

[4]

SECTION 'C' $4 \times 10 = 40$

Long Answer questions (Word limit 400-450 words.)

UNIT-I

Q. 1. Describe ultra structure of mitochondria.

OR

Describe structure and function of Ribosome.

UNIT-II

Q. 2. What do you mean by genetic code? Discuss in brief the special features of Genetic code.

OR

Describe regulation of Translation.

UNIT-III

Q. 3. Describe polymerase chain reaction.

OR

Describe morphological and structural types of chromosomal organization.

UNIT-IV

Q. 4. Write an essay on Transgenic animals and give a list of species where transgenic animals have already been produced.

OR

Describe application of genetic engineering in medicine.

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II SEMESTER EXAMINATION, 2021

M.Sc. (ZOOLOGY)

PAPER-I

MOLECULAR CELL BIOLOGY & BIOTECHNOLOGY

TIME: 3 HOURS

MAX.- 80

MIN.- 16

Note: The question paper consists of three sections A, B & C. All questions are compulsory.

Section A- Attempt all multiple choice questions.

Section B- Attempt one question from each unit.

Section C- Attempt one question from each unit.

SECTION 'A' $2 \times 8 = 16$

MCQ (Multiple Choice Questions)

1. With respect to their surrounding membrane system, Which is the odd one out -
(a) Nucleus (b) Endoplasmic reticulum
(c) Mitochondria (d) Chloroplast
2. Which of the following apply to intercellular junction-
(a) The three major adhesive junction of animal cell are adherens junction, desmosomes and hemidesmosomes.
(b) Desmosomes and hemidesmosomes connect epithelial cells to their basement, membrane and adjacent cells respectively.
(c) Gap junctions and plasmodesmata are homologous structures.
(d) The junctional complexes of gastrointestinal enterocytes ensure that nutrients are only absorbed through the space between the cells which prevent them absorbing potentially harmful substances.

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3. Which of the following enzymes separates the two strands of DNA during replication.
- (a) Gyrase (b) Topoisomerase
(c) Helicase (d) DNA Polymerase
4. Which of the following bases pairs with guanine?
- (a) Adenine (b) Guanine
(c) Cytosine (d) Uracil
5. Association of DNA and histone is mediated by -
- (a) Covalent bonding (b) Hydrogen bonding
(c) Hydrophobic bonding (d) Vanderwalls interactions
6. The map of the chromosomes which shows identifiable sites is called-
- (a) Gene expression (b) Genome Sequencing
(c) Chromosome walking (d) Genome map
7. In Transgenic Fish, the genes are introduced by -
- (a) microinjection in fish (b) Viruses
(c) Transfer of whole nuclei (d) All of these
8. Genetic engineering involves -
- (a) Cutting out a DNA Sequence
(b) Changing a DNA Sequence
(c) Reinserting DNA into living organisms
(d) All of the above

[3]

SECTION 'B'

4 × 6 = 24

Short Answer Type Questions (Word limit 200-250 words.)

UNIT-I

- Q. 1.** Describe structure and function of Cillia & Flagella.

OR

Write short notes on-

- (a) Passive transport (b) Unit membrane concept

UNIT-II

- Q. 2.** Describe Semiconservative mode of replication of DNA.

OR

Write short notes on-

- (a) Lac operan
(b) Mechanism of initiation of protein synthesis

UNIT-III

- Q. 3.** Write short notes on –

- (a) Non-coding DNA
(b) Molecular markers in genome analysis

OR

Describe Genetic and physical maps.

UNIT-IV

- Q. 4.** Describe Embryonic stem cells

OR

Describe the role of genetic engineering in Industry.