



5865

Ph.D. ENTRANCE EXAMINATION, OCTOBER 2013

Name of Candidate

Register Number

Answer Booklet Code

Signature of Candidate

Signature of Invigilator

Time : 140 Minutes

Max. Marks : 160

Section – B & C

(This is to test the candidate's capability of defining concepts through short answers.)

Note :

- 1) Answer **any twelve** questions from Section **B** and **one** question from Section **C**.
- 2) In Section **B** **each** question carries **10** marks. Section **C** carries **40** marks.
- 3) In Section **B** an answer should not exceed **100** words. In Section **C** an answer should not exceed **500** words.
- 4) Candidates should **clearly** indicate the **Section, Question Number** and **Question Booklet code** in the answer paper.
- 5) The candidates are **permitted** to answer questions **only** from the subject that comes under the **faculty** in which he/she seeks registration as indicated in the **application** form.

FACULTY OF APPLIED SCIENCE

1. Biotechnology

FACULTY OF ARTS

2. Journalism and Communication

FACULTY OF LAW

3. Law

FACULTY OF COMMERCE

4. Commerce



FACULTY OF APPLIED SCIENCE

1. Biotechnology

Section – B

1. What is Ramachandran plot ? Describe the structural details and principles based on which Ramachandran plots are constructed. Add a note on its applications.
2. Phage derived vectors and artificial chromosomes are preferred rather than plasmids for constructing genomic libraries of eukaryotes. Explain.
3. Explain the molecular mechanisms by which Ti plasmid of *Agrobacterium tumefaciens* is transferred to the plants causing tumour.
4. Compare the following :
 - a) Eukaryotic and prokaryotic promoters
 - b) Eukaryotic and prokaryotic ribosomes
 - c) Eukaryotic and prokaryotic RNA polymerases
 - d) Eukaryotic and prokaryotic DNA polymerases
5. Explain a theoretical background of pulse field electrophoresis.
6. Write brief notes on **any two** of the following :
 - A) Excitatory state
 - B) Facilitation of neurons
 - C) Temporal summation.
7. In higher plants, the red/far-red sensory photoreceptor, phytochrome, is a light-regulated kinase. Explain its role in metabolism.
8. Give a brief outline about the immune system and various cells involved in immune response.
9. What are the different types of neurons ? State Waldeyer's neuron theory and describe the structure of a typical neuron.



10. What are the different types of ion channels ? Devise an immune fluorescent method to distinguish them.
11. Which are the major ecosystems in the world ? Write a comparative account of them with reference to their productivity, biodiversity, energy flow, and food chain and trophic levels.
12. Discuss the technique for the production of monoclonal antibodies and its various applications in medical field.
13. A monoclonal antibody binds to G-actin but not to F-actin. What does it tell you about the epitope recognized by the antibody ? Using this example, explain the use of antibodies to probe structure-function relationships in proteins.
14. Describe the process of infection and pathogenesis in plants and explain the common strategies adopted to control plant diseases.
15. Write a comparative account of the molecular events taking place in the 5' – 3' synthesis of RNA during transcription and the 5' – 3' synthesis of DNA during the replication of DNA.
16. Write an account on the different methods of regulation of enzyme activity.

Section – C

17. Give the general structure of Research Proposal. Give the general physico-chemical Properties of Enzymes. Prepare a Research proposal for the isolation purification and molecular characterization of an enzyme from the chloroplast of a green plant.
18. Prepare a sample project proposal on a biological problem having industrial application for submission to University Grants Commission.
19. You are conducting a research work as a part of a project sponsored by a govt. funding agency, and is about to complete. Prepare a project completion report to submit to the funding agency, highlighting the important outcome of the project.



FACULTY OF ARTS

2. Journalism and Communication

Section – B

1. Principles of Congruity
2. Reference group
3. Kinesics
4. Qualitative Research
5. Gratifications Research
6. Media colonialism
7. Post-testing methods
8. Cultivation Hypothesis
9. Aided recall
10. Exploratory Research
11. Focus groups
12. Unit of analysis
13. Information imbalance
14. Dissonance Theory
15. Dyadic communication.

Section – C

1. Assess the scope and limitations of Content Analysis in Mass Communication research.
2. Discuss the common types of methods used for pre, post and concurrent tests in Advertising research.
3. Discuss the procedure of probability and non-probability sampling methods. Cite examples from the arena of mass media research.



FACULTY OF LAW

3. Law

Section – B

1. Procedure Established by Law under Article 21
2. Real Danger of Bias
3. Substantial Evidence Rule
4. Right to Privacy in Telemedicine
5. Capital Punishment
6. Fixing Minimum Age for Marriage
7. Importance of Minority Judgments
8. Freedom of Press and Privacy Interests of Individuals
9. Corporal Punishment
10. Right to Food
11. Domestic Violence and Remedies
12. Command Theory of Law
13. Organ Donation and Incapacity of Donors
14. Socio-Legal Perspectives of Euthanasia
15. Reasonable Foreseeability and Reasonable Contemplation
16. Rights of Patients
17. Non-Doctrinal Research
18. Remedies against Corruption
19. Moral Rights in Intellectual Property Law
20. Cloning and Legal Issues.



Section – C

1. What is meant by Human Rights ? Examine its relationship with Natural Law.
2. Discuss the contribution of Supreme Court of India in evolving a right to clean environment. Refer to decided cases.
3. Discuss the process of selection of Judges to High Courts and Supreme Court in India. Offer your comments on the process of selection.

FACULTY OF COMMERCE

4. Commerce

Section – B

1. Scientific research
2. Control techniques
3. Internal Promotion vs Recruitment
4. Business Reports
5. Corporate Governance
6. Research Design
7. Span of Control
8. Job Analysis
9. Lease Financing
10. Convertible Debenture
11. Experimental Research
12. Decentralization of Authority



13. Collective Bargaining
14. Buy-Back of Equity Shares
15. Strategic Plans
16. Sampling.

Section – C

1. State the need for study of job satisfaction in private sector business organizations.
 2. 'Use of technology in banks has helped in building up efficiency in services'. Do you agree ? Explain with reasons.
 3. 'The ethical component of business organizations in India can be stated as highly wanting'. Explain the components of ethical behavior and your assessment of such components with reference to Indian business arguing for or against the above observation.
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