CBCS SCHEME

18BT35

Third Semester B.E. Degree Examination, July/August 2021
Cell Biology and Genetics

Time: 3 hrs.

Max. Marks: 100

Note: *Answer any FIVE full questions.*

1 a. Write a critical note on Membrane Organization in Animal cell. **(10 Marks)**
   b. With a neat labeled diagram, explain the structure of Prokaryotic cell. **(10 Marks)**

2 a. Define the term Microfilament. Describe the structure and function of microfilament in the cell. **(10 Marks)**
   b. Write a elaborate note on Cyto skeleton architecture. **(10 Marks)**

3 a. With neat labeled diagram, illustrate the Meiosis – I division. Add a reference note on how Meiosis – I differs from Meiosis - II. **(10 Marks)**
   b. In detail, explain the structure and function of Mitochondria. **(10 Marks)**

4 a. Draw the ultra structure of flagella and explain its locomotion. **(10 Marks)**
   b. Outline the mechanism involved in the process of Apoptosis of normal cell. **(10 Marks)**

5 a. Write a detailed account on identification of genetic material based on Hershey and Chase experiment. **(10 Marks)**
   b. Define Gene Interaction. An inter allelic gene interaction with out modification of normal F_2 ratio is 9:3:3:1. Using Comb type of poultry as example, substantiate the statement. **(10 Marks)**

6 a. Through Monohybrid Cross Mendel discovered gray seed color in peas is dominant to white. In the following experiments, parents with known phenotype but unknown genotype produced the following listed progeny.

Parent	Gray	White
i) Gray × Gray	118	39
ii) Gray × White	74	0
iii) Gray × Gray	90	0

   In the above crosses, indicate how many of gray progeny produced by each cross would be expected to produce white progeny when self fertilized.
   NOTE : G = Gray , g – White. **(12 Marks)**
   b. Define Epistasis and explain it with example. **(08 Marks)**

7 a. With a neat labeled diagram, explain the ultra structure of chromosome. **(10 Marks)**
   b. Write a critical note on polytene chromosome. **(10 Marks)**

8 Write short notes on :
   a. Hardy – Weinberg Law.
   b. Gene frequency.
   c. Heterosis.
   d. Pedigree analysis. **(20 Marks)**

9 a. Explain the methods of Sex determination in animals. **(10 Marks)**
   b. Quoting colour blindness as example, describe sex – linked inheritance in humans. **(10 Marks)**

10 a. Down's syndrome is considered as a chromosomal disorder. Comment on the statement. **(10 Marks)**
   b. Justify the statement "Non – disjunction of chromosomes in Meiosis is a proof of chromosomal theory of inheritance". **(10 Marks)**

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