **www.wbjeeb.in**

The schedule may be changed in case of exigency and if so, the same will be notified well in advance through the Board's website – **www.wbjeeb.in**

UNDERGRADUATE COURSES:

Each candidate may apply for a maximum of **two** Honours subjects.

Candidates who have passed/appeared in the Higher Secondary Examination (10+2 system) conducted by the Council of Higher Secondary Education, West Bengal, or an equivalent examination, not before 2015, **are eligible to apply**.

For admission, the candidate must pass any of the aforementioned examinations, with at least five recognized subjects (full marks not less than 100), including English language. For candidates with International 'A' level or International Baccalaureate qualifications, at least three subjects at the IGCSE level and three subjects at the 'A' level are required, with English in either of the two levels. If required, such candidates may seek help from the Chair Persons of the Admission Committee of the Presidency University (Please contact the office of the concerned Faculty Deans at Presidency University) before submitting their applications.

Department/subject wise eligibility Criteria for admission:

Candidates may apply online and register for PUBDET even before publication of their (10+2) level result. After publication of their result, they should visit the online application website again, login and if desired, revise choice of department/subject for admission keeping in view the eligibility criteria given below.

Sl No	Department	Eligibility (Aggregate and Individual Subject)
1	Bengali	60% in aggregate and 65% in Bengali
2	Biological Sciences	75% in aggregate with Physics & Chemistry + (Maths or Stat) + Biology
3	Chemistry	80% in aggregate (with Physics, Chemistry and Mathematics) and 80% in Chemistry

4	Economics	80% in aggregate and 80% in Maths (not Business Maths), and 70 % in English
5	English	80% (Arts) OR 85% (Sci/Com) in aggregate and 75% in English or 65% in Eng-A (WBHS)
6	Geography	75% in aggregate with any 3 of 11 subjects (Phys, Chem, Maths, Bio, Stat, Eco, PolSc, Socio, History, Geography, Geology)
7	Geology	70% in aggregate with Physics, Chemistry and Mathematics
8	Hindi	60% in aggregate and 60% in Hindi
9	History	70% in aggregate
10	Mathematics	75% in aggregate and 80% in Mathematics
11	Philosophy	60% in aggregate and 65% in English
12	Physics	80% in aggregate and 80% in Phys + Maths combined
13	Political Science	70% in aggregate
14	Sociology	70% in aggregate
15	Statistics	75% in aggregate and 80% in Maths or Stat

The final merit list will be prepared on the basis of summation of the aggregate percentage marks (of the top four subjects, excluding Environmental Science/Education), obtained at the 10+2 level examination and the marks obtained in the respective admission tests. Candidates who have qualified for more than one subject will be allowed to express their choice during the counselling session.

Department/subject wise mode of entrance examinations:

Sl No	Department	Mode of test
1	Bengali	MCQ & Written (total 2 Hrs)
2	Biological Sciences	MCQ of PCM (1 Hr) and Biology (1Hr)
3	Chemistry	MCQ of PCM (1 Hr) and Chemistry (1Hr)
4	Economics	MCQ & Written (total 2 Hrs)
5	English	MCQ (1 Hr)* & Written (2 Hrs)
6	Geography	MCQ (1 Hr)
7	Geology	MCQ of PCM (1 Hr)
8	Hindi	Written (2 Hrs)
9	History	MCQ (2 Hrs)
10	Mathematics	MCQ of PCM (1 Hr) and Mathematics (1Hr)
11	Philosophy	MCQ (2 Hrs)
12	Physics	MCQ of PCM (1 Hr) and Physics (1Hr)

13	Political Science	Written (2 Hrs)
14	Sociology	MCQ (2 Hrs)
15	Statistics	MCQ of Maths (2 Hrs)

* The MCQ test will be a qualifying test. Papers of the written test will be evaluated for only those candidates, who qualify in the MCQ test. Scripts of written examination will be evaluated for a maximum number of 10 times the total seat capacity with bunching effect. Marks of MCQ test will not be considered for preparation of the merit list.

PCM is a combined test of Physics, Chemistry and Mathematics of 10 + 2 standards;

MCQ means Multiple Choice Questions.
All multiple choice questions will have four answer options; only one of them being correct.
Correct response will fetch full marks
No response will fetch zero mark.
Wrong response or multiple responses will fetch negative one fourth (- ¼th) of the full mark (for example if full mark for the question is 2 then it will fetch -½).

SEAT DISTRIBUTION OF UNDERGRADUATE COURSES:

COURSE (Hons.)	GENERAL	SC	ST	OBC-A	OBC-B	TOTAL
Bengali	21	7	2	3	3	36
English	21	7	2	3	3	36
Hindi	29	9	2	3	3	46
History	25	8	2	3	3	41
Philosophy	21	7	2	3	3	36
Political Science	17	6	2	3	2	30
Sociology	18	5	1	3	2	29
Biological Science	63	20	7	6	3	99
Chemistry	29	10	3	3	3	48
Economics	29	9	2	3	3	46
Geography	15	4	1	3	2	25
Geology	17	6	2	3	2	30
Mathematics	29	9	2	3	3	46
Physics	29	9	2	3	3	46
Statistics	15	4	1	3	2	25
TOTAL	378	120	33	48	40	619

The admission of SC/ST/OBC-A/B candidates will follow the reservation policies of West Bengal State Higher Education Institutions (Reservation in Admission) Act, 2013 and West Bengal State Higher Education Institutions (Reservation in Admission) Rules, 2014

POSTGRADUATE COURSES:

Candidates who have passed/appeared B.A. (Hons)/B.Sc. (Hons) final examination from any recognized University not before 2015, are eligible to apply as per the eligibility table given below.

In exceptional cases, students who have obtained their Bachelor's degree before 2014 will be permitted to sit for the Admission test. Such candidates must seek approval from the Chairpersons of the Admission Committee (please contact the Office of the concerned Faculty Deans at Presidency University) before submitting their application.

Candidates, who have appeared or are appearing for the final B.A./B.Sc. Examination at the time of admission, but do not have their final results, may seek provisional admission, on the basis of marks obtained up to the previous parts of their Bachelor's examination. If selected, they must submit their final mark sheet by 31st August, demonstrating that they fulfill the minimum condition of eligibility, failing which their candidature will be cancelled.

Department/subject wise eligibility Criteria for admission:

Candidates may apply online and register for PUMDET even before publication of their B.A. (Hons)/B.Sc. (Hons) result. After publication of their result, they should visit the online application website again, login and review their eligibility criteria as given below.

Sl No.	PG Courses	Minimum required marks for students from Universities other than PU	Minimum required CGPA for students from PU (Direct Admission)
1.	Bengali	50% in Bengali (Honours)	5.5
2.	English	50% in English (Honours)	5.5
3.	Geography	50% in Geography (Honours)	5.5
4.	Hindi	50% in Hindi (Honours)	5.5
5.	History	50% in History (Honours)	5.5
6.	Philosophy	50% in Philosophy (Hons)	5.5
7.	Political Science	50% in Pol Science (Hons)	5.5
8.	Sociology	50% in any Honours subject	5.5
9.	Biological Sciences	55% marks in B.Sc. with Honours in any branch of Biological Sciences	6
10.	Chemistry	55% in Chemistry (Honours)	6
11.	Applied Economics	55% in Economics (Hons)	6
12.	Applied Geology	50% in Geology (Honours)	6
13.	Mathematics	55% in Mathematics (Honours)	6
14.	Physics	55% in Physics (Honours)	6
15.	Statistics	55% in Statistics (Honours)	6

The final merit list will be prepared on the basis of the marks obtained in the respective admission tests.

Department/subject wise mode of common entrance examinations:

Sl No.	PG Courses	Mode of test
1.	Bengali	MCQ & Written (total 2 Hrs)
2.	English	MCQ (1 Hr)* & Written (2 Hrs)
3.	Geography	MCQ (1Hr)& Written (2 Hrs)
4.	Hindi	Written (2 Hrs)
5.	History	MCQ (2 Hrs)
6.	Philosophy	MCQ (2 Hrs)
7.	Political Science	Written(2 Hrs)
8.	Sociology	Written (2 Hrs)
9.	Biological Sciences	MCQ (2 Hrs)
10.	Chemistry	MCQ (2 Hrs)
11.	Applied Economics	MCQ (2 Hrs)
12.	Applied Geology	MCQ (1Hr)
13.	Mathematics	MCQ (1Hr)* & Written (2 Hrs)
14.	Physics	MCQ (2 Hrs)
15.	Statistics	Written (2 Hrs)

The MCQ test will be a qualifying test. Papers of the written test will be evaluated for only those candidates, who qualify in the MCQ test. Scripts of written examination will be evaluated for a maximum number of 10 times the total seat capacity with bunching effect. Marks of MCQ test will not be considered for preparation of the merit list.

MCQ means Multiple Choice Questions.
All multiple choice questions will have four answer options; only one of them being correct.
Correct response will fetch full marks
No response will fetch zero mark.
Wrong response or multiple responses will fetch negative one fourth (- ¼th) of the full mark (for example if full mark for the question is 2 then it will fetch -½).

SEAT DISTRIBUTION OF POSTGRADUATE COURSES:

MA/MSc	GENERAL	SC	ST	OBC-A	OBC-B	TOTAL
Bengali	21	7	2	3	3	36
English	21	7	2	3	3	36
Hindi	28	9	3	3	3	46
History	24	8	3	3	3	41
Philosophy	21	7	2	3	3	36
Political Science	21	7	2	3	3	36
Sociology	17	5	2	3	2	29

Department	General	OBC-A	OBC-B	SC	ST	Total
Biological Science	35	11	4	4	3	57
Chemistry	21	7	2	3	3	36
Applied Economics	18	6	2	3	2	31
Geography	18	6	2	3	2	31
Applied Geology	14	4	2	3	2	25
Mathematics	14	4	2	3	2	25
Physics	21	7	2	3	3	36
Statistics	14	4	2	3	2	25
TOTAL	308	99	34	46	39	526

Up to 60% of the PG seats in the respective departments for each category will be filled through the direct admission of the candidates from Presidency University.

The admission of SC/ST/OBC-A/B candidates will follow the reservation policies of West Bengal State Higher Education Institutions (Reservation in Admission) Act, 2013 and West Bengal State Higher Education Institutions (Reservation in Admission) Rules, 2014

ONLINE APPLICATION PROCEDURE

Application has to be filled up ONLINE at the portal: **www.wbjeeb.in**

The candidate needs to visit the portal and follow the links **<EXAMINATIONS> - <PUBDET/ PUMDET> - <ONLINE APPLICATION>**. The form is interactive in nature. There are two major steps in application form submission as follows:

Step – 1. Registration:

The candidate has to input name, date of birth, gender, mobile number and e-mail id. Candidate must take utmost care to give these inputs. If mistakes are committed **there is no chance of correction**.

The mobile number and e-mail id entered will be used for all subsequent communication.

Candidates also have to choose a **log-in ID and password** and remember them, which he/she will use for future log-in.

PUBDET candidates have to first choose **group-A or group-B** of subjects and then choose **maximum** two subjects from his/her choice of group. The groups are as follows,

GROUP-A	GROUP-B
Biological Sciences	Bengali
Chemistry	Hindi
Geology	History
Economics	Economics
English	English
Geography	Geography
Mathematics	Philosophy
Physics	Political Science
Statistics	Sociology

PUMDET candidate has to choose the subject according his/her honours/major subject in B.A./B.Sc.

At the end of this step the candidate may opt to logout or continue to next step.

Step - 2. Application Form:

This step comprises the following sub sections.

- **Personal details**: Candidate has to input information like category, religion, domicile state, guardian's name and address, communication address, permanent address etc.

- **Academic information**: Candidates for PUBDET will be able to enter their data for this sub section once their results at the 10+2 level are published. The candidate has to provide information like Board, year of passing, marks scored, name and address of the institution etc. The system will automatically check his/her eligibility for the subject(s) chosen.

Candidates appearing for PUMDET may however fill up the available information and proceed to the next step.

- **Uploading scanned documents**: In this sub section the candidate will be asked to upload the following documents in the formats specified below.

Recent passport sized coloured photograph of the candidate	storage size : Up to 200 KB (.JPEG/.JPG)
Full signature of the candidate	storage size : Up to 200 KB (.JPEG/.JPG)
Age proof (Admit Card of 10th standard examination) or birth certificate.	storage size : Up to 200 KB (.JPEG/.JPG)
Mark sheet/grade card of XII standard (for PUBDET) or B.A./B.Sc. (for PUMDET)	storage size : Up to 200 KB (.JPEG/.JPG)

Essential features of the photograph:

1. The photograph must be in colour taken preferably after 01.03.2016.
2. Low quality photographs, such as by mobile phones or self composed portraits may result in rejection of application.
3. Background of the photograph must be of very light colour.
4. The face should occupy at least 50% area of the photograph with a full face view looking into the camera directly.
5. Spectacles of dark or tinted glasses are not permitted.
6. Main feature of the face must not be covered by shadow, cloth or hair of the head. Forehead, eyes, nose and chin must be clearly visible.
7. The photograph must match with the candidate's appearance at the time of examination.

- **Choice of examination zone**: Candidate has to give his/her choice of examination zone. It should be noted that a zone may contain more than one center.

- **Fee submission**: Candidate will have to pay the examination fee either online (by net banking, debit/credit cards) or offline (by e-challan). If offline mode is chosen, an e-challan will be generated automatically. Candidate need to take a print of the challan and pay the fee in any branch of Allahabad Bank.

  The fee amount is Rs. 350/- + Rs. 10 as bank charges for both PUBDET and PUMDET examinations.

- **Declaration and confirmation**: In this sub-section, the candidate has to agree to a statutory declaration, without which his/her application stands incomplete.

- **Upon successful completion of application** the system will generate a confirmation page congaing all the details entered by the candidate. The candidate needs preserve a print out of this page till admission.

ADMIT CARD

Admit cards will be generated on the date notified, for the student to download and take a print.

Candidate has to carry a printed hard copy of the admit card along with a photograph identical with the one uploaded to the examination centre.

Candidates must ensure that the admit card is not mutilated/ distorted/ soiled even by accident. Candidates with such mutilated/ distorted/ soiled admit cards will not be allowed to appear in PUBDET/PUMDET-2016.

All applicants who appear to be *prima facie* eligible will be issued admit cards and shall be provisionally permitted to sit for PUBDET/PUMDET-2016. But if during counselling or at any stage later it is found that the applicant is otherwise ineligible, his/her candidature shall be cancelled even if he/she has appeared in PUBDET/PUMDET-2016 and secured a position in the merit list.

Candidates are advised to retain their admit cards carefully in secured place in undamaged condition in all respects till completion of admission procedure.

EXAMINATION CENTRES

The examination will be conducted in various zones e.g. Kolkata, Howrah, Hoogly, Kalyani, Murshidabad, Bankura, Haldia, Assansol, Burdwan, Durgapur, Siliguri, Jamshedpur, Guahati, Silchar and Agartala.

Any of the examination centrs may be dropped if adequate number of candidates is not available. The applicants opting for such centre(s) will be allotted seats to the nearest location of his/her choice.

The allotment of examination centre is fully at the discretion of the Board. Allotment made by the Board is final and no request for changing the zone/centre of examination will be entertained under any circumstances.

RESULT

The Board will publish the merit list in its website: **www.wbjeeb.in** and final allotment of seats will be made through counselling to be conducted by the WBJEEB. The Board neither publishes nor communicates result to any individual applicant. It does not have any provision for post-publication scrutiny or review and hence such requests will not be entertained.

Once the merit list is published, the candidate must log in and download his/her rank card, which he/she must carry for counselling and preserve till admission.

Merit list for PUBDET and PUMDET will be prepared as outlined before. In case of ties it will be broken by sequentially applying the following set of rules:

PUBDET:

1. The first criterion will be on higher admission test marks.
2. The second criterion will be on the least negative mark obtained by the candidate in the MCQ test excepting Hindi and Political Science. For these two subjects the marks obtained at the 10+2 level will be considered as the criterion for separation.

PUMDET:

1. Higher marks obtained at the honours level (either the percentage of marks or the percentage equivalent after grade point conversion)
2. Higher combined percentage of marks obtained in honours and subsidiary/ Pass/ Extra departmental subjects.

COUNSELLING

1. **Detail information** regarding list of candidates called for counseling, schedule and venue will notified through board's website **www.wbjeeb.in** at the time of declaration of results.

2. **Important documents in original and their photo copies to be brought positively by the candidates for verification during counselling:**

   a) Admit Card of PUBDET/PUMDET-2016.

   c) PUBDET/PUMDET rank card

   d) Admit card of 10th standard examination/ Birth certificate

   e) Mark sheet and certificate of 10th standard Board examination

   f) Mark sheet and certificate (if available) of 10+2 standard Board examination

   g) Mark sheet and certificate (if available) of B. A. /B. Sc. examination for PUMDET candidates.

   h) Domicile certificate, SC/ST/OBC certificate as applicable

The candidature shall be cancelled if he/she fails to produce any of the required documents in original or if any document is found to be faulty during counselling/ admission/ registration. The Board's decision in this regard is final.

The candidature shall also be cancelled if the candidate fails to appear for counseling at the notified venue and time. No request for out-of-queue counseling will be accepted.

LEGAL JURISDICTION :

All disputes pertaining to conduct of PUBDET/PUMDET-2016 shall fall within the jurisdiction of Kolkata only.

The Board will not be a party pertaining to any dispute arising out in the process of admission through PUBDET/PUMDET -2016.

FACULTIES, DEPARTMENTS AND COURSES OF PRESIDENCY UNIVERSITY
(For detail, please visit www.presiuniv.ac.in)

Faculty of Natural and Mathematical Science:

Department of Economics:

The Economics department in Presidency University has a rich heritage. Many of its alumni have achieved international renown in the academic world, in administrative and in the private sector.

Traditionally, the Department has emphasized on theoretical aspects of the discipline. In the last decade, in keeping with current global trends in research and teaching, the Department has broadened its focus to introduce a Post Graduate programme in Applied Economics. The curriculum, integrating theoretical knowledge with software-based applied skills, produced a new generation of students fit for cutting edge research. The success of the Masters programme may be gauged from the high rate of absorption of students by reputed data analytics and financial services companies.

Currently, the Department has an Infosys Chair Professor, one Associate Professor and five Assistant Professors. In addition, eminent faculty from institutes like IIM, ISI, Calcutta University, Jadavpur University, CSSS, etc. are involved with the Department as Guest Faculty.

Admission test for B. Sc (Economics Honours) Course:

The admission test will be of two (2) hours duration and of full marks 100. The test comprises of two parts viz.
   a) MCQ of 80 marks on mostly mathematics and a few questions on English
   b) Written test of 20 marks on English comprehension.

Syllabus: The standard will be of the HS or equivalent (10+2) level.
   - Mathematics (MCQ) —Algebra (Binomial theorem, Complex numbers and quadratic equations, Permutations and Combinations, Sequences and series, Set theory), Probability theory, Co-ordinate Geometry, Calculus (Limits, Derivatives, Integral calculus, Differential equations, Applications), Mathematical reasoning.
   - English (MCQ) —This section will test a candidate's hold over grammar and usage.
   - English (Comprehension) — This section will test a candidate's writing skill.

Sample question:

1. You want to order a triangular ornament box, where you want to keep three rings of radius 1 cm each as shown below. What will be the area of the base of the box if it is an equilateral triangle?
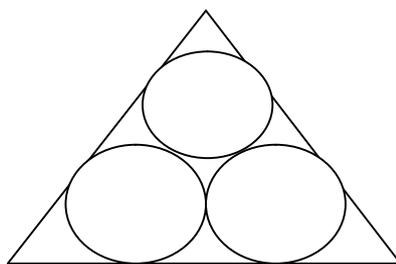
   (a) 4√3 - 6 sq cm   (b) 6 + 4√3 sq cm   (c) 7 + 4√3 sq cm   (d) 4√3 sq cm

2. My personal secretary reports that the more telephone calls she has to answer, the less typing she gets done. She spends 8 hours a day at her job. Consider the equation t = 8 - f(p); where " t" is the actual amount of time spent in typing and "p" is the percentage of time spent on the phone in 1 day. If the upper and lower limits of p is (100, 0) and that of f(p) is (8, 0) respectively, the function f(p) satisfying the given limiting conditions will be:

(a) f(p) = 100 - 0.8p   (b) f(p) = 8 - 0.01p   (c) f(p) = 0.08p   (d) f(p) = 100p

3. Consider a function be Y = 1+ x^2. Let us define two functions, (Y/x) and (dY/dx). Then at x = 1, which of the following statements are true?

        i. (Y/x) is minimised; ii. (Y/x) = (dY/dx); iii. (dY/dx) is rising; iv. (Y/x) is maximised

        (a) ii, iii, iv   (b) i, ii, iii   (c) ii, iii   (d) ii

4. Consider that y = x^2 + bx + 256 cuts the x axis at (h, 0) and (k, 0). If h and k are integers, what is the least value of b?

        (a) -32   (b) -256   (c) -255   (d) -257

5. **Directions** (Q No. i-iii): Complete the paragraph by filling in the blanks with appropriate words:
____(i)____ day, Banamalileaves home at five o'clock in the morning and takes the train to work. That's not unusual. ____(ii)____ of people get up early to travel by train to work. But Banamali's work place is 275 kilometres away from his home. It ____(iii)____ him five and a half hours to get from his home in Kolkata to his office at Dhanbad.

Blank No.	(a)	(b)	(c)	(d)
i	All	Every	Most	Entire
ii	Lots	Many	Much	More
iii	gets	makes	takes	Took

6. **Go through the following passage and answer the question specified below it.**
Some $1 trillion was lost to corruption last year. This is money that was not available for expanding health care, broadening access to education, improving nutrition, or cleaning up the environment. According to Transparency International, 68% of the world's countries have a serious corruption problem, and no country is completely immune.
Corruption is one facet of poor governance; indeed, it correlates with ineffective public administration, weak accountability, low transparency, and inconsistent implementation of the rule of law. So it is little wonder that the United Nations' brand-new Sustainable Development Goals, coming into force this year, aim to fight it. Nonetheless, the SDGs represent a departure from the previous development framework, the Millennium Development Goals, which contained no explicit targets relating to corruption.
Success would have myriad benefits: better public service, higher economic growth, greater faith in democracy. In an ongoing global poll that has so far attracted 9.7 million responses, "an honest and responsive government" is the fourth most popular policy priority, with only education, health care, and better jobs rated higher.
The problem is that the SDGs have so many targets – 169 in total – that they promise virtually everything to everyone. Without enough time or resources to focus on everything, countries will

prioritize. The Copenhagen Consensus Centre, has worked with more than 60 teams of experts to analyze the promised targets to identify what each would cost and achieve, so that prioritization can be better informed.

Nobel laureate economists examined this new research and identified 19 super-targets that would do the most good for the world for each dollar spent. These include achieving universal access to contraception, stepping up the fight against tuberculosis, and expanding preschool access in Sub-Saharan Africa. The economists recommended that the world's donors and governments focus first on these investments.

The UN's 12 corruption and governance-related targets weren't among these phenomenal investments. One reason is that several of the UN's "targets" in these areas are so broad as to be meaningless. Indeed, it is all very well to say that we want to "develop effective, accountable and transparent institutions at all levels," and to "substantially reduce corruption and bribery in all their forms," but where do we start?

Despite many years of effort, no simple path to achieving good governance or corruption-free institutions has been cleared. One challenge is that experts do not agree on whether good governance or development should come first. Historically, good institutions such as secure property rights and the rule of law were seen as the single most important factor driving variation in the wealth of countries, and more corruption was associated with lower growth. But more recent analyses have shown that it could just as easily be that higher wealth and economic growth lead to better governance.

A study of 80 countries where the World Bank tried to reduce corruption revealed improvement in 39%, but deterioration in 25%. More disturbing is that all of the countries the World Bank didn't help had similar success and failure rates – suggesting that the Bank's programs made no difference.

QUESTION: *Is corruption inevitable in your opinion and need not be confronted as a problem that needs urgent eradication? What is the reason for the possible dilemma faced by the UN or other international organizations in listing corruption at the top of their development agenda? What does this observation imply for India and suggest why such prioritization may actually help the country's poor.*

"The notion that wants do not become less urgent the more amply the individual is supplied is broadly repugnant to common sense. It is something to be believed only by those who wish to believe. Yet the conventional wisdom must be tackled on its own terrain. Intertemporal comparisons of an individual's state of mind do rest on technically vulnerable ground. Who can say for sure that the deprivation which afflicts him with hunger is more painful than the deprivation which afflicts him with envy of his neighbor's new car? In the time that has passed since he was poor, his soul may have become subject to a new and deeper searing.

If the individual's wants are to be urgent, they must be original with himself. They cannot be urgent if they must be contrived for him. And above all, they must not be contrived by the process of production by which they are satisfied. For this means that that the whole case for the urgency of production, based on the urgency of wants, falls to the ground. One cannot defend production as satisfying wants if the production creates the wants.

Were it so that a man arising each morning was assailed by demons which instilled in him a passion sometimes for silk shirts, sometimes for kitchenware, sometimes for chamber pots, and sometimes for orange squash, there would be every reason to applaud the effort to find the goods, however odd, that quenched this flame. But should it be that that his passion was the result of his first having cultivated the demons, and should it also be that his effort to allay it stirred the demons to ever greater and greater effort, there would be question as to how rational was his solution. Unless restrained by conventional attitudes, he might wonder if the solution lay with more goods or fewer demons.

So it is that if production creates the wants it seeks to satisfy or if the wants emerge paripassu with the production, then the urgency of the wants can no longer be used to defend the urgency of the production. Production only fills a void that it has itself created.

The point is so central that it must be pressed. Consumer wants can have bizarre, frivolous or even immoral origins, and an admirable case can still be made for a society that seeks to satisfy them. But the case cannot stand if it is the process of satisfying wants that creates the wants. For then the individual who urges the importance of production to satisfy these wants is precisely in the position of the onlooker who applauds the efforts of the squirrel to keep abreast of the wheel that is propelled by his own effort."

The passage quoted above is particularly relevant for countries like India where the majority of the people are deprived of the basic amenities of life, while a small minority of the people lives in enviable luxury. Can a society like ours defend the use of scarce productive resources for the production of non-essential consumer goods? In view of this question, present and illustrate the argument contained in the passage. *You will not get marks if you copy from the passage.*

Admission to M.Sc in Applied Economics
Instructions

- There will be a two hour Admission test (MCQ, 100 marks) for Applied Economics.
- There will be 50 questions covering different branches in Economics.
- Syllabus of admission test: The test will be based on standard UG Economics (Major/Honours) level courses in Microeconomics, Macroeconomics, Mathematical Economics, Statistics and Econometrics.

Sample question:

1. A firm produces electricity to meet the demand of a city. The price it can charge for electricity is fixed and it must meet all demand at that price. It turns out that the amount of electricity demanded is always the same over every 24 hour period, but demand differs from day (6:00 A.M. to 6:00 P.M.) to night (6:00 P.M. to 6:00 A.M.). During the day, 4 units are demanded, whereas during the nights 3 units are demanded. Total output for each 24-hour period is thus always equal to 7 units. The firm produces electricity according to the production function

$$Q_i = (KF_i)^{1/2}, \qquad i = \text{day, night}$$

where K is the size of the generating plant, and F_i is tons of fuel. The firm uses a single plant: cannot change plant size from day to night. If a unit of plant size costs w_k per 24 hour period and a ton of fuel costs w_f, the size of the plant will be

(a) $K^* = 5\sqrt{w_f/w_k}$ (b) $K^* = 2\sqrt{w_f/w_k}$ (c) $K^* = \sqrt{w_k/w_f}$ (d) $K^* = 5\sqrt{w_k/w_f}$

2. In the IS-LM model, an easy monetary in conjunction with a tight fiscal policy

(a) Increases exports and decreases imports; (b) Decreases exports and increases imports

(c) Encourages foreign capital inflows to the domestic country; (d) Both b and c

3. In the Solow growth model represented by first order differential equation, if labour grows exponentially at the rate n, the marginal propensity to save is s, and the production function given by $Q = K^{\alpha}L^{1-\alpha}$, where K is the capital stock and L is the labour force, the condition for dynamic stability is,

(a) $(1 - s)n > 0$(b) $(1 - \alpha)n > 0$ (c)$(1 - s)n < 0$ (d) $(1 - \alpha)n > 0$

4. In a war game an infantry can be positioned at four locations denoted by 1, 2, 3, 4. The two opponents of this war are Colonel Singh and Colonel Banerjee. In this war game, Colonel Singh has two infantry units that he can send to any pair of locations (1, 4, for example, means the units go to locations 1 and 4), while Colonel Banerjee has one unit that he can send to any one of four locations (i.e. 1,2,3 or 4). A unit wins a location if it arrives uncontested, and a unit fights to a standstill if an enemy unit also comes to the same location. A win counts as one unit of utility; a standstill yields zero utility. How many Pure Strategies Nash equilibria (PSNE) are there in this game?   (a) 4;   (b) 10;   (c) 12;   (d) 6.

5. A data consists of election outcomes and campaign expenditures of two political parties across 5 regions in a country where each party has nominated one candidate. Let Y be the percentage of the vote received by Candidate A. Considering rest of the factors remaining unchanged, if we consider a simple regression of Y on the percentage of total campaign expenditures (X) for Candidate A, the estimated equation becomes $\hat{Y} = 1 + 1.75X$.

If $\sum X = 20$, $\sum Y = 40$, $\sum XY = 230$, $\sum X^2 = 120$ and $\sum Y^2 = 444$, the goodness of fit of the regression line will be

(a) 0.99;   (b) 0.75;   (c) 0.50;   (d) 0.89.

6. Let p denotes the probability of getting a head when a given coin is tossed once. Suppose that the hypothesis H_0: p = 0.5 is rejected in favour of H_1: p = 0.6 if 10 trials result in 7 or more heads. The probability of Type II error will be

(a) 0.17; (b) 0.51; (c) 0.62;   (d) 0.23.

Department of Physics

The Department of Physics, established in 1865, is one of the earliest physics departments in the country. As part of Presidency University, the department offers BSc (Hons/Major) and MSc degrees in Physics. Currently the department has 14 faculty members (including one professor on lien) all having strong teaching &research background. They have been carrying out steady researches, both theoretical and experimental in several academic fields, such as astrophysics, cosmology, materials &condensed matter, earth science and particle physics. The department has received various departmental and individual research grants. Several funded projects are being executed now. The department has all the way looked after a balanced progress of teaching and research. In order to bring novelty in teaching and enhancing the process of learning, there are provisions for UG and PG guided project work, weekly colloquium of eminent speakers, student participation in symposiums/conferences, guided visits and academic trips in eminent laboratories/institutions and

other interactive learning activities. Facilities are extended to interested and eligible students for carrying out summer projects in India and abroad. Special papers are being offered at MSc level on two subjects, namely Astrophysics and Condensed Matter Physics. More information can be obtained from www.presiuniv.ac.in

Instructions

A student seeking admission to B.Sc (Hons/major) course in physics has to appear in two papers.

- A common paper (PCM) of 100 marks (MCQ/ 50 questions of 2 marks each; 1 hour duration) consisting of questions on physics, chemistry & mathematics of 10+2 levels.
- Another paper of 100 marks too (MCQ/25 questions with 4 marks; 1 hour duration) consisting of questions exclusively on physics (10+2 level).

Syllabus: HS (10+2 level) or equivalent syllabus in physics of any recognized board/council.

Sample questions for B. Sc. Admission Test in Physics

1. An open rectangular box with square base is to be constructed from 48 m2 of cardboard sheet. What is the largest possible volume of the box?

    (a)   16 m^3 (b) 32 m^3 (c) 48 m^3 (d) 64 m^3

2. An electron microscope is used to probe small structures of size of the order of 1 nm. What should be the potential difference through which the eletron should be accelerated to observe the desired structures?

    (a) 100 kV;   (b) 100 V;   (c) 1.5 V;   (d) 1 MV.

3. If the latent heat of water is L, the minimum radius of a water drop of density ρ and surface tension S that evaporates completely without any heat being supplied from outside is

    (a) 2S/ρL;   (b) 4S/ρL;   (c) S/2ρL; (d) S/ρL

4. A metal plate is kept horizontally suspended in mid-air by firing bullets each of mass m from a machine gun placed underneath the table. The gun fires n bullets/s which hit the plate vertically with a velocity v. if the bullets rebound back with the same velocity along the same line, the mass of the plate should be

    (a) mvn/g;   (b) 2mvn/g;   (c) 2mg/vn;   (d) mg/vn.

5. Three different particles of equal charge are emitted by a certain radioactive sample. The particles are initially accelerated by a constant electrostatic field and then enter a region of constant magnetic field directed perpendicular to their motion. The radii of the particle orbits in the region of the magnetic field are in the ratio 1:2:3. The ratio of the particle masses is

    (a) 1:2:3;   (b) 6:3:1;   (c) 1:4:9;   (d) 1:8:27.

6. The radius of a flexible circular loop is growing linearly with time. A magnetic field acts perpendicular to the plane of the loop and its magnitude is inversely proportional to the radius of the loop. Then the induced emf in the loop:

(a) varies with time; (b) varies inversely with time; (c) varies as a quadratic function of time; (d) remains constant

Instruction for 2 years MSc in Physics

One test of 100 marks (MCQ, 50 questions) and 2 hour duration.

Syllabus: Standard B.Sc (Physics Honours) course of Presidency University or equivalent.

Sample questions for M. Sc. Admission Test in Physics

1.   If $y = c_1 P_n(x) + c_2 Q_n(x)$ is a solution of the Legendre equation,

the solution of $(a^2 - x^2)y - 2xy + n(n+1) = 0$, $a \neq 0$ is:

(a) $y = c_1 P_n(x) + c_2 Q_n(x)$ (b) $y = c_1 P_n(x/a) + c_2 Q_n(x/a)$

(c) $y = c_1 P_n(ax) + c_2 Q_n(ax)$;   (d) $y = c_1 P_n(x-a) + c_2 Q_n(x-a)$

2. Two men, each of mass 100 kg are standing at diametrically opposite ends of a rotating turntable of mass 200 kg and radius 3 m. Initially the turntable makes one revolution every 2s. The two men make their way to the middle of the turntable at equal speed. The ratio of the final to initial kinetic energy of the system is:

(a) 1   (b) 2   (c) 3   (d) 0.5

3. A 4.5 kg block of ice at 0 $^\circ$C falls into the ocean and melts. The average temperature of the ocean is 3.5 $^\circ$C. The change of entropy due to the process is given by:

(a) 5.5×10^3 JK^{-1} (b) 10 JK^{-1} (c) 105 JK^{-1} (d) 100 JK^{-1}

4. What is the ratio of the probability of finding a 1s electron in a hydrogen atom to be at a distance a0 from the nucleus to that to be at a distance a0/4, where a0 is the radius of the first Bohr orbit?

(a) 0.25   (b) 1.45   (c) 2.57   (d) 4.00

5. The speed of light in a given slab is proportional to the height above the base of the slab. The path of light in the slab would be a :

(a) Straight line   (b) circle   (c) parabola   (d) cycloid

6. A beam of electrons, having energy 125 MeV, impinges on a double-slit whose separation is 10 μm. The distance between adjacent minima on a screen 20 m behind the slits is:

(a) 6.94 mm   (b) 3.47 mm   (c) 1.73 mm   (d) 0.87 mm

Department of Statistics

The Department of Statistics, as a part of Presidency College affiliated to the University of Calcutta, started its journey to teach undergraduate Statistics in 1944 under the able guidance of Professor P. C. Mahalanobis. Later, the teaching faculty was strengthened with a number of outstanding and dedicated teachers, some of whom have achieved tremendous fame in India and abroad. The department has produced high profile statisticians in the field of education and research and many of them have received international acclamation and have put India on the Statistical map of the world. Many Presidencians from this department have been successfully handling various challenging jobs in various prestigious national and international corporate sectors and the Government sector as well. After Presidency College achieved the status of University in 2010, the department started two-year post-graduate (PG) semester-based programme along with existing three-year undergraduate (UG) semester-based programme in Statistics. Further, this department caters GenEd Courses to the students of other Honours courses during the semesters 1 to 4. The department hopes, in the coming years, to strengthen its current offerings and its faculty strength to enable us to offer a PhD program at Presidency. Some interdisciplinary research works within the University as well as inter Universities researches are done by the department.

[To see more details, link up : http://www.presiuniv.ac.in/web/statistics.php]

Instructions

B.Sc. Statistics Honours Course:

Admission test will be of 100-marks with 50 Multiple Choice Questions (MCQ) (2 hours) on topics of plus-two level Mathematics.

Syllabus: This examination is designed to test the basic understanding of Mathematics up to the 12th standard level based on the following topics:

Algebra: Sets, operations on sets, relations and mappings. Prime numbers, factorization of integers and divisibility. Rational and irrational numbers. Permutations and combinations. Principles of mathematical induction. Binomial theorem. Logarithms. Theory of quadratic equations. Polynomials and remainder theorem. Arithmetic, geometric and harmonic progressions. Inequalities involving AM, GM, and HM. Complex numbers, Sequences, Series – logarithmic, exponential. Matrices and determinants up to order 3×3.

Geometry: Plane geometry of class X level. Geometry of two dimensions with Cartesian and polar coordinates. Concept of a locus. Equation of a line, angle between two lines, distance from a point to a line. Area of a triangle .Circle, parabola, ellipse and hyperbola and equations of their tangents and normals.

Trigonometry: Measures of angles. Trigonometric and inverse trigonometric functions. Trigonometric identities including addition formulæ, Solutions of trigonometric equations. Properties of triangles. Heights and distances.

Calculus: Differential calculus: Functions and its different types, limit, continuity, derivative, chain rule, derivative of implicit functions and functions defined parametrically. Application of calculus – tangents and normal, maxima and minima, use of calculus in sketching graph of functions. L Hospital's rule (statement only) and its applications.

Integral calculus: Integration as a reverse process of differentiation, indefinite integral of standard functions. Integration by parts. Integration by substitution and partial fraction. Definite integral as a

limit of a sum with equal subdivisions. Fundamental theorem of integral calculus and its applications. Properties of definite integrals.

Differential Equations: Formation of ordinary differential equations, Solution of homogeneous differential equations, Separation of variables method, Linear first order differential equations.

Probability: Basic concepts and Problems on Probability.

Sample Questions (Marks 2 each) :

1) Find the value of $x(>0)$ for which $\tan^{-1}(\frac{1-x}{1+x}) = \frac{1}{2}\tan^{-1}x$.

        (a) $\sqrt{3}$ (b) $\frac{1}{\sqrt{3}}$ (c)$\frac{2}{\sqrt{3}}$ (d) None

2) If $c\int_0^1 x f(2x)\,dx = \int_0^2 t\,f(t)\,dt$, where f is a positive continuous function, then c equals

        (a) ½   (b) 4   (c) 2   (d) 1

3) The number of local maxima of $f(x) = x + \sin x$ on R is

        (a) 1   (b) 2   (c) infinite   (d) 0

4) What is the value of $1\times1! + 2\times2! + 3\times3! + \ldots + n\times n!$, where $n!$ means n-factorial,

        i.e., $n(n-1)(n-2)\ldots 2.1$?

  (a) $n(n-1)(n-1)!$ (b) $(n+1)! / n(n-1)$ (c) $(n+1)! n!$ (d) $(n+1)! 1!$

5) ABC is a triangular park with AB=AC=80 meters. A mobile tower stands at the mid-point of BC. The angles of elevation of the top of the tower at A, B, C are 45, 60 and 60 degrees respectively. The height of the tower is

        (a) 40 meters   (b) $40\sqrt{3}$ meters   (c) $40(1+\sqrt{3})$ meters   (d) None

6) The number of ways of arranging the letters   A AAAA B BB C CC D E E F in a row if the letters C are totally separated from one another is equal to

        (a)$\frac{12!}{5!\,3!\,2!}$(b) $\frac{13!\,12!}{10!\,9!}$(c)$\frac{13!\,12!}{10!\,5!\,3!\,3!\,2!}(d)\frac{12!\,3!}{5!\,3!\,2!}$

M.Sc. Course:

For admission to M.Sc (Statistics) course a written test (100 marks; 10 questions of equal marks; 2 hours duration) will be conducted to select the candidates in order of merit.

Syllabus of the Admission Test:

B.Sc Statistics Honours or equivalent courses taught in Indian Universities on topics Random Variables and Their Probability Distributions, Sampling Distributions, Statistical Inference (based on parametric approach), Nonparametric Statistical Inference, Linear Algebra, ANOVA & Design of Experiments, Multivariate Distributions, Sample Survey.

Sample Questions:

1) Let there be n letters marked 1 to n and n envelopes marked 1 to n. The letters are put into the envelopes at random. A match is said to occur at the ith position if the ith letter is placed inside the ith envelope, i = 1(1) n. Let X_n denote the number of matches. Compute $E(X_n)$ and $V(X_n)$. Also comment on the limiting distribution of X_n as n $\to\infty$.   4+4+2

2) Let X_1, X_2, . . . , X_n be i.i.d. as $N_d(\mathbf{0}, d)$, where d is a p.d. matrix and $d \geq 2$. Let $Y_n = \min_{1 \leq i \frac{1}{2} n}\{\|X_i\|\}$, the minimum Euclidean distance of the points X_i's from the origin. Show that Y_n converges in probability to zero as $n \rightarrow \infty$. [Here $\|X_i\| = \sqrt{(X^/ X)}$.]   10

3) Based on a single random observation drawn from the distribution with p.d.f. given by

$$f(x|_{''}) = \frac{''^{''}}{\Gamma(_{''})} x^{''-1}e^{-x_{''}} , x > 0, _{''} > 0$$

construct a UMP size-α($0 < \alpha < 1$) test for testing $H_0 : _{''} = 1$ against $H_1 : _{''} > 1$.

Verify that the derived test is also UMP if H_0 specifies $_{''} \leq 1$.   6+4

4) Suppose `ChaarMurty' viz. Tenida, Habul, Kebla and Pyala independently test the null hypothesis $H_0 : \sim = 5$ based on a random sample of size n = 10 from N($\sim$, $\dagger^2$)-distribution. Both Tenida and Habul assumed $\dagger$ to be known and carried out right-tailed tests having p-values π_T and π_H respectively. Again, both Kebla and Pyala assumed $\dagger$ to be unknown and carried out two-tailed tests having p-values π_K and π_P respectively. How would you make an overall decision regarding the acceptance or rejection of H_0 at level α ($0 < \alpha < 1$)?   5

5) Consider the regression line of y on x fitted to each of two independent bivariate data sets observed on the pair of variables (x ,y). How would you test whether two regression lines intersect on the y-axis?   5

6) An incomplete block of a 2^4 factorial experiment involving 4 factors A, B, C and D is { (1),ad , ... , ...}. Complete the given block such that no main effect is confounded. Along with this block give the layouts of the control blocks of other replicates so that all two-, three- and four-factor interactions are confounded in a balanced way using minimum number of replicates.   2+3

Department of Geology

Department of Geology, established in 1892, is the oldest Geology teaching department in India. Over the century, students of this department have contributed substantially in various fields of geology, held key positions in the Indian mineral industries and have laudably played pioneering role in organising several university departments in the country and abroad.

The department at present runs *one* undergraduate (Honours) programme in Geology, *one* postgraduate programme in *Applied Geology* and PhD programme in Geology. In addition to the rich heritage of teaching at both UG & PG levels the department also pursues the long tradition of research in the frontiers of Geology. Currently, the department is equipped with modern instrumental facilities like WDS-XRF, SEM-EDS, Microscopes with photo micrographic attachments, RS-GIS laborator, Rock Mill, Rock thin-section facility, Isodynamic Mineral Separator etc

The **Geological Institute**, the oldest students' academic forum in the country has remained the pride of the department since 1905. The students of this department are encouraged to express their

academic interests through activities like quiz, seminars, slide shows and discussions under the umbrella of the Geological Institute including the annual S Ray Memorial Lecture, publication of a yearly journal 'Bhuvidya', Reunion, Students' Technology Day in collaboration with Industries and invited lectures by visitors and eminent scholars. The activities culminate to an Annual General Meeting where the departmental alumnus gets a chance to mingle with the young students.

Details can be obtained from University website

B. Sc. in Geology honours.
UG Admission:

A student seeking admission to B.Sc (Hons/major) course in Geology has to appear in one paper (PCM) of 100 marks (MCQ/ 50 questions of 2 marks each) and 1 hour duration consisting of questions on physics, chemistry & mathematics of 10+2 levels.

Syllabus: HS (10+2 level) or equivalent syllabus in physics of any recognized board/council.

Model questions:
See model questions in Chemistry, Physics, and Mathematics sections.

M. Sc in Applied Geology
Admission test to M.Sc (Applied Geology) course will be done strictly will be done on the basis of performance of a candidate in the admission test.
An applicant has to appear in the admission test on Geology [B.Sc Geology Hons level].
The test (Full marks 100) will be on line of 1 hour duration. Questions will be of MCQ type (50 questions of equal marks).

Syllabus: As per B.Sc (Hons) syllabus in Geology, Presidency University or any standard equivalent Geology Hons syllabus of other University recognised by UGC.

Sample Questions:

1. The origin of the Flinn's diagram represents a,

    a) Sphere   b) a prolate ellipsoid   c) and oblate ellipsoid d) none of these

2. The motion of plates on the surface of the earth is

    a) Translational   b) rotational   c) both translational and rotational   d) none of these

3. Basalt is a

    a) Volcanic rock   b) plutonic rock   c) hypabissal rock   d) none of these

4. Which of the following is a reliable indicator of stratigraphic younging direction?

    a) Cross-bedding   b) graded bedding   c) pebble imbrications d) flow layering

5. Iron ores are found in

    a) Dhanjori group   b) Chitravati group   c) Bailadila group   d) Sausar group

Department of Chemistry

The department of chemistry provides the opportunity for meeting major scientific challenges, such as addressing environmental issues, understanding the properties of polymers, synthesizing new materials, and discovering and delivering important drugs. The department prides itself on a balanced approach to science, with research areas ranging from experimental to theoretical. Members of faculty in the department are engaged in teaching and research in a wide range of applications and sub-disciplines. The department is well-equipped with state-of-the-art teaching and research laboratories. Faculty members in the department are involved in research programs that encompass all areas of chemical research, including both the traditional fields of inorganic, organic, and physical chemistry, as well as such diverse areas as nano-science, spectroscopy, macromolecular science, surface chemistry, biophysical chemistry, materials chemistry, synthetic inorganic and inorganic chemistry, theoretical chemistry.

The department offers semester-based both undergraduate and postgraduate degrees in chemistry with an updated syllabus. These degree programs will prepare students for a number of different options after graduation and post graduation. The department also offers doctoral programs in chemistry.

Instructions: B.Sc (Chem Hons) Course

A student seeking admission to B.Sc (Hons/major) course in chemistry has to appear in two papers.

- A common paper (PCM) of 100 marks (MCQ/ 50 questions of 2 marks each; 1 hour duration) consisting of questions on physics, chemistry & mathematics of 10+2 levels.
- Another paper of 100 marks too (MCQ/25 questions with 4 marks; 1 hour duration) consisting of questions exclusively on chemistry (10+2 level).

Syllabus: HS (10+2 level) or equivalent syllabus in chemistry of any recognized board/council.

Model Questions for UG Admission test

Common Test (PCM) (Chemistry)

1.   3-Hexyne can be reduced to 3-hexene with:

A) H_2/Raney Ni   (B) H_2/PtO_2 (C) $NaBH_4$/MeOH   (D) H_2/Pd-$BaSO_4$ +S.

2. Which of the compounds $Cl_2CHCOCH_2CH_2CH_3$, $PhCH(OH)CH_3$, acetone and acetaldehyde respond/responds to Haloform reaction on warming with Cl_2 / aq. NaOH?

(A) (i) & (ii);   (B) (i) & (iii);   (C) (iii) & (iv);   (D) all of (i), (ii), (iii) & (iv).

3. The standard electrode potential for the half cell reactions are

$$Zn++ + 2e- \rightarrow Zn, E_o = -0.76 \text{ V}$$

$$Fe++ + 2e- \rightarrow Fe, E_o = -0.44 \text{ V}$$

The e.m.f. of the cell reaction $Fe++ + Zn \rightarrow Zn++ + Fe$ is

A. -1.20 V;   B. +1.20 V;   C. -0.32 V;   D. +0.32 V

4. A compound formed by elements X and Y crystallizes in a cubic structure in which atoms X are at the corners of the cube and atoms Y are at the face-centers. The formula of the compound is:

A. X_3Y; B. XY; C. XY_2; D. XY_3

5. Which of the following statements is true regarding sodium and potassium?

A. Sodium has larger first ionization energy and a larger atomic radius.

B. Sodium has larger first ionization energy and a smaller atomic radius.

C. Sodium has smaller first ionization energy and a larger atomic radius.

D. Sodium has smaller first ionization energy and a smaller atomic radius.

6. The nitrogen oxide that do not contain N-N bond

A. N_2O;　　　B. N_2O_3;　　　C. N_2O_4;　　　D. N_2O_5

UG Admission Test on subject (Chemistry)

1. Acidity in decreasing order of the following acids (a-d) are:

A. b > c > a > d;　B. d > c > b > a;　C. d > b > c > a;　D. b > c > d > a

2. The major product is:

A. 2-butene;　　B. 2-butyne;　　C. 1-butene;　　D. 1-butyne.

3. How will the pH of water change when 0.56 g KOH (MW: 56) is added to 10 liters of it ?

A. it will diminish by 3;　B. it will grow by 3;　C. it will grow by 2;　D. it will grow by 4.

4. The rate constant (k) for the reaction $H2 + OH\bullet \rightarrow H\bullet + H2O$, which is an important step in the hydrogen-oxygen reaction mechanism, has a value of $3.52 \times 106 mol^{-1} dm3 s^{-1}$. What is the equivalent value expressed in units of $molecule^{-1} cm3 s^{-1}$?

A. 2.12×1027 $molecule^{-1} cm^3 s^{-1}$.;　　　B. 5.85×10^{-15} $molecule^{-1} cm^3 s^{-1}$.;

C. 5.85×10^{-21} $molecule^{-1} cm^3 s^{-1}$.;　　　D. 2.12×10^{-15} $molecule^{-1} cm^3 s^{-1}$.

5. Lewis diagrams for the nitrate and nitrite ions are shown below. Choose the statement that correctly describes the relationship between the two ions in terms of bond length and bond energy:
A. Nitrite has longer and stronger bonds than nitrate

B. Nitrite has longer and weaker bonds than nitrate

C. Nitrite has shorter and stronger bonds than nitrate

D. Nitrite has shorter and weaker bonds than nitrate

6. Four different acids are added to beakers of water, and the following diagrams represent the species present in each solution at equilibrium. Which acid has the highest pH?

A. Acid 1;　　B. Acid 2;　　C. Acid 3;　　D. Acid 4.

M.Sc in Chemistry

Admission to M.Sc Chemistry course will be strictly on the basis of the performance in the on line admission test on chemistry (MCQ pattern; 50 questions each of 2 marks; Full marks 100; 2 hours duration).

Syllabus for Postgraduate Admission Test: B.Sc. (Chem Hons) syllabus of Presidency University or equivalent.

Model Questions: PG Admission Test (Chemistry)

1.

Product "Y" in the given reaction is:

(a) (b) (c) (d)
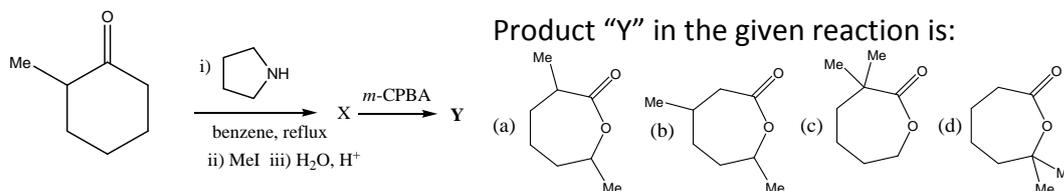
2.
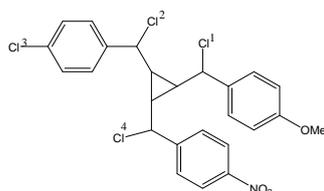
In the solvolysis (with H_2O) of the given compound which chloride is dissociated first?
(a) Cl^4; (b) Cl^3; (c) Cl^2; (d) Cl^1

3. A molecule, AX, has a vibrational energy of 1000 cm^{-1} and rotational energy of 10 cm^{-1}. Another molecule, BX, has a vibrational energy of 400 cm^{-1} and rotational energy of 40 cm^{-1}. Which one of the following statements about the coupling of vibrational and rotational motion is true?

      A. The coupling is stronger in BX.
      B. The coupling is stronger in AX.
      C. Magnitude of coupling is same in both AX and BX.
      D. There is no coupling in both AX and BX

4. If the separation between the most intense lines of P branch and R branch in the vibrational-rotational spectra of CO at 300 K is 55 cm^{-1}, what will be the value of rotational constant?
      (a) 5.5 cm^{-1} (b) 1.8 cm^{-1} (c) 2 cm^{-1} (d) 2.7 cm^{-1}

5. Which of the following salts will produce a colorless solution when added to water?
      (A) $Cu(NO_3)_2$;   (B) $NiCl_2$;   (C) $KMnO_4$;   (D) $ZnSO_4$

6. Starting with a stock solution of 18.0 M H_2SO_4, what is the proper procedure to create a 1.00 L sample of a 3.0 M solution of H_2SO_4 in a volumetric flask?
  (A) Add 167 mL of the stock solution to the flask, then fill the flask the rest of the way with distilled water while swirling the solution.
  (B) Add 600 mL of the stock solution to the flask, then fill the flask the rest of the way with distilled water while swirling the solution.
(C) Fill the flask partway with water, then add 167 mL of the stock solution, swirling to mix it. Last, fill the flask the rest of the way with distilled water.
  (D) Fill the flask partway with water, then add 600 mL of the stock solution, swirling to mix it. Last, fill the flask the rest of the way with distilled water.

Department of Biological Sciences

The Department of Biological Science in Presidency University has been created by merging together the pre-existing Departments of Botany, Zoology, Physiology, Molecular Biology, Biochemistry and Biotechnology. The result is a dynamic interdisciplinary Department with a holistic approach towards the study of Biological Science. In the curriculum, there will be two semesters in each academic year and thus a student enrolled in the Bachelor of Science

program will leave with a Bachelor's Degree in Biological Science after completion   of six semesters. Students who have completed a B.Sc Honours in any branch of Biological Science can enroll for the M. Sc program which consists of four semesters of curriculum. All students enrolled in the Bachelor of Science program will study the same compulsory course modules in the first three semesters   (Semester 1, 2 and 3) and these modules will comprise mostly of the fundamentals of Biological Science, ranging from diversity and evolution to biochemistry and genetics. There will be laboratory based / field study based practical modules related to the theoretical papers. The objective is to generate the knowledge base of the students, upon which they will build up their education .Upon completion of Semester 3, students will have the liberty of choosing theory papers of their personal interest, with the corresponding laboratory modules or they can opt for subject specialization. An advisory committee of   Departmental faculty will assist each student at this stage to select their courses for semesters 4, 5 & 6 based on their interests and their future career goals. Similarly, in the M.Sc program, first two semesters (PG Semester 1 and 2) will comprise of a common core syllabus studied by all students .In the 3rd and 4th semesters of post graduate programme, students would have to select a subject specialization. An advisory committee will assist the students at this stage as well. Every student enrolled in the Master's program has to complete a research project in their final semester (PG Semester-4) as part of the curriculum. The successful students will be awarded with an M.Sc degree in Biological Science, with their transcripts mentioning the course names. The total number of theory and practical modules that a student can take during UG semester 4,5,6 and PGsemester-3&4 will be based on UGC guidelines. The Department will reserve the right to limit the number of students for a particular module as well as fix the combinations of modules Department of Biological Science

Instructions for Biological Science honours.

A student seeking admission to B.Sc (Hons/major) course in Biological Science has to appear in two papers.

- A common paper (PCM) of 100 marks (MCQ/ 50 questions of 2 marks each; 1 hour duration) consisting of questions on physics, chemistry & mathematics of 10+2 levels.
- Another paper of 100 marks too (MCQ/50 questions with 2 marks; 1 hour duration) consisting of questions exclusively on Biology (10+2 level).

Syllabus: HS (10+2 level) or equivalent syllabus in chemistry of any recognized board/council.

Model Questions:

1 Which Chlorophyll is most frequently found in all photosynthesizing plants

        (a) Chlorophyll a   (b) Chlorophyll b (c) Chlorophyll c   (d) Chlorophyll d

2 Fat soluble vitamins involved in bone formation and blood clotting are

        (a) Vitamin C & K (b) Vitamin A & E (c) Vitamin B & K (d) Vitamin D & K

3 The wings of a bird and the forelegs of a horse are

  (a) Vestigial organs   (b) Analogous organs   (c) Phylogenetic organs (d) Homologous organs

4 In human male , the number of linkage groups in each cell will be

(a) 22 (b) 23 (c) 24 (d) 25

5 Nutrient enrichment of a lake will cause

(a) Eutrophication (b) Stratification (c) Biomagnification (d) Bioaccumulation

6 In woody dicots the periderm eventually replaces the

(a) epidermis (b) phloem (c) xylem (d) apical meristem

7 Unwinding of DNA is done by

(a) Helicase (b) Topoisomerase (c) Ligase (d) Hexonuclease

8 Coliform bacteria on fermentation of carbohydrates yields

(a) Lactic acid (b) acetic acid (c) formic acid (d) all of these .

Instructions for M.Sc (Biological Science) Course

Admission to M.Sc (Biological Science) course will on the basis an on line admission test on Biological Science. The paper will be of 100 marks and the questions will MCQ type (5o questions; each of 2 marks) and duration of the examination will be 2 hours.

Syllabus: Common topics taught at the BSc (Hons) level of Botany / Zoology / Physiology / Microbiology / Biotechnology in different colleges of West Bengal . The common topics include Cell & Molecular Biology , Genetics , Microbiology , Immunology , Environmental Science , Ecology , Biostatistics ,Evolution, Biochemistry ,Biotechnology etc .

Model Questions –

1. Which of the following doesnot fall in the innate arm of immune systems –
   a) Macrophage b) B cells c) NK cells d) Dendrite cells.
2. For staining a protein gel after SDS-PAGE which one of the following dye is most commonly used
   a) Bromophenol blue b) Coomassie Blue c) Xylene cyanol d) Aniline Blue
3. If two genes perform similar function in two different species , they can be defined as –
   a) Paralogous gene b) Orthologous gene c) Pleiotropic gene d) Polygenes .
4. First Environmental Conference was held at , on –
   a) Stockholm , 5th June b) Rio De Janeiro , 5th June c) Tokyo , 15th June d) Mexico , 15 th June
5. The first human hormone produced by Recombinant DNA technology was –
   a) Estrogen b) Testosterone c) Thyroxin d) Insulin

Department of Mathematics

The Department of Mathematics of Presidency University is one of the oldest department in the country, having, started functioning since the foundation of Hindu College (then the name of the university) in 1817. Radhanath Sikdar (famous mathematician known for measuring the height of Mt. Everest), Sir Anandamohan Basu (the first Indian Wrangler), Sir Asutosh Mukhopadhyay (Chief architect and Vice Chancellor of Calcutta University), Syamadas Mukhopadhyaya (Indian mathematician famous for proving the four vertex theorem for convex curves), Satyendra Nath Bose (one of the founder of Bose Einstein Statistics), Meghnad Saha (founder of the theory of Thermal

Ionisation and Saha Equation), Nikhilranjan Sen (a profound scholar in the field of relativity, astrophysics and fluid dynamics) were the students of this Department who attained universal recognition. In keeping with its tradition of academic excellence and the achievements of its illustrious alumni, the department is poised towards developing its teaching and research initiatives further. The department is well equipped with research resources such as a seminar library for its students.

As part of Presidency University, the Department of Mathematics offers three years BSc (Honours) and two years MSc degrees in Mathematics. The undergraduate syllabus has been thoroughly revised recently and the revised syllabus is unique in the country at the university level.

UG Admission Test in Mathematics:

The test will comprise of two papers viz,

1. A combined PCM (Physics, Chemistry & Mathematics) test of 100 marks (MCQ; 50 questions of equal marks, Time: 1 hr)
2. A test on Mathematics (HS level) (MCQ; 50 question, each carrying 2 marks, Time: 1 hr

Syllabus: Higher Secondary (10+2) level and equivalent

Sample questions:

PRESIDENCY UNIVERSITY, KOLKATA
(Sample Questions for UG Admission Test in Mathematics)

1. $f(x) = \frac{1}{1-x}, x \neq 1$. Then $(f \circ f \circ f)(x)$ is equal to

   [a] $\frac{1}{1-x+x^2-x^3}$ [b] $\frac{1}{1-\frac{1}{1-x}}$ [c] $\frac{x}{1-x+x^2-x^3}$ [d] x

2. The symmetric difference $A\Delta B$ of the sets A, B is given by $A\Delta B = (A - B) \cup (B - A)$. Then for all A, B, C:

   [a] If $A\Delta B = A\Delta C$ then $B = C$ [b] If $A\Delta B = \emptyset$ then $A = B$ [c] $A \cap (B\Delta C) = (A\cap B)\Delta(A\cap C)$ [d] $A\Delta(B\cap C) = (A\Delta B)\cap(A\Delta C)$

3. The number of elements belonging to the three sets A, B, C are m, n, p respectively. The total number of elements belonging to exactly two sets is k; and the number of elements common to all three is r. Then the total number of elements belonging to at least one of the three sets is

   [a] $m + n + p - k - 2r$ [b] $m + n + p - 3k + r$ [c] $m + n + p - k + 3r$ [d] $m + n + p - 3k - r$.

4. If $\sin^{-1}(\sin x) = \theta$, then $\cos^{-1}(\cos x)$ equals, for any x,

   [a] θ [b] $-\theta$ [c] $2\pi - \theta$ [d] none of these.

5. If for given real numbers x and y, it is given that $\sin x = \sin(x + y)(\neq 0)$, then which of the following is always false for any choice of x and y?

   [a] $\sin y = 0$ [b] $\cos y = 1$ [c] $\sin y = \sin 2x$ [d] none of these.

6. If A is a skew-symmetric matrix of order 3, and P is a 3×1 matrix, then $P^T A P$ will be

   [a] null matrix [b] a non-null symmetric matrix [c] a non-null skew-symmetric matrix [d] none of these.

7. Let $f(x) = \begin{cases} \frac{\sin|x|}{|x|}, & |x| \neq 0, \\ 1, & |x| = 0. \end{cases}$ Then $\lim_{x \to 0} f(x)$ $f(x) = \begin{cases} \frac{\sin|x|}{|x|}, & |x| \neq 0, \\ 1, & |x| = 0. \end{cases}$

   [a] does not exist [b] is equal to 0 [c] is equal to 1 [d] exists and does not equal 0 or 1.

8. If $\int_0^x f(t)dt = x + \int_x^1 tf(t)dt$, then $f(1)$ is equal to

   [a] 0 [b] 1 [c] 2 [d] none of these.

9. The number of real solutions of the equation $\sin x = \log_{10} x$ is

   [a] 1 [b] 3 [c] 5 [d] none of these.

10. The differential equation $\frac{dy}{dx} = \sqrt{y}$, $y(0) = 0$ has

   [a] exactly one solution [b] no solution [c] exactly two solutions [d] infinitely many solutions

11. The number of functions $f : \{1, 2, \ldots, n\} \to \{0, 1\}$ such that $f(1) + f(2) + \ldots + f(n)$ is an even number is

   [a] $2^{n-1} + 1$ [b] $2^n - 1$ [c] $2n - 1$ [d] 2^{n-1}

12. If x, y and k are positive numbers such that $\frac{10x}{x+y} + \frac{20y}{x+y} = k$ and if $x < y$, then a possible value of k can be

   [a] 10 [b] 12 [c] 15 [d] 18.

13. Two perpendicular lines intersect at P. A and B are two points on these lines while C divides AB externally in the ratio $\cos\theta : \sin\theta$. Then the ratio of the areas of $\triangle APC$ and $\triangle BPC$ is

   [a] $\cos\theta : \sin\theta$ [b] $\sin\theta : \cos\theta$ [c] $\cos^2\theta : \sin^2\theta$ [d] none of these.

14. If $0 < \theta < \frac{\pi}{2}, 0 < \phi < \frac{\pi}{2}$, $\sin\theta = \frac{1}{2}$ and $\cos\phi = \frac{1}{3}$, then $\theta + \phi$ lie on

   [a] $\left(\frac{\pi}{3}, \frac{\pi}{2}\right)$ [b] $\left(\frac{\pi}{2}, \frac{2\pi}{3}\right)$ [c] $\left(\frac{2\pi}{3}, \frac{4\pi}{3}\right)$ [d] none of these

15. If x and y are integers with $|x - y| > 2$ and $1 + x + y + xy = 15$, then their difference is

[a] 14   [b] 16   [c] 18   [d] possibly any no. > 2.

16. α, β are the roots of the equation $x^2 - x - 1 = 0$ and $A_n = \alpha^n + \beta^n$. Then for all integers $n > 1$, the arithmetic mean of A_{n-1} and A_n is

[a] $2A_{n+1}$ [b] $2A_{n-2}$ [c] $\frac{1}{2}A_{n-2}$ [d] $\frac{1}{2}A_{n+1}$.

17. The area enclosed by the curves $y = \sin x$ and $y = \sin 2x$ for $0 \le x \le \frac{\pi}{2}$ (in square unit) is

[a] $\frac{1}{2}$ [b] $\frac{1}{4}$ [c] $\frac{3}{4}$ [d] 1.

18. In a triangle ABC, $b + c : c + a : a + b = 11 : 12 : 13$; then $\cos A : \cos B : \cos C$ is

[a] $9 : 17 : 25$ [b] $7 : 19 : 25$ [c] $5 : 19 : 25$ [d] $7 : 15 : 29$.

19. The number of solutions of the equation $|x + 2| + |x + 3| + |x - 4| = 6$ is

[a] exactly one   [b] more than one but finitely many   [c] infinitely many   [d] none of these

20. The last digit of $(2137)^{754} \times (2173)^{457} \times (7129)^{755}$ is

[a] 9   [b] 7   [c] 3   [d] 1

21. The centre of a circle of radius r is at O, C is a point at a distance $a(> r)$ from O. The tangents from C to the circle touch it at A and B. The area of triangle ABC is

[a] $\sqrt{a^2 - r^2} \cdot \frac{r^3}{a^2}$ [b] $(a^2 - r^2) \cdot \frac{r^2}{a^2}$ [c] $(a^2 - r^2)^{\frac{3}{2}} \cdot \frac{r}{a^2}$ [d] none of these.

22. The term independent of x in the expansion of $(x + \frac{1}{x})^7 (x + \frac{1}{x^2})^5$ is

[a] 234   [b] 362   [c] 482   [d] 536

23. If $x[x] = 39$ and $y[y] = 68$, the value of $[x] + [y]$ is

[a] 14   [b] 15   [c] 48   [d] none of these.

24. If $x^2 f(x) + f(\frac{1}{x}) = 0$ $(x > 0)$ then the value of $\int_{0.6}^{1.5} f(x) dx$ is

[a] -1 [b] 0   [c] 1   [d] none of these.

25. Let $f : \mathbb{R} \to \mathbb{R}$ be defined by

$$f(x) = \begin{cases} \dfrac{x[x]}{\sin|x|}, & x \ne n\pi, \ n \in \mathbb{Z}, \\ 0, & \text{elsewhere.} \end{cases}$$

Then $\lim\limits_{x \to 0} f(x)$

[a] exists finitely and non-zero   [b] equals 0   [c] exists infinitely   [d] none of these

26. Let the sets A and B consist of 5 and 3 elements, respectively. The number of surjective mappings from A to B is

[a] 100   [b] 125   [c] 150   [d] 243.

27. If a and b are integers with $|a|, |b| \le 5$ then the probability of $\begin{vmatrix} a & -b \\ b & a \end{vmatrix}$ being a perfect square is

[a] $\frac{19}{121}$ [b] $\frac{22}{121}$ [c] $\frac{30}{121}$ [d] none of these.

28. The circum-centre of the triangle whose sides are $\sqrt{31}$, $3\sqrt{2}$ and 7 units lies

[a] outside the triangle   [b] strictly within the triangle   [c] on the triangle   [d] equidistant from two sides of the triangle.

29. Which of the following four statements is not true ?
Two sets A and B are equal if and only if

[a] $A \triangle P = B \triangle P$, for some set P [b] $A \triangle P = B \triangle P$, for each set P [c] $(A \triangle B) \triangle C = (B \triangle C) \triangle A$, for each set C [d] $A \cap P = B \cap P$, for all infinite sets P.

2

30. The total number of sub-committees that can be formed from a group of 17 members with one convener(for each sub-committee) is

[a] 17×2^{17} [b] 17×2^{16} [c] 16×2^{17} [d] 16×2^{16}

31. A, B, C are three sets, $f : A \to B$ and $g : B \to C$ are functions such that $g \circ f$ is injective. Then

[a] f is injective [b] g is injective [c] both f and g are injective [d] none of these

32. The value of $\dfrac{1}{\log_{3^n} 3} + \dfrac{1}{\log_{3^n} 3^2} + \dfrac{1}{\log_{3^n} 3^3} + \cdots + \dfrac{1}{\log_{3^n} 3^n}$ is

[a] 3 [b] $\frac{2^n}{n}$ [c] $\frac{2^n+1}{3^n}$ [d] none of these

33. The cubic function $f(x) = x^3 + px^2 + qx + r$ is such that $f(1) = f(6) = 0$, where p, q, r are integers. Possible values of $f(4)$ may be

[a] 24 [b] -5 [c] 11 [d] 18

34. Consider $A(S)$, the collection of all bijective maps from the set S onto S. For $f \in A(S)$ and $S_1 \subset S$, say that "f fixed S_1" if $f(x) = x$ for all $x \in S_1$. Now, let f fix S_1 and g fix $S_2 \subset S_1$. Then in general

[a] $f \circ g$ fixes S_2 [b] $f^{-1} \circ g$ fixes S_2 [c] $f \circ g$ fixes $S_1 \Delta S_2$ [d] f fixes $S_1 \Delta S_2$

35. Let $f : \mathbb{R} \to \mathbb{R} - \{0\}$, then say which of the following pairs of conditions are equivalent:

[a] f is continuous; $\frac{1}{|f|}$ is continuous. [b] f is continuous; $(f \circ f)^{\frac{1}{3}}$ is continuous. [c] f is continuous; $\max\{f, \frac{1}{f}\}$ is continuous. [d] f is continuous; $\frac{1}{f}$ is continuous.

Instructions for M. Sc. In Mathematics

The test will comprise of two parts, viz,

1. A qualifying (elimination) test in mathematics in MCQ mode.
2. A 2 hours' written. The scripts of the written test of only those students, who qualify in the qualifying test, will be evaluated for preparation of the merit list.

Syllabus: Standard B.Sc Mathematics Hons syllabus of Presidency University or equivalent of any recognised Universities.

Model questions:

PRESIDENCY UNIVERSITY, KOLKATA
(Sample Questions for PG Admission Test in Mathematics

1. (a) Find a linear operator T on $\mathbb{R}^3$ such that $\ker T$ is the subspace

$$U = \{(x, y, z) \in \mathbb{R}^3 : x - y - z = 0\}.$$

   (b) Give an example of a linear operator T on a vector space V such that $\ker T = ImT$.　　2+3

2. (a) Let M be the vector space of all 3×3 matrices over the real field. Let S be the subspace of all skew symmetric matrices in M. Find a basis of S. Justify your answer.

   (b) Find the dimension of the subspace S of $\mathbb{R}^3$ defined by　　3+2

$$S = \{(x, y, z) \in \mathbb{R}^3 : x + 2y = z, 2x + 3z = y\}.$$

3. The integers x and y are chosen at random with replacement from nine numbers $1, 2, \ldots, 9$. Find the probability that $|x^2 - y^2|$ is divisible by 2.　　5

4. The plane $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$ cuts the axes at A, B, C. Find the equation of the cone whose vertex is origin and the guiding curve is the circle ABC.　　5

5. Prove that a non-commutative group of order $2n$, where n is an odd prime, must have a subgroup of order n.　　5

6. Let G be a finite commutative group of order n and $\gcd(m, n) = 1$, m being a positive integer. Prove that $\phi : G \to G$ defined by $\phi(x) = x^m$, $x \in G$, is an isomorphism.　　5

7. If $V \subset \mathbb{R}$ is open and if $f : V \to \mathbb{R}$ is differentiable and $f'(x) = 0$ for all $x \in V$, then f is a constant function — Correct or justify.　　5

8. (a) The function $f : \mathbb{R} \to \mathbb{R}$ is defined by $f(x) = x|x|, \forall x \in \mathbb{R}$. Check the differentiability of f at $x = 0$.

   (b) Show that every finite subset of $\mathbb{R}$ is compact.　　2+3

9. Define centre of a conic. Show that a non-singular conic can have at most one centre. Also prove that if (α, β) be the centre of the non-singular conic $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ then $a\alpha + h\beta + g = 0 = h\alpha + b\beta + f$.　　3

10. A variable plane is parallel to the plane $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 0$, $abc \neq 0$, and meets the coordinate axes at A, B, C respectively. Show that the circle ABC lies on a cone. Find the equation of the cone.　　5

11. (a) Prove that a finite abelian group in which each element is of order 2 must be of order 2^n for some positive integer n in which case it is isomorphic to the group $(P(X), \Delta)$ for a suitable set X.

    (b) Find all non-isomorphic types of abelian groups of order p^3, where p is a prime.　　2+3

12. A group G is such that $G = \langle a, b \rangle$, $o(a) = 2, o(b) = 4$ and $bab = a$.

1

(a) Find $Z(G)$.

(b) Find G', the subgroup of G generated by the subset $\{xyx^{-1}y^{-1} : x, y \in G\}$.

(c) Find subgroups A and B of G such that $A \lhd B, B \lhd G$ but $A \ntriangleleft G$.   5

13. (a) Given a sequence $\{A_n\}$ of sets, find a sequence $\{B_n\}$ of pairwise disjoint sets such that $\cup_{k=1}^{n} A_k = \cup_{k=1}^{n} B_k$ for each $n \in \mathbb{N}$.

(b) Let $A \subset (-\infty, 0), B \subset (0, \infty)$ be bounded. Find $\sup AB$ and $\inf AB$ in terms of those of A and B, where $AB = \{ab : a \in A, b \in B\}$.   2+3

14. Let $\{x_n\}, \{y_n\}$ be two sequences in $\mathbb{R}$. For each $n \in \mathbb{N}$, define $A_n = \{(x_k, y_k) : k \geq n\} \subset \mathbb{R}^2$. Prove that $\lim_{n\to\infty} d(A_n) = 0$ if and only if both $\{x_n\}$ and $\{y_n\}$ are Cauchy sequences, where for a set $A \subset \mathbb{R}^2$, $d(A)$ denotes the diameter of A.   5

15. Let $\{f_n\}$ be a sequence of continuous functions defined on a closed interval $[a, b]$ of $\mathbb{R}$ converging uniformly to a function f on $[a, b]$. Prove that f is uniformly continuous.   5

16. Let x be an irrational number. Prove that there exists a sequence of nested closed intervals $[a_1, b_1] \supset [a_2, b_2] \supset [a_3, b_3] \supset \cdots$ with rational endpoints such that $\lim_{n\to\infty}(b_n - a_n) = 0$ and $x \in \cap_{n=1}^{\infty}[a_n, b_n]$. Does the intersection contain any other irrational number? Argue.   5

17. Let $\mathbb{R}[x]$ denote the set of all polynomials with real coefficients. Prove that (i) $\mathbb{R}[x]$ is a vector space and $\{1, 1 + x, 1 + x + x^2, 1 + x + x^2 + x^3, \ldots,\}$ is a basis of it and (ii) The set of all polynomials whose one root is $1 + i$ is a subspace of $\mathbb{R}[x]$.   5

18. Show that a polynomial $f(x)$ of degree n with real coefficients can be written as

$$f(x) = f(0) + \frac{\Delta f(0)}{1!}x + \frac{\Delta^2 f(0)}{2!}x^2 + \cdots + \frac{\Delta^n f(0)}{n!}x^n,$$

where $\Delta f(x) = f(x + h) - f(x)$, and $\Delta^n f(x) = \Delta^{n-1} f(x + h) - \Delta^{n-1} f(x)$, $n > 1$, $h > 0$ is a fixed real number.   5

19. (a) Show that the differential equation $\frac{dx}{dt} = x^2$, $x(0) = x_0 > 0$ has no solution $x(t)$ defined for all $t \in \mathbb{R}$. Does there exist x_0 so that $x(t)$ can be defined for all $t \in \mathbb{R}$?   2+1

(b) Show that every solution $x(t)$ of the differential equation $\frac{dx}{dt} = x^2 - x^4$ with $x(0) > 0$ satisfies $\lim_{t\to\infty} x(t) = 1$.   2

20. (a) A gambler Plays a game of chance with his opponent in which the probability of his win is $\frac{1}{2}$ at a stake of Rupees 5. He starts the game with a capital of 50 Rupees. Find the probability that the gambler will completely ruin his capital after 20 games.   3

(b) Let $\Omega = \{1, 2, \ldots, 18\}$ with uniform probability, $A, B \subseteq \Omega$ and the events A and B are independent. Assume that A has 6 elements, then what conclusions can be drawn regarding the number of elements in B.   2

2

Department of Geography

Instructions:

B.Sc (Geography Hons) Course

A student seeking admission to B.Sc (Geography Hons) Course has to appear in an online test on Geography of 1 hour duration for selection. The test will be of 100 marks (MCQ, 50 questions of equal marks).

Syllabus: Higher Secondary (10+2 level) or equivalent.

Undergraduate Admission Test, 2014
Department of Geography
Presidency University

Full Marks: 100   **Time: 2 hours**

The paper contains Three Sections - A, B and C.

Section A: Map Pointing   [1×10 = 10]

I. **Mark, Shade and Name** (চিহ্নিত করো, শেড দাও এবং নাম লেখ) the following on given outline map (রেখা মানচিত্রে) of India

a. A right bank tributary (ডান তীরের উপনদী) of the River Ganga

b. The Ten Degree Channel (প্রনালী)

c. The Hill Range which joins the Western and the Eastern Ghats

d. Adam's Bridge

e. The area served by the Indira Gandhi Canal System

f. Little Raan of Kutch

g. A Peninsula between two Gulfs on the West Coast of India

h. Habitat of Santhal Tribe in West Bengal

i. A major Tapioca (সাবুদানা) producing region

j. Capital of Chhattisgarh
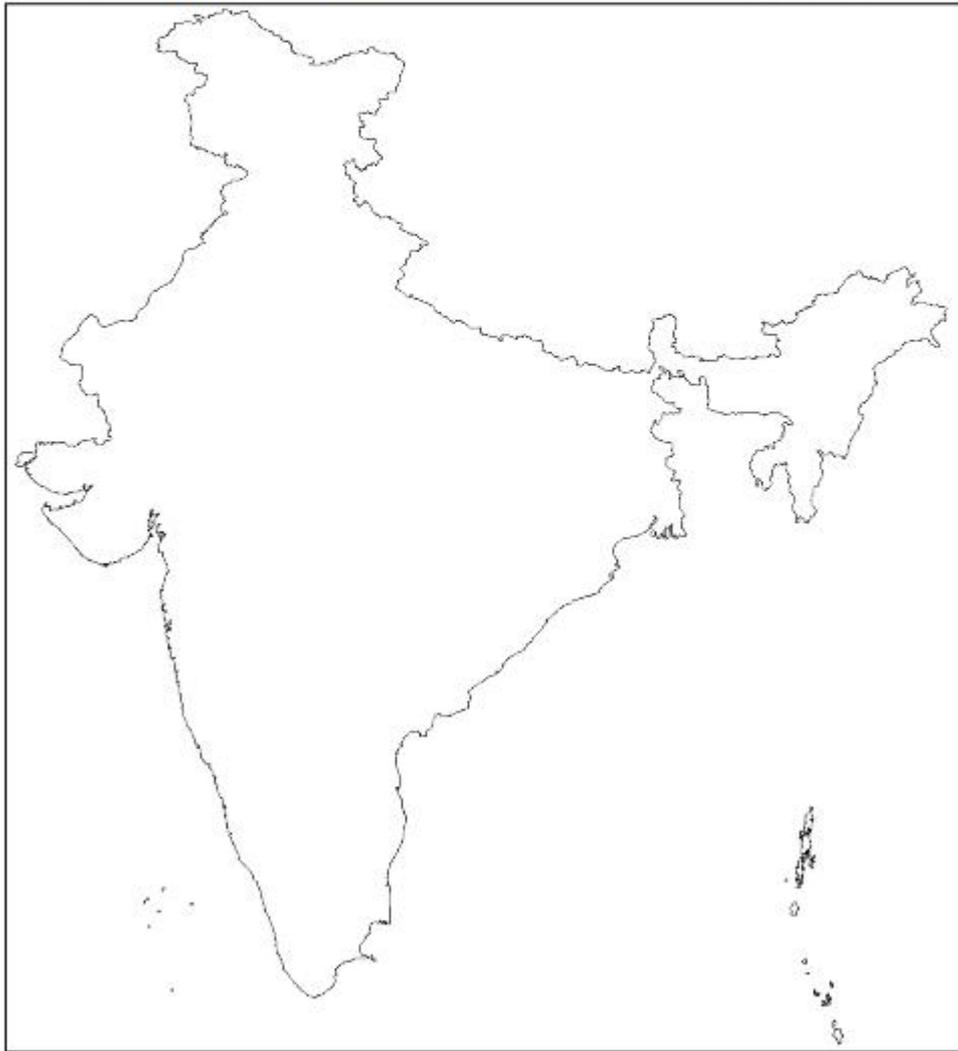
Section B: Multiple Choice Questions [30×2 = 60]

II. **Choose and mark the correct option** for each of the following questions on the given **OMR Sheet**

1. Match the following

List I	List II
A. Belt of Calm (শান্তবলয়)	1. GG Coriolis
B. Deflective force (বিক্ষেপ বল)	2. Doctor
C. Roaring Forties (গর্জনশীল চল্লিশা)	3. Equatorial
D. Harmattan	4. Westerlies (পশ্চিমা বায়ু)

a. A-4, B-2, C-3, D-1   b. A-2, B-3, C-1, D-4   c. A-3, B-1, C-4, D-2   d. A-1, B-4, C-2, D-3

2. The typical structure (গঠন) of a tropical (ক্রান্তীয়) rainforest (বৃষ্টি অরণ্য) is _____.

a. Single tier (একস্তরীয়)   b. Two tier (দ্বিস্তরীয়)   c. Three tier (ত্রিস্তরীয়)   d. Four tier (চতুঃস্তরীয়)

3.
If $x + \dfrac{1}{x} = a + b$ and $x - \dfrac{1}{x} = a - b$ then

a. $ab = 1$ b. $ab = 2$

c. $a = b$ d. $a + b = 0$

4. A shopkeeper has a few 100 gm weights and a few 500 gm weights. He can weigh a maximum of 8 kg in one weighing. If he has 20 pieces of weights, what is the maximum weight that he can weigh with only 100 gm weights?

a. 800 gm   b. 600 gm

c. 450 gm   d. 500 gm

5. Select the correct sequence of the Survey of India (S.O.I.) Topographical map sheet numbers which could lie to the North, East , South and West, respectively, of the sheet bearing the map number 48 I/2.

a. 48 I/1, 48 E/14, 48 I/16, 48 I/3   b. 48 I/6, 48 I/1, 48 E/14, 48 I/3

c. 48 I/1, 48 I/6, 48 I/3, 48 E/14   d. 48 E/14, 48 I/3, 48 I/1, 48 I/6

6. Pick the correct food chain sequence (খাদ্যশৃঙ্খল) from the ones given below:

a. Grass – Chameleon – Insect – Bird   b. Grass – Fox – Rabbit – Bird

c. Fallen leaves – Bacteria – Insect larvae   d. Phytoplankton – Zooplankton – Fish

7. Which of the followings is a primitive (আদিম) method of irrigation (সেচ)?

a. Tanks   b. Tube-wells   c. Perennial (নিত্যবহ) canals   d. Sprinkler (সিঞ্চন) irrigation

8. Which of the followings does not satisfy the criteria of a Census Town?

a. With one or more contiguous (নিরবিচ্ছিন্ন) out growths

b. A minimum population of 5000

c. At least 75 percent of male working population engaged in non-agricultural pursuits

d. Density of population at least 400 persons/sq km

9. India's largest saline (লবণাক্ত) lake is Lake _____.

a. Chilka   b. Pulicat   c. Sambhar   d. Kalaphokhari

10. Plantation (বাগিচা কৃষি) farming is an example of _____.

a. cash (অর্থকরী) crop economy   b. commercial (বাণিজ্য কৃষি) grain farming

c. subsistence (জীবিকসত্তাভিত্তিক) farming   d. mixed farming (মিশ্র কৃষি)

11. Which two liquids are used in maximum and minimum thermometers?

a. Mercury (পারদ) and water   b. Water and alcohol   c. Mercury and alcohol   d. None of these

---

12. According to the 2011 Census, which of the following is the most densely populated state in the country?

    a. Bihar   b. Uttar Pradesh   c. West Bengal   d. Sikkim

13. Doars of North Bengal is famous for three 'T's; select the correct combination of it from the following options:

    a. Tea, Timber, Tourism   b. Tobacco, Timber, Tea

    c. Teesta, Torsa, Transport   d. Teesta, Tribal, Territory

14. The largest slum population (বৃহত্তম বস্তিজনসংখ্যা) in India resides in which city?

    a. Kolkata   b. Bangalore   c. Mumbai   d. Delhi

15. Food industries, such as sugar, tend to be located close to the _____.

    a. Source of the raw material   b. Market   c. Capital   d. Labour

16. The 'Vale of Kashmir' (কাশ্মীর উপত্যকা) lies between _____.

    a. Pir Panjal and Karakoram ranges   b. Pir Panjal and Zanskar ranges

    c. Zanskar and Ladakh ranges   d. Shiwalik and Ladakh ranges

17. The Nile River delta belongs to the category of _____.

    a. Bird's foot (পাখির পা সদৃশ) Delta   b. Arcuate (চন্দ্রাকার) Delta

    c. Estuarine (মোহনা) Delta   d. Truncated (কর্তিত) Delta

18. Which one of the following is the driest area on Earth?

    a. Eastern Ladakh   b. Sahara Desert, Libya   c. Atacama Desert   d. Dry Valley, Antarctica

19. The unit (একক) of measurement for air pressure is _____.

    a. Degree   b. Metres per second   c. Isobars (সমচাপ রেখা)   d. Hecta Pascal

20. Which of the following is the correct sequence (সঠিক ক্রম) in terms of east flowing rivers (পূর্ববাহিনী) across Peninsular India from North to South?

    a. Mahanadi, Godavari, Krishna, Pennar, Kaveri   b. Mahanadi, Krishna, Godavari, Pennar, Kaveri

    c. Mahanadi, Godavari, Krishna, Kaveri, Pennar   d. Mahanadi, Krishna, Godavari, Pennar, Kaveri

21. The idealised (আদর্শ) global pattern of surface wind (ভূ-পৃষ্ঠীয় বায়ু সঞ্চালন) from the equator to the pole is _____.

    a. doldrums – trade winds – westerlies – easterlies   b. doldrums – westerlies – trade winds – easterlies

    c. doldrums – easterlies – trade winds – westerlies   d. doldrums – trade winds – easterlies – westerlies

22. State the maximum number of latitudes (অক্ষরেখা) which may be theoretically drawn on the Earth's surface?

    a. 90   b. 180

    c. 360   d. None of these

23. Which of these is an imaginary place (কাল্পনিক স্থান)?

    a. Red Sea   b. Black Sea   c. White Sea   d. All are real

24. In which of the following industries is gypsum used as a raw material?

    a. Aluminum   b. Steel

    c. Fertilizer (সার)   d. Cement

25. A balanced ecosystem (সন্তুলিত বাস্তুতন্ত্র) is one in which the _____.

    a. number of organisms at all levels is equal   b. amount of biomass at all trophic levels is equal

    c. amount of energy synthesised (সংশ্লেষিত) and   d. organisms are interdependent (পারস্পরিক ভাবে

       utilised is equal   নির্ভরশীল) on each other

26. Which of the following is a prominent feature of metamorphic (রূপান্তরিত) rocks?

    a. Foliation (পত্রায়ন)   b. Cleavage (থাঁজ)

    c. Changeable   d. Crystalline (কেলাসিত)

27. Which one of the following is not a regional infrastructure (আঞ্চলিক পরিকাঠামো)?

    a. Roads   b. Communication lines   c. Canals   d. Central Business District

28. Devaprayag is the confluence (সংগম) of the two Rivers _____.

    a. Mandakini and Alakananda   b. Bhagirathi and Alakananda

    c. Ganga and Mandakini   c. Pindari and Alakananda

29. It is necessary to know both the latitude and longitude of a place in order to determine _____.

    a. local time   b. altitude   c. standard time   d. location

30. A number of Regions are demarcated in the world map given below (A - F) and six characteristics are listed randomly. Match the correct alphabet denoting a Region to its stated characteristic as given in the following options.

                Characteristics:

    1. Most number of people likely to be affected by sea level rise

    2. Area of nomadic herdsmen (পশুপালক যাযাবর) amid grasslands

    3. High rates of biodiversity (জীববৈচিত্র) loss and deforestation seen here

    4. Annual Bushfires (দাবানল) affect human life here

    5. Zone of continuous volcanic activity and political strife (রাজনৈতিক সংঘর্ষ)

    6. Area of thinning ice sheets & glacier calving (হিমবাহের ভঙ্গুরতা)

    a. A-1, E-3, B-4, F-2, D-6, C-5   b. E-2, C-1, D-4, A-5, B-6, F-3

    c. F-2, C-1, A-6, E-3, B-5, D-4   d. F-4, C-1, A-6, E-3, B-5, D-2
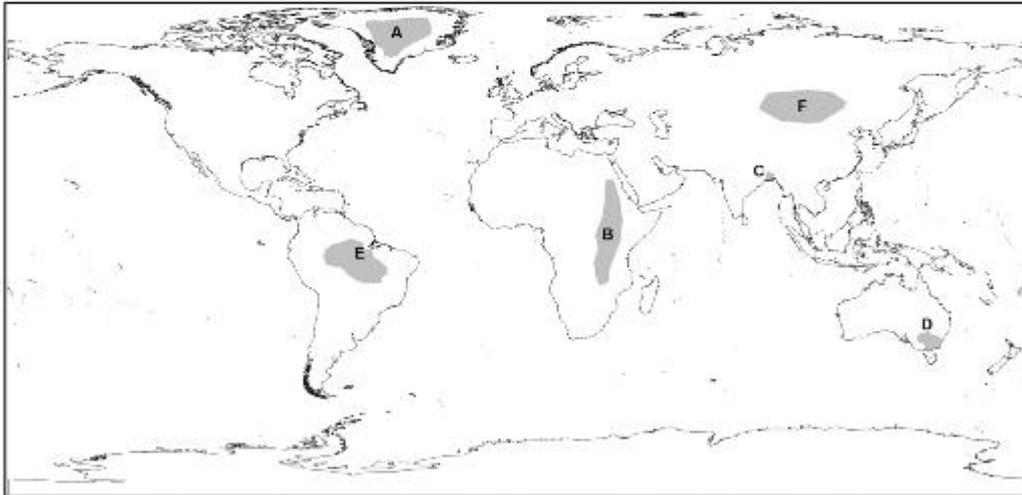
Section C: Short Answer Questions   [6×5 = 30]

III. **Answer any SIX** of the questions below

1. *Rainfall is more important than temperature in determining forest type and their distribution in India.*
   ("অরণ্যের প্রকৃতি ও বর্টন নির্ধারণে তাপমাত্রা অপেক্ষা বৃষ্টিপাতের প্রভাব অধিক") Explain this statement.

2. Solve $0.125 \times 4^{2x-8} = \left(\dfrac{0.25}{\sqrt{2}}\right)^{-x}$

3. Simplify, $3\sqrt{147} - \dfrac{7}{3}\sqrt{\dfrac{1}{3}} + 7\sqrt{\dfrac{1}{3}}$

4. Indicate the geographical parameters (ভৌগোলিক বৈশিষ্ট্য) that you would study and use to differentiate (পার্থক্য নির্ধারণে) one landscape (ভূ-দৃশ্য) from another.

5. An aeroplane flies in a straight line from Panaji, Goa to Kolkata, West Bengal. Describe briefly and depict on a map, the different soil and vegetation zones that were crossed over during this journey.

6. a. A solid sphere (গোলক) of radius 'r' has the same volume (আয়তন) as a solid cube (ঘনক) of side 'a' of 22 cm. What would be the area of a circle drawn with a radius (ব্যাসার্ধ) 'R' such that R = 2r.

   b. A person, starting from point P, first walks 3 km due north to reach a point Q and then turns 90^0 towards the east and walks 4 km to reach a point R. How much and in what direction (and angle) will he have to walk to return to the starting point?

7. Mention the changes in the global climate that may have occurred, if earth would rotate from east to west (যদি পৃথিবী পশ্চিম থেকে পূর্বে আবর্তন করে).

8. How does the structure of age-sex pyramid (বয়সলিঙ্গ পিরামিড) reflect demographic (জনসংখ্যাগত) characteristics of a country? Give suitable examples.

9. Write a short note on various environmental problems affecting the hill stations of India.

10. Study the table given below and answer the questions which follow.

Monthly Mean Temperature and Total Precipitation for Selected Cities of India																
Stations	Latitude	Altitude (Metres)	Jan	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Rainfall
Temperature (C) Mumbai	19° N	11	24.4	24.4	26.7	28.3	30.0	28.9	27.2	27.2	27.2	27.8	27.2	25.0	
Rainfall [cm]			0.2	0.2	–	–	1.8	50.6	61.0	36.9	26.9	4.8	1.0	–	183.4
Temperature (C) Kolkata	22°34' N	6	19.6	22.0	27.1	30.1	30.4	29.9	28.9	28.7	28.9	27.6	23.4	19.7	
Rainfall [cm]			1.2	2.8	3.4	5.1	13.4	29.0	33.1	33.4	25.3	12.7	2.7	0.4	162.5
Temperature (C) Delhi	29° N	219	14.4	16.7	23.3	30.0	33.3	33.3	30.0	29.4	28.9	25.6	19.4	15.6	
Rainfall [cm]			2.5	1.5	1.3	1.0	1.8	7.4	19.3	17.8	11.9	1.3	0.2	1.0	67.0
Temperature (C) Chennai	13°4' N	7	24.5	25.7	27.7	30.4	33.0	32.5	31.0	30.2	29.8	28.0	25.9	24.7	
Rainfall [cm]			4.6	1.3	1.3	1.8	3.8	4.5	8.7	11.3	11.9	30.6	35.0	13.9	128.6
Temperature (C) Shillong	24°34' N	1461	9.8	11.3	15.9	18.5	19.2	20.5	21.1	20.9	20.0	17.2	13.3	10.4	
Rainfall [cm]			1.4	2.9	5.6	14.6	29.5	47.6	35.9	34.3	30.2	18.8	3.8	0.6	225.3
Temperature (C) Tiruvanatapuram	8°29' N	6	26.7	27.3	28.3	28.7	28.6	26.6	26.2	2.6.2	26.5	26.7	26.6	26.5	
Rainfall [cm]			2.3	2.1	3.7	10.6	20.8	35.6	22.3	14.6	13.8	27.3	20.6	7.5	181.2
Temperature (C) Leh 34 N	34° N	3506	– 8.5	– 7.2	– 0.6	6.1	10.0	14.4	17.2	16.1	12.2	6.1	0.0	– 5.6	
Rainfall [cm]			1.0	0.8	0.8	0.5	0.5	0.5	1.3	1.3	0.8	0.5	–	0.5	8.5

Source : IMD, Pune

a. Show the month-wise mean temperature and total precipitation distribution for Delhi using a suitable cartogram of your choice. [2]

b. Does the altitude of a place have any relation to its mean annual temperature? Explain using the above table. [1]

c. Find out the cities with the largest and lowest annual range of temperature (তাপমাত্রার বার্ষিক প্রসর) and explain what influences this value. [1]

d. How is the distribution of rainfall different in Chennai as compared to Mumbai and what is the principal reason behind this? [1]

Instructions for M. Sc (Geography) Course

Selection of the candidates will be done strictly on the basis of the admission test. A student seeking admission to M.Sc (Geography) Course has to appear in two tests.

    i)   An online test (full Marks 50 marks; MCQ pattern containing 50 questions of equal marks) on Geography (Hons level) of 1 hour duration

    ii)   It will be followed by another written test of 50 marks of 1 hour on Geography (Hons level).

Syllabus for PG Admission Test: B.Sc (Geography Hons) syllabus of Presidency University or any standard Geography Syllabus of other UGC recognised Universities.

বাংলা সাম্মানিক প্রবেশিকা পরীক্ষা ২০১৬
পাঠ্যক্রম, প্রশ্নের ধরন ও নমুনাপ্রঃ
১০০ নম্বরের প্রবেশিকা পরীক্ষা হবে
সময় : ২ঘন্ট

প্রশ্নের ধরন (Question Pattern)

প্রশ্ন :   টি MCQ (প্রতিটির ম   ),   :

প্রশ্ন :   টি ভাবসম্প্রসার (শব্দ),   :

প্রশ্ন :   টি প্রবন্ধ: (শব্দ),   :

পাঠ্যক্রম (Syllabus)

প্রশ্ন   জন্য:

)   সাহিত্যের ই   – প্রাচীন, মধ্য   ('চর্যাপদ' থেকে সাম্প্রতিক   -   পর্যন্ত)

)   ব্যাকরণ   -   ,   , অশুদ্ধি

) সাহিত্য ও অন্যান্য শিল্প-   সম্পর্কে স

) সাহিত্য সংক্রান্ত সাম্প্রতিক   তথ্য

প্রশ্ন   জন্য:

গদ্যের ব্যাখ্যা-বিশ্লেষণ

প্রশ্ন   জন্য:

সাহিত্যের ল   ,   সংস্কৃতি, অন্যান্য শিল্প-   মাধ্যম

পরীক্ষার   প্রশ্ন

প্রশ্ন :সঠিক উত্তরটি বেছে   :

. 'কবিকঙ্কণ'   মধ্যযুগের কোন ক   ?

) মুকু   চক্রবর্তী))   চক্রবর্তী) রূপরাম চক্রবর্তী) কমলাকান্ত চক্রবর্তী

. 'বঙ্গদর্শন' পত্রিকার প্রথম সম্পাদ   :

) শ্রীশচ   ) অক্ষ   চন্দ্র   ) বঙ্কিমচ   চট্টোপাধ্যায়) অক্ষ   কুমার দত্ত

. '   '   -গ্রন্থের র   :

) দেবেন্দ্র   ঠাকুর))   ন্দ্রনা   ঠাকুর) প্রেমেন্দ্র মিত্র   ) শঙ্খ ঘোষ

. কোন্‌টি অশুদ্ধ চিহ্নিত   :

) বক্ষ্যমা   ) জাজ্জ্বল্যম))   ) আভ্যন্তরিব

প্রশ্ন : যে-কোনো ১ টি   ভাবসম্প্রসার   (শব্দ)

.   প্রান্তে আম   তীর্থ   , /   মোর দেবালয়

. শাশ্বত রাত্রির ই   অনন্ত সূর্যোদয়

প্রশ্ন : যে-কোনো ১ টি   প্রবন্ধ লেখো (শব্দ)

. রূপকথা   জগৎ   সুকুমার

. যে-

স্নাতকোত্তর প্রবেশিকা পরীক্ষা ঃ
পাঠ্যক্র , প্রশ্নের ঃ ওনমুনাপ্র

স্নস্বরের প্রবেশিকা পরীক্ষা ঃ
ঃ ঘন্ট

প্রশ্নে (Question Pattern)

প্রশ্ন ঃ টি MCQ (প্রতিটির), ঃ

প্রশ্ন ঃ টি ব্যাখ্যা (শব্দ), ঃ

প্রশ্ন ঃ টি প্রব (শব্দ), ঃ

পাঠ্যক্র (Syllabus)

প্রশ্ন জন্য ঃ

) সাহিত্যের ই – প্রাচীন, মধ্য ('চর্যাপদ' থেকে সাম্প্রতিক - পর্যন্ত)

) ব্যাকরণ - , , অশুদ্ধি

) সাহিত্য ও অন্যান্য শিল্প- সম্পর্কে

) সাহিত্য সংক্রান্ত সাম্প্রতিক তথ্য

প্রশ্ন জন্য ঃ

ব্যাখ্যা-বিশ্লেষণ

প্রশ্ন জন্য ঃ

সাহিত্যের ন , সংস্কৃতি, অন্যান্য শিল্প- মাধ্যম

পরীক্ষার ঃ প্রশ্ন

প্রশ্ন ঃ সঠিক উত্তরটি বেছে ঃ

. অপর্ণা, সুমিত্রা, কুমুদিনী, যথাক্রমে কোন কোন গ্রন্থের চরিত্র?

) , বিসর্জন, - , যোগাযোগ

) - , , , বিসর্জন

) যোগাযোগ, যোগাযোগ যোগাযোগ -

) বিসর্জন - বিসর্জন

. বঙ্গদর্শন, পত্র, কল্লোল -- পত্রিকাগুলির সম্পাদ যথাক্রমে ঃ

) বঙ্কিমচ বঙ্কিমচ বঙ্কিমচ বঙ্কিমচ

) সুধীন্দ্রনাথ দত্ত প্রথম চৌধুরী প্রথম চৌধুরী

) সুধীন্দ্রনাথ দত্ত প্রথম চৌধুরী

) প্রথম চৌধুরী সুধীন্দ্রনাথ দত্ত সুধীন্দ্রনাথ দত্ত

. কোনটি গুচ্ছটি শুদ্ধ   চিহ্নিত   :

) বক্ষ্যমাণ   জাজ্বল্যমান   আভ্যন্তরিক

)   মত্যানুসারে   এতদ্দ্বারা   পুরস্কার

) সদ্যোজাত   অপেক্ষমান   দারিদ্র্যতা

) প্রতিযোগিতা   অনুরাগিবৃন্দ   পরিত্যাজ্য   আকাঙ্ক্ষা

প্রশ্নঃ : যে-কোনো ১টি   সম্পর্কে তোমার   ব্যক্ত করে (শব্দ)

            .   তলোয়ারগুলো পিটিয়ে পিটিয়ে   'রে

            থেমো   হে, থেমো   পিটিয়ে

            যতক্ষ   সেগুলে   জলতরঙ্গ।

            .   যে   বেদী রক্তে   ভেসে

            ধর্ম ব   প্রাচীরে বন্ধ

            দেশে জ্ঞানের অ   ।

প্রশ্নঃ : যে-কোনো ১টি   প্রবন্ধ লেখো (শব্দ)

            .   সাহিত্যে চৈতন্যদেবের প্রভাব

            . রবীন্দ্রনাথ

Department of English

BA in English honours course

Sample Questions:

The antonym for 'censorious' is

    a. kind   b. uncritical   c. precocious   d. blasphemous

Identify the figure of speech: 'I've told you a million times!'

    a. paradox   b. irony   c. hyperbole   d. personification

'Do away with' means: a. disapprove   b. discard   c. distance   d. disarm

Which Romantic poet also worked in Guy's Hospital in London?

    a. S. T. Coleridge   b. John Clare   c. John Keats   d. William Blake

Thy Hand Great Anarch was written by

    a. Upamanyu Chatterjee   b. Arundhati Roy   c. Nirad C. Chaudhuri   d. Rudyard Kipling

Write an original composition continuing the narrative suggested by the following words:

'She stepped out carefully. Her eyes were smarting. She was seeing the sun after almost three months….'

MA in English

Sample Questions:

Which mythical character is common to both Goethe and Marlowe

    a. Medusa   b. Faustus   c. Achilles   d. Orestes

The Wild Duck is a play by

    a. G.B. Shaw   b. Oscar Wilde   c. Henrik Ibsen   d. Luigi Pirandello

Which theatre is associated with the Irish Literary Revival?

Abbey Theatre b. the Globe   c. the Blackfriars   d. the Curtain

Department of History

Drawing its lineages from almost two hundred years of historical teaching and scholarship, the Deparment of History at Presidency University, Kolkata, looks foward to continuing its proud tradition of learning and ground-breaking research with the admission of new students who will take its legacy forward. The department welcomes students with a vivid interest in History but also in allied disciplines such as philosophy, political science, sociology, anthropology, literature and many others. To study history at Presidency University entails a profound commitment towards opening up new paths of critical enquiry and civic engagement through interdisciplinary learning while remaining true to the disciplinary ideals of the field of History.

Syllabus:

The areas and fields of history covered in the range of questions to be offered in the admissions tests**, for both undergraduate and postgraduate** applicants, break down as follows:

- 25% from ancient Indian history
- 25% from medieval Indian history
- 25% from modern Indian history
- 10% from post-1947 South Asian history
- 5% from world history, antiquity to the early modern period
- 10% from world history, the modern period upto the twentieth century

Samples questions:

I. Sample questions for the undergraduate admissions examination

1. Shramanik traditions in ancient India are associated with
   a. Bhakti
   b. Shakta worship
   c. Tantric worship
   d. Buddhism

2. Which of the following is not a representative of Sufi Islam in South Asia?

a. Muin-ud-din of Ajmer
b. Qutb-ud-din Bakhtiyar Kaki
c. Gesu Daraz
d. Abdul Wahab

3. Which of the following thinkers is associated with the phrase "the greatest good of the greatest numbers"?
a. Jeremy Bentham
b. John Stuart Mill
c. Mohandas Karamchand Gandhi
d. Henry Maine

4. The Diwani of Bengal was transferred to the English East India Company in 1765 by
a. Shah Alam I
b. Bahadur Shah Zafar
c. Shah Alam II
d. Farukhsiyyar

5. The phrase "to roll back communism" is associated with
a. Richard Nixon
b. Henry Kissinger
c. John Foster Dulles
d. Ronald Reagan

6. Which eminent Roman figure famously crossed the Rubicon?
a. Caligula
b. Nero
c. Julius Caesar
d. Marc Antony

II. Sample questions for the postgraduate admissions examination

1. The Aryan theory of invasions suggests which of the following?
a. The Aryans were a racially defined group
b. The Aryans were early builders of the Indus Valley Civilization
c. The Aryans were the progenitors of Hinduism
d. The Aryans were city builders

2. The *Fatawa-i Jahandari* was written by
a. Emperor Aurgangzeb
b. Sultan Firuz Shah Tughlaq
c. Abul Fazl
d. Zia-al-din Barani

3. The Caste Disabilites Removal Act dates to
a. 1829
b. 1850
c. 1856
d. 1950

4. The Hudood Ordinances introduced by Zia ul Haq in Pakistan were repealed by
   a. Benazir Bhutto
   b. Nawaz Sharif
   c. Parvez Musharraf
   d. Zia ul Haq

5. "Roti, Kapda aur Makaan" (Bread, clothing and housing) was a slogan raised by which post-1947 South Asian political leader?
   a. Mujibur Rehman
   b. Jawaharlal Nehru
   c. Zulfiqar Ali Bhutto

6. The "right to the self-determination of peoples" was an ideal propounded by which United States president?
   a. Franklin Delano Roosevelt
   b. Theodore Roosevelt
   c. Woodrow Wilson
   d. Ronald Reagan

Department of Philosophy

B.A. in Philosophy honours:

Syllabus: Philosophy, Reasoning, English and General Knowledge. Indian Philosophy, History of Western Philosophy, Social Moral Philosophy and Western Logic.

Sample Questions:

1. Rabindranath Tagore's 'Jana Gana Mana' has been adopted as India's National Anthem. How many stanzas of the said song were adopted?

   A. Only the First Stanza
   B. The Whole Song
   C. Third and Fourth Stanza
   D. First and Second Stanza

2. Arrange the Words given below in a meaningful sequence.
   1. Key 2. Door 3. Lock 4. Room 5 Switch on
   A. 5,1,2,4,3
   B. 4,2,1,5,3
   C. 1,2,3,4,5
   D. 1,2,3,5,4

3. It _____ raining when I left.
   A. Rained
   B. Was raining
   C. Is raining
   D. Has been raining

4. Socrates' claim that "the unexamined life is not worth living" is often cited as a central theme in the activities of philosophy. By it, Socrates is typically understood to mean that:
   A. It is sometimes simply not worth all the effort of examining life and its problems in great detail; sometimes it is better simply to "go with the flow."
   B. While taking a reflective attitude toward life is interesting and even sometimes important, most of what makes life worth living is not worth examining.
   C. Simply doing whatever everyone else does without thinking about why we should do what we do can hardly be thought of as worthwhile, noble, or admirable.
   D. It is a waste of time to sit around thinking about whether life is worth living; we should leave such reflection to talk-show hosts, political figures, and religious leaders.

5. Plato indicates that the knowledge of pure reason is preferable to conceptual understanding , because knowing that something is a certain kind of thing is not as good as knowing:
   A. how we come to learn what to call a thing in virtue of our own experiences.
   B. The logos or rationale of the thing, that is, why it is the way it is.
   C. Why we differ among ourselves about what we claim to know.
   D. The difference between knowledge and opinion as outlined in Plato's divided line image.

6. Marxist educational philosophy is closer to

   A. Idealism.

   B. Realism.

   C. Naturalism.

   D. Pragmatism.

M.A. in Philosophy:

Syllabus: Philosophy, Reasoning and English. In Philosophy the focus will be Indian Philosophy (Epistemology and Metaphysics), History of Western Philosophy, Indian Logic, Western Logic, Ethics (Theoretical and Applied), Analytic Philosophy (Western).

Sample Questions:

1. Which is not an aspect of mind according to the Realists' theory of knowing?

   A. Awareness

   B. Consciousness

   C. Behaviour

   D. Processing of awareness.

2. Like most rationalists, Plato defines knowledge as justified true belief. In terms of this definition, we might be able to claim to know something as true which might actually be false, but it is impossible for us really to know something that is false. Why?
   A. Because to know something that is false is to know no real thing, nothing (i.e., not to know at all).
   B. Because what we know as true is ultimately based on what we claim to know as true.
   C. Because we cannot give a justification or reason for believing in something that is false.

D. Because in contrast to our knowledge of the unchanging Forms, beliefs about particular objects can change.

3. In which religion the four noble truths have been discussed.

     A. Jainism

     B. Buddhism

     C. Christianity

     D. None of these above

4. It has been two years _____ I last saw you.

     A. that

     B. When

     C. Since

     D. for

5. I saw _____ of my friends.

     A. none

     B. nobody

     C. no one

     D. no

6. Look at this series: 22,21,23,22,24,23,…. What number should come next?

     A. 22

     B. 24

     C. 25

     D. 26

Department of Political Science

B. A. in Political Science honours:

1. There will be an essay within 1000 words [40 marks].

    Eg. A remarkable event or achievement in Indian Democracy.

2. One picture will be given in the question paper which students will analyse within 700 words [30 marks].

3. Ten Short Questions each to be answered within 50 words [3 marks each].

    Eg. What is Third World?
     What is ISIS?
    What is Psephology?
    What is 'Make in India'?

M. A. in Political Science:

4. There will be an essay within 1000 words [40 marks].

    Eg. Class versus Caste in Indian Politics.

5. One picture will be given in the question paper which students will analyse within 700 words [20 marks].

6. Eight Short Questions each to be answered within 150 words [5 marks each].

    Eg. Philosopher King
    POSDCORB
    Rights
    INTIFADA

Department of Sociology

B. A in Sociology honours:

Prior familiarity with Sociology as a taught subject in the   10 + 2 level is not mandatory. The test is essentially a test of reasoning and analysis. Awareness of the 'social' is desirable.

There would be three comprehension passages on the basis of which one has to answer multiple choice questions. And there would be a few general questions with multiple choice answers from which one has to choose the correct answer.

M. A. in Sociology:

Syllabus: Anything and everything taught at the UG level. The test would be a two hours subject test focusing primarily on theoretical, methodological and substantive knowledge.

Sample questions:

1. Differentiate between social, psychological and biological facts .Why did Durkheim call suicide a social fact ?

2. What do you mean by 'ideal type'? Do you agree that increasing rationalization leads societies into 'iron cage 'of modernity?

3. Define 'empowerment'. Has integration of scheduled tribes in India empowered them?

4. The presence of caste in public discourse need not necessarily mean that casteism has increased in India .Discuss.

5. Highlight the relationship between economy and society with special reference to the advertisement industry.

6. 'Family reproduces inequality '. Elucidate your opinion with special reference to Indian society

Sample Questions and correct answers

    I.   Read the following passages and select the most appropriate option

A. In all its branches, products which are tailored for consumption by masses, and which to a great extent determine the nature of that consumption, are manufactured more or less according to plan. The individual branches are similar in structure or at least fit into each other, ordering themselves into a system almost without a gap. This is made possible by contemporary technical capabilities as well as by economic and administrative concentration. The culture industry intentionally integrates its consumers from above. To the detriment of both it forces together the spheres of high and low art, separated for thousands of years. The seriousness of high art is destroyed in speculation about its efficacy; the seriousness of the lower perishes with the civilizational constraints imposed on the rebellious resistance inherent within it as long as social control was not yet total. Thus, although the culture industry undeniably speculates on the conscious and unconscious state of the millions towards which it is directed, the masses are not primary, but secondary, they are an object of calculation; an appendage of the machinery. The customer is not king, as the culture industry would have us believe, not its subject but its object. The very word mass media, specially honed for the culture industry, already shifts the accent onto harmless terrain. Neither it is a question of primary concern for the masses, nor of the techniques of communication as such, but of the spirit which sufflates them, their master's voice. The culture industry misuses its concern for the masses in order to duplicate, reinforce and strengthen their mentality, which it presumes is given and unchangeable. How this mentality might be changed is excluded throughout. The masses are not the measure but the ideology of the culture industry, even though the culture industry itself could scarcely exist without adapting to the masses.

        1. Culture here is referred to in a specific socio-economic context:
      a. Socialism
      b. Communism
      c. Capitalism
      d. Mixed economy

        2. Culture is a matter of:
      a. Transmission
      b. Diffusion
      c. Mass production
      d. Conservation

        3. The difference between high art and low art is:

a. Heightened
b. **Diminished**
c. Speculated
d. Conserved

4. In the process of consumption, the key player is the :
a. Consumer
b. Wholeseller
c. Distributor
d. **Producer**

5. Techno/pop version of Rabindra Sangeet symbolises:
a. End of Visva Bharati copyright
b. Creative expansion
c. **Mass culture**
d. Fusion music

B. These aspects of Partition—how families were divided, how friendships endured across borders, how people coped with the trauma, how they rebuilt their livers, what resources, both physical and mental, they drew upon, how their experience of dislocation and trauma shaped their lives, and indeed the cities and towns and villages they settled in—find little reflection in written history...This collection of memories, individual and collective, familial and historical, are what make up the reality of Partition. They illuminate what one might call the 'underside' of its history. They are the ways in which we can know this event. In many senses, they *are* the history of the event. It is to these, then, that I decided to turn.

The choice brought its own problems. Working with memory is never simple or unproblematic…So much depends on who remembers, when, with whom, indeed to whom, and how…Let me try to explain this with an example. One of the commonest responses I encountered when I began work was people's (initial) reluctance to speak. What, they asked me, is the use of remembering, of excavating memories we have put behind us? Every time I was faced with this question, I came up with a question of my own: why, I wondered, were people so reluctant to remember this time? Surely this reluctance in itself pointed to something? Was it only to do with the horrific nature of events…or was it to do, at least, in some instances, with people's own complicity in this history? There had been, at Partition, no 'good' people and no 'bad' ones; virtually every family had a history of being both victims and aggressors in the violence. And if this was so, surely that told us something about why people did not wish to remember it…

1. The 'reality of Partition' is made of:
a) Government records
b) violence

c) people's memories
d) the ways in which people remembered the event

2. Memory is
a) thought involving the past, but determined by the present
b) truth of the past
c) thinking about the past
d) a bunch of lies about the past

3. People's initial reluctance to talk about their memory of partition tells us that
a) they are disinterested
b) they have forgotten
c) not wanting to talk about something is a form of talking about it
d) they are scared

4. People during Partition
a) were victims
b) were aggressors
c) were both
d) were neither, because they were simultaneously both

5. Remembering partition, for people who experienced it, becomes
a) a tool to teach others about the event
b) an uneasy feeling, as it forces reflections on one's own moral character
c) a way to forget the event
d) a method of national propaganda

II. Select the most appropriate option from the questions below

1. Society is an important component of human existence because:
   a) It helps sharing private property
   b) It fosters brotherhood
   c) It gives a high level of education
   d) It leads to sociability among the members

2. When one culture has no relation to another culture, the condition might be referred to as
a) Separation
b) Conflict

c) **Insularity**

d) Polarity

3. What cannot be true about the usefulness of language?

a) It helps in the increase of knowledge

b) It helps in communication

c) **It helps in reducing social tension**

d) It helps in preserving culture

4. A good example of a social group is:

a) Family

b) Market

c) Crowd in a street

d) School

5. The basic division of population in any society on the basis of class is found between the:

a) **Rich and poor**

b) Theist and atheist

c) Ruler and mass

d) Agriculturalist and industrialist

6. Consider the following features:

(i)   Anonymity

(ii)   Heterogeneity

(iii) Homogeneity

(iv)   Large size and density

Which of these are characteristic features of an urban community?

(a) 1 & 3

(b) 2 & 4

(c) 1, 2, 3

(d) 1, 2, 4

7. "Girls like shopping, boys like cars". This statement is an example of

a) Fact

b) **Stereotype**

c) Fantasy

d) Social Action

8. The popularity of cartoons like Doraemon or shows like Game of Thrones in India are a reflection of
a) Americanisation of popular culture
b) Japanification of media
c) Colonial influence
d) Globalisation of culture

9. In society, a few groups are ranked above others because
a) They are good people
b) They are of a high caste
c) They enjoy privileges and opportunities that others do not have access to
d) They have experience

10. If the majority of University students are from middle class families than working class families, it is primarily because
a) University is difficult, not everyone can cope with the studies
b) Poverty
c) Social inequalities
d) Middle class students are always intelligent

हिन्दी वि
प्रेसिडेंसी विश्वविद्यालय
यू. जी प्रवेश परीक्षा- 2016

समय -2 घंटा   **कुल अंक -100**

पाठ्यक्रम

- हिन्दी भाषा (व्याकरण) और साहित्य का सामान्य परिचय।
- वेस्ट बंगाल एच.एस. बोर्ड, सीबीएससी बोर्ड एवं आई.सी.एस.सी बोर्ड के पाठ्यक्रम पर आधारित रचनाओं एवं रचनाकारों पर सामान्य प्रश्न पूछे जायेंगे।

प्रश्नों के प्रकार :

- वस्तुनिष्ठ प्रश्न
- लघु प्रश्न (150- 200 शब्द)
- दीर्घ प्रश्न (300-400 शब्द)
- व्याख्य (300 शब्द)

नमूने के प्रश्न :

क) कबीर का कविता की विशेषताएं लिखिए।

ख) प्रसाद की किसी एक कविता का भावार्थ लिखिए।

ग) रेणुका किसी एक कहानी के मूल संदेश पर विचार कीजिए।

घ) निम्नलिखित पद्यांश/गद्यांश का अर्थ स्पष्ट कीजिए :---

1. खेती न किसान को, भिखारी को न भीख बालि,
   बनिक को बनिज, न चाकर को चाकरी,
   जीविका विहीन लोग सीद्यमान सोच बस,
   कहै एकएकन सों कहाँ जाई का करी।

2. अपने में सब कुछ भर कैसे व्यक्ति विकास करेगा?
   वह एकांत स्वार्थ भीषण है अपना नाश करेगा।
   औरों को हँसते देखो मनु हँसो और सुख पाओ,
   अपने सुख को विस्तृत कर लो सबको सुखी बनाओ।

समय -2 घंटा   **कुल अंक -100**

पाठ्यक्रम

- हिन्दी भाषा और साहित्य का स्नातक पाठ्यक्रम
- हिन्दी साहित्य का इतिहास
- भक्तिकाल के कवि और कविता
- आधुनिक काल के कवि और कविता
- छायावाद, प्रगतिवाद, प्रयोगवाद, नयी कविता
- हिन्दी कहानी, नाटक, उपन्यास, आलोचना और अन्य गद्य विधाएं
- समकालीन विमर्श
- हिन्दी भाषा के विविध आयाम

प्रश्नों के प्रकार :

- लघुप्रश्न (150- 200 शब्द)
- दीर्घप्रश्न (300-400 शब्द)
- व्याख्या (300 शब्द)

नमूनें प्रश्न :

1. भक्तिकाल की कविता में ईश्वर की अवधारणा पर विचार कीजिए।
2. सूरदास और तुलसीदास की भक्ति में मुख्य अंतर क्या है? विचार कीजिए।
3. प्रेमचंद की कहानियों में समाज के वंचित वर्गा के प्रति गहरी सहानुभूति प्रकट हुई है–इस मत का समीक्षा कीजिए।
4. आदिकाल के नामकरण पर विचार कीजिए।
5. आज के समय में कबीर की प्रासंगिकता पर विचार कीजिए।
6. हिन्दी भाषा के विकास में तकनीक की भूमिका पर विचार कीजिए।
7. काव्य पंक्तियों की व्याख्या
8. साहित्यिक विषय पर लघु निबंध।

>>>>><<<<<