

M.Sc., (Previous) Biotechnology Degree Examination
August / September 2009
Directorate of Distance Education Course
(Freshers)

Paper - I : Chemistry of Biomolecules and Biostatistics

Time : 3 Hours

Max. Marks : 85

- Note :** 1) Answer all questions
 2) Illustrate wherever necessary

1. Explain briefly the following 5x3=15
- Osazone
 - Phospholipid
 - Indispensable amino acid
 - Sesquiterpene
 - Mean
2. Write short notes on any FOUR of the following 4x5=20
- Cyclization of mono saccharides
 - Simply linear regression
 - Edmand's reagent
 - Structural elucidation of fornesol
 - Standard deviation
3. Answer any TWO of the following 2x10=20
- Structural and characteristics of different forms of DNA
 - Structure elucidation of sucrose
 - Completely randomised block design (CRD)
4. Calculate the variance of the following class data 15
- | Class sequence | Frequency |
|----------------|-----------|
| 20 - 30 | 06 |
| 31 - 40 | 08 |
| 41 - 50 | 10 |
| 51 - 60 | 06 |
| 61 - 70 | 08 |
| 71 - 80 | 12 |
| 81 - 90 | 06 |

OR

Determine the mode and median for the following data

Age Group	14-18	18-22	22-26	26-30	30-34	34-38	38-42	42-46
Frequency	6	18	20	12	05	04	06	04

46- 50
01

5. Discuss the chemistry of fatty acids. Add a note on Shingholipids

15

OR

Write an account on the general structure of proteins

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Paper - II : Cell and Molecular Biology

Time : 3 Hours

Max. Marks : 85

Note : 1) Answer all questions**2) Illustrate wherever necessary**

1. **Write notes on the following** **5x3=15**
- a. Centrioles
 - b. Chromocenter
 - c. S- phase
 - d. Mycoplasma
 - e. Attenuator
2. **Write short notes on any FOUR of the following** **4x5=20**
- a. Organisation of virus
 - b. Lampbrush chromosome
 - c. Peroxisomes
 - d. Synoptonemal complex
 - e. Chemical structure of DNA
3. **Write detailed notes on any TWO of the following** **2x10=20**
- a. Ultra structure of Plasma membrane
 - b. Types of RNA
 - c. Lac Operon model
4. **Describe the structure and functions of Lysosomes.** **15**
- OR**
- Write an account of structural organization and functions of Nuclear envelope.
5. **Describe the process of DNA replication in prokaryotes.** **15**
- OR**
- Explain the events of transcription in prokaryotes.

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Paper - III : Microbiology and Immunology

Time : 3 Hours

Max. Marks : 85

Note : 1) Answer all questions

2) Illustrate wherever necessary

- 1. Explain briefly the following** **5x3=15**
- a. Paratopes
 - b. Opsonization
 - c. Null cells
 - d. Complement
 - e. Dry sterilization
- 2. Write short notes on any FOUR of the following** **4x5=20**
- a. Types of antigen
 - b. Active immunity
 - c. Rickettsia
 - d. Cross reactive antigens
 - e. Ig A
- 3. Write detailed notes on any TWO of the following** **2x10=20**
- a. Role of microbes in food industry
 - b. Classification of immunoglobulins
 - c. Contact dermatitis.
- 4. Give account on the air borne bacterial diseases of man** **15**
- OR**
- Write an essay on immuno deficiency diseases.
- 5. Describe the cells of immune system and their role in defence mechanism.** **15**
- OR**
- The disease malaria is optly described as the single greatest killer of the human race. Explain.

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Time : 3 Hours

Max. Marks : 85

Note : 1) Answer all questions**2) Illustrate wherever necessary**

1. Explain briefly the following 5x3=15
- TPP
 - KNF model
 - Competitive inhibition
 - V_{max}
 - Regulatory site
2. Write short notes on any FOUR of the following 4x5=20
- Enzyme therapy
 - Enzyme properties
 - Multienzyme complexes
 - Lineweaver- Burk plot
 - Effect of pH on enzymatic reaction.
3. Answer any TWO of the following 2x10=20
- Explain the coenzyme action of PLP, FMN and Vit B₁₂
 - Mention the applications of immobilized enzymes.
 - Write an account on extraction of membrane bound enzymes.
4. Elaborate on the methods of separation of enzymes. 15

OR

Explain the mechanism of action of chymotrypsin and RNA as an enzyme.

5. Discuss in detail about the irreversible and reversible enzyme inhibition. 15

OR

What are allosteric enzymes. Discuss MWC model to explain the sigmoid nature of allosteric enzymes.

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