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Ganpat University
M.sc. Ist semester Examination, Nov.-Dec. – 2006
(Microbiology/Biotechnology)
Paper – 101 – Cell Biology

Time 3 hours

Marks : 70

Instructions :

1. Attempt **Any Three** questions from each section of which question number 4 & 8 are compulsory.
 2. Answer each section in separate answer book.
-

Section – I

- Q.1 Differentiate between gram positive and negative bacterial cell wall. Explain the biosynthesis of gram positive cell wall. (14)
- Q.2 Discuss the ultra structure of bacterial flagella with the mechanism associated with flagellar movement. (14)
- Q.3 Explain the ultra-structure and functions of fungal cell. (14)
- Q.4 Write short notes on **ANY ONE** of the following: (07)
- (i) Endoplasmic reticulum
 - (ii) Cell differentiation
-

Section – II

- Q.5 Explain various mitotic divisions in a eukaryotic cell and give its significance. (14)
- Q.6 What do you understand by programmed cell death? Explain the physiology and regulation of programmed cell death. (14)
- Q.7 Explain various stages of meiotic divisions in a eukaryotic cell give the significance of each. (14)
- Q.8 Write short note on **ANY ONE** of the following: (07)
- (i) Tumor viruses
 - (ii) Lampbrush chromosomes

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GANPAT UNIVERSITY
M. Sc. First Semester Examination Nov-Dec, 2006
Paper-102 BIOCHEMISTRY

Time: 3 hours

Total Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are compulsory.
 - 2) Answer each section in separate answer book.
-

SECTION -I

- (1)
 - i) Discuss the structure and role of (7)
 - (a) Cellulose
 - (b) Glycogen
 - ii) Explain the Glyoxylate cycle giving its significance. (7)
- (2) Discuss the biosynthesis of amino acids. (14)
- (3)
 - i) What are the different types of RNA? Discuss their specialized roles. (7)
 - ii) How do PRPP levels influence purine and pyrimidine biosynthesis? (7)
- (4) Discuss types of phospholipids giving their structure and importance. (7)

OR

Explain biological oxidation-reduction reactions giving examples.

SECTION-II

- (1) What is enzyme inhibition? Discuss different types giving their respective plots with examples. (14)
- (2)
 - i) What are secondary metabolites? Briefly discuss their significance in the field of biology. (7)
 - ii) Discuss the mechanism of respiration in mitochondria. (7)
- (3) Explain the complete process of photosynthesis in plants stating the light and dark reactions. (14)
- (4) Write a note on multienzyme systems. (7)

OR

Describe acetogenesis in detail

GANPAT UNIVERSITY

M. Sc. I Semester Examination Nov/Dec. 2006

(Biotechnology/Microbiology)

Paper 103: Instrumentation and Analytical Techniques

Time: 11.00 a. m. to 2.00 p.m.
(3 hours)

Maximum marks: 70

Instructions:

1. Attempt any three (3) questions from each section of which, question no. 4 and question no. 8 are compulsory.
2. Use separate answer sheet for section I and section II.

SECTION-I

- Q. 1** (14)
- (a) Write short note on applications of Affinity Chromatography.
 - (b) Enumerate differences between Light and Electron Microscope.
- Q. 2** What is Chromatography? Name various types of chromatographic techniques used in biological sciences with detailed description on Gas-Liquid Chromatography. (14)
- Q.3** Describe in detail: Principle, instrumentation and applications of Transmission Electron Microscope. (14)
- Q.4** Attempt any one: (07)
- (a) Phase Contrast Microscopy.
 - (b) Instrumentation of Analytical Ultracentrifugation.

SECTION-II

- Q. 5** What are blotting techniques: Describe the blotting technique devised by E. M. Southern. (14)
- Q. 6** What is Electrophoresis? Describe in detail: Principle, operation and applications of Agarose Gel Electrophoresis. (14)
- Q.7** (14)
- (a) What is radioactivity? Write a detailed account on the interaction of Radioactivity with matter.
 - (b) What is Genome and what is genome property? How re-association Kinetics play role in genome property determination?
- Q.8** Attempt any one: (07)
- (a) Short note on Biosensors.
 - (b) Factors affecting Electrophoretic mobility.

Set - 4, 1, 2, 3

GANPAT UNIVERSITY
M. Sc. First Semester Examination
Nov-Dec, 2006

Paper-104 Research Methodology Professional Practices in Microbiology

Time: 3 hours

Total Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
- 2) Answer each section in a separate answer book

SECTION -I

- Q.1 Distinguish between an experiment and a survey. Explain in detail Survey methods of research. 14
- Q.2 List out the responsibilities of Management, Director, Principal Investigator and Study Personnels in GLP. 14
- Q.3 a) Write a note on Patent. 07
b) Write a note on Biosafety. 07
- Q.4 Explain how to write a Scientific Review. 07
- OR
- Write a note on Regulatory issues in Biotechnology 07

SECTION-II

- Q.5 Write on the different methods for analysis and representation of Data with suitable example(s). 14
- Q.6 What do you mean by Research Designs? Distinguish simple and complex designs and discuss any one. 14
- Q.7 a) Write a note on Green Biotechnology. 07
b) Write a note on Criteria of Good Research. 07
- Q.8 Explain how to write a Research Paper. 07
- OR
- Write a note on Biotechnology funding. 07