(BIT20111)

M.Sc. DEGREE EXAMINATION, APRIL 2019.

Second Semester

Biotechnology

Paper I — MOLECULAR BIOLOGY

(Regulation 2011)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. Describe enzymes involved in DNA replication.

Or

2. Answer any TWO of the following :

(a) inhibitors of DNA replication

(b) Structure of oriC

(c) Histone dissociation.

3. Explain DNAse protection method and Foot printing assays.

Or

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4. Answer any TWO of the following :

(a) Prokaryotic RNA polymerase

(b) Transcription elongation.

(c) Inhibitors of Transcription.

5. Explain central dogma theory and flow of genetic information.

Or

6. Answer any TWO of the following :

(a) Wobble hypothesis

(b) Structure and functions of RNA polymerase1

(c) Protein trafficking.

7. Describe transcription factor domains and their role in regulation of gene expression.

Or

8. Answer any TWO of the following :

(a) Helix turn helix

(b) Yeast gal genes

(c) Steroid hormone induced gene expression.

9. Describe various types of Mutations and their importance.

Or

10. Answer any TWO of the following :

(a) Transposon

(b) Site directed mutagenesis

(c) Mechanism of mutagenesis.

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(BIT20211)

M.Sc. DEGREE EXAMINATION, APRIL 2019.

Second Semester

Biotechnology

Paper II – MOLECULAR VIROLOGY

(Regulation 2011)

Time : Three hours Maximum : 70 marks

Answer ONE from each unit.

All questions carry equal marks.

UNIT I

1. Describe the history and principles of Virology.

Or

2. Describe the requirements of Virology laboratory.

UNIT II

3. Write an account on structure and replication strategies of Bacteriophages.

Or

4. Describe the structure and replication strategies of animal Virus.

UNIT III

5. Describe the nature and Sources of interferons.

Or

6. Write an account on classification interferons.

UNIT IV

7. Describe the method of cultivation of Virus in embryonated egg.

Or

8. Write an account on recombinant proteins

UNIT V

9. Describe the methods of purification of Viruses

Or

10. Describe the principle, techniques and applications of PCR.

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(BIT20311)

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Biotechnology

Paper III — INTERMEDIARY METABOLISM

(Regulation 2011)

Time : Three hours Maximum : 70 marks

Answer ONE question from each Unit.

UNIT I

1. Write an account on Glycolysis and its regulation. (14)

Or

2. Write notes on :
   (a) Glyoxilate cycle, (7)
   (b) Glycogen metabolism. (7)

UNIT II

3. Describe the general metabolic reactions of amino acids. (14)

Or

4. Write note on :
   (a) Ketogenic and glycogenic amino acids (7)
   (b) Regulation of Urea cycle (7)

UNIT III

5. Describe the formation and utilization of ketone bodies. (14)

Or

6. Write notes on :
   (a) Metabolism of Phospholipids (7)
   (b) Biosynthesis of cholesterol and its regulation. (7)

UNIT IV

7. Describe the degradation of Purines and their regulation. (14)

Or

8. Write notes on the following :
   (a) Deoxyribonucleotides (7)
   (b) Biosynthesis and degradation of Heme (7)

UNIT V

9. Describe the in borne errors of carbohydrate metabolism. (14)

Or

10. Write notes on the following :
    (a) Hyper and hypo cholesterelomia (7)
    (b) Gout syndrome. (7)

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(BIT20411)

M.Sc. DEGREE EXAMINATION, APRIL 2019.

Second Semester

Biotechnology

Paper – IV: BIOSTATISTICS AND BIOINFORMATICS

(Regulation 2011)

Time : Three hours Maximum : 70 marks

Answer ONE question from each unit.

All questions carry equal marks.

UNIT – I

1. Explain frequency distribution tabulation and bar diagram with your own data.

Or

2. Write notes on

(a) Measures of dispersion

(b) Poisson and normal distribution.

UNIT – II

3. Describe use of random numbers to generate simple random samples with replacement and without replacement.

Or

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4. Write notes on

(a) Chi square test for independance

(b) Introduction to one way and two way ANOVA

UNIT – III

5. Describe the uses of Genomics and Proteomics in Bioinformatics.

Or

6. Write notes on

(a) Biological data bases

(b) Swiss Port and NCBI

UNIT – IV

7. Describe the Bioinformatics for genome sequencing and EST clustering.

Or

8. Write notes on the following

(a) Bioinformatics for genome maps and markers

(b) Regulatory sequence analysis

UNIT – V

9. Describe the structural biology and Homology modeling.

Or

10. Write notes on the following

(a) Bioinformatics for phylogenetic analysis

(b) Medical applications of Bioinformatics.

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(BIT20511)

M.Sc. DEGREE EXAMINATION, APRIL 2019.

Second Semester

Biotechnology

Paper – V : DEVELOPMENTAL BIOLOGY

(Regulation 2011)

Time : Three hours Maximum : 70 marks

Answer ALL question.

All questions carry equal marks.

UNIT – I

1. Describe developmental control of gene expression.

Or

2. Answer any TWO of the following

(a) Gastrulation and Neurulation

(b) Animal development

(c) Cell fate and cell commitment

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UNIT – II

3. Describe the overview of plant development in Arabdopsis thaliana.

Or

4. Answer any TWO of the following

(a) Pollination and fertilization

(b) Microsporogenesis and gamete production

(c) Plant response to environment

UNIT – III

5. Describe the examples of determination of cell fate in the nervous system.

Or

6. Answer any TWO of the following

(a) Consequences of molecular evolution

(b) Inductive events in axis formation

(c) The Retinar

UNIT – IV

7. Describe the approaches and techniques in developmental genetics.

Or

8. Answer any TWO of the following

(a) Events controlled by maternal transcripts

(b) Epistasis and Mosaic analysis to determine gene products

(c) Signaling events using C. elegans

UNIT – V

9. Describe segmentation and segment identity in Drosophila.

Or

10. Answer any TWO of the following

(a) Developmental genetics in practice

(b) Limb development

(c) Early events in Drosophila development.

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