

(BIT10111)

M. Sc. DEGREE EXAMINATION,
OCTOBER/NOVEMBER 2018.

First Semester

Biotechnology

Paper I — GENETICS AND CELL BIOLOGY

(Regulation 2011)

Time : Three hours

Maximum : 70 marks

Answer ONE question from each Unit.

All questions carry equal marks

UNIT I

1. Describe the evidences to prove DNA as genetic material.

Or

2. Write notes on

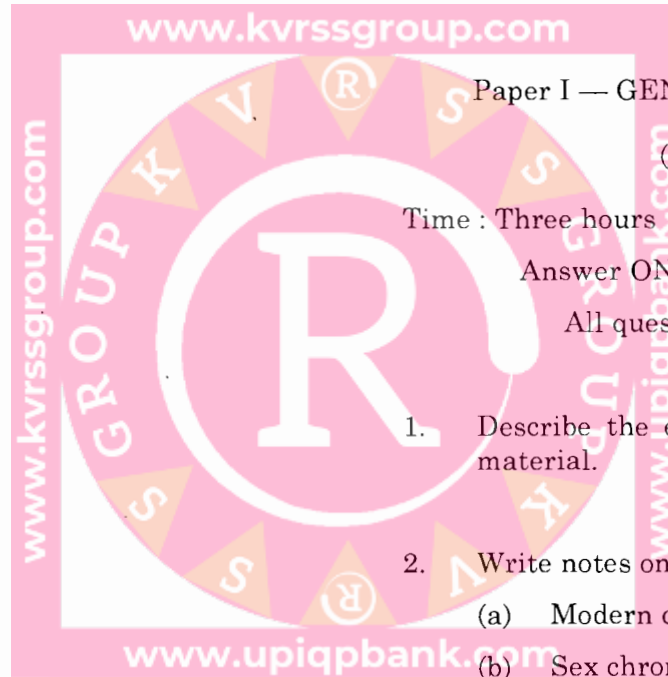
(a) Modern concept of gene

(b) Sex chromosomes

UNIT II

3. Describe the genetic recombination in Bacteria.

Or



4. Write notes on

(a) Role of rec proteins

(b) Mapping of bacterial chromosome by transduction.

UNIT III

5. Describe in detail the prokaryotic cell.

Or

6. Write notes on

(a) Golgi apparatus

(b) Chloroplast

UNIT IV

7. Define Apoptosis and its mechanism and significance.

Or

8. Write notes on

(a) Cell death and proliferation

(b) Cell cycle check points

UNIT V

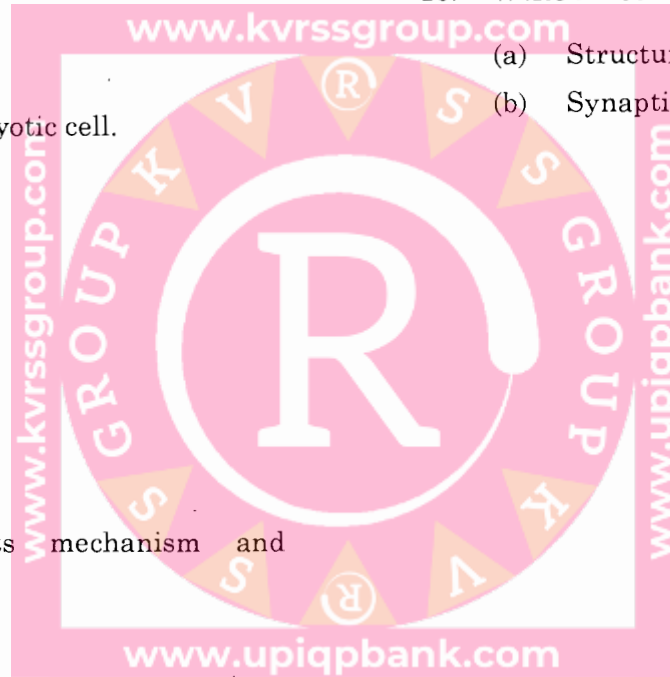
9. Write an account on cell surface receptors.

Or

10. Write notes on

(a) Structure of microvillus

(b) Synaptic and endocrine signaling.



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First Semester

Biotèchnology

Paper II — BIOMOLECULES

(Regulation 2011)

Time : Three hours

Maximum : 70 marks

Answer ONE question from each Unit.

All questions carry equal marks

UNIT I

1. Write an account on the classification of carbohydrates.

Or

2. Write notes on

- (a) Lectins.
- (b) Oligo saccharide.

UNIT II

3. Describe structure and physicochemical properties of amino acids.

Or

- 4. Write notes on
 - (a) Peptide synthesis
 - (b) Cyclic antibiotics.

UNIT III

5. Describe the primary structure of proteins.

Or

6. Write notes on

- (a) Biological functions of proteins
- (b) Ramachandran plot

UNIT IV

7. Describe the physical and chemical properties of fatty acids.

Or

8. Write notes on

- (a) Sphingolipids
- (b) Cytochrome

UNIT V

9. Write an account on the structure of DNA.

Or

10. Write notes on

- (a) Kinetics of reassociation.
- (b) Hyperchromic effect.

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Biotechnology

UNIT III

5. Write an account on Agarose Gel electrophoresis.

Or

6. Describe the principle, methodology and applications in separation of large DNA fragments.

UNIT IV

7. Describe the principle, methodology and applications of flame Photometry.

Or

8. Write an account on X-Ray diffraction and X-Ray Chrystallography.

UNIT V

9. Write an account on nature and types of radioactivity

Or

10. Describe the biological uses of radioisotopes.

Paper III — TOOLS AND TECHNIQUES IN BIOLOGY

(Regulation 2011)

Time : Three hours

Maximum : 70 marks

Answer ONE question from each Unit.

All questions carry equal marks

UNIT I

1. Describe the methods of cell disruption.

Or

2. Explain the principle, methodology applications of analytical Ultracentrifugation.

UNIT II

3. Describe the Principle, methodology and applications of Gel filtration.

Or

4. Explain the Principle and describe the methodology and applications of Affinity chromatography.

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Paper IV — ENZYMOLOGY

(Regulation 2011)

Time : Three hours

Maximum : 70 marks

Answer ONE question from each Unit.

All questions carry equal marks

UNIT I

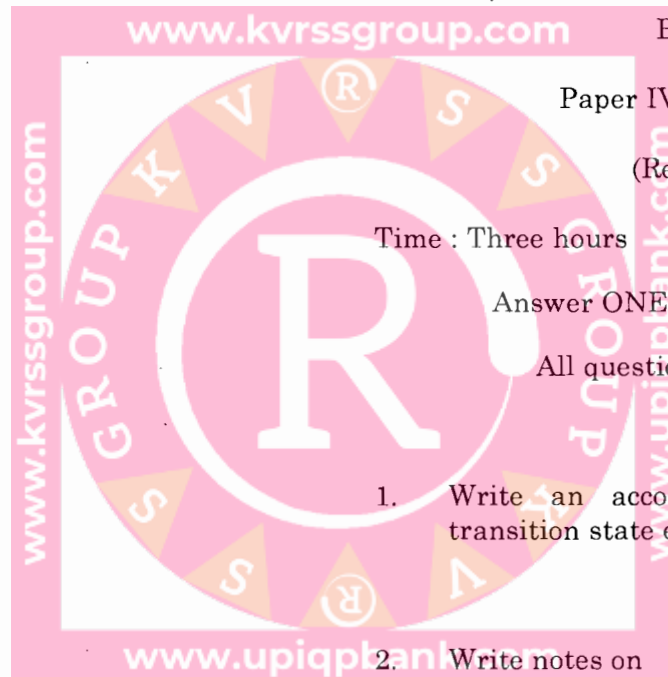
1. Write an account on activation energy and transition state energy.

Or

2. Write notes on

(a) Collision theory

(b) The law of mass action and order reaction



UNIT II

3. Describe the kinetics of single substrate enzyme and catalyzed reactions.

Or

4. Write notes on

- (a) Significance of K_m and V_{max}
(b) Single displacement and Double displacement reactions.

UNIT III

5. Describe the purification of enzymes and criteria of purity.

Or

6. Write notes on

- (a) Reversible inhibition
(b) Assay of enzymes

UNIT IV

7. Describe the mechanism of enzyme actions.

Or

8. Write notes on

- (a) enzyme modifications
(b) Covalent catalysis

UNIT V

9. Describe the structure and functions of vitamin coenzymes.

Or

10. Write notes on

- (a) AT case
(b) Multienzyme complex.

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Paper V — GENERAL MICROBIOLOGY

(Regulation 2011)

Time : Three hours

Maximum : 70 marks

Answer ONE question from each unit.

All questions carry equal marks.

UNIT I

1. Write an account on the classification of bacteria.

Or

2. Describe the general characters of Algae and protozoa.

UNIT II

3. Describe the structure and functions of endospores and plasmids.

Or

4. Write notes on :

- (a) Cell membrane
- (b) Ribosomes.

UNIT III

5. Describe the methods of cultivation and purification of plant Viruses.

Or

6. Write an account on classification and nomenclature of DNA Viruses.

UNIT IV

7. Describe the methods of isolation of pure cultures and cultivation of aerobic microbes.

Or

8. Describe the methods of preservation and maintenance of cultures.

UNIT V

9. Write an account on the factors influencing the growth of bacteria.

Or

10. Explain the nutritional groups of Bacteria.