CBCS SCHEME

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17BT35

Third Semester B.E. Degree Examination, Dec.2018/Jan.2019
Cell Biology and Genetics

Time: 3 hrs. Max. Marks: 100

Note: 1. ***Answer any FIVE full questions, choosing ONE full question from each module.***
2. ***Draw diagram wherever necessary.***

Module-1

1 a. With a neat diagram, explain the structure of animal cell. **(08 Marks)**
b. Enumerate the differences between Prokaryotic and Eukaryotic cells. **(06 Marks)**
c. Write short notes on Cytoskeleton Architecture. **(06 Marks)**

OR

2 a. Describe the structural peculiarities of Prokaryotic organization. **(10 Marks)**
b. Explain in detail the chemical composition and formation of microfilaments. **(10 Marks)**

Module-2

3 a. Write short notes on the structure and function of Cytoplasm. **(10 Marks)**
b. Explain the method of cell division where a cell dividing into 2 daughter cell. **(10 Marks)**

OR

4 a. Explain the structure and mechanism of locomotion in Cilia. **(10 Marks)**
b. Write short note on Apoptosis. **(06 Marks)**
c. Explain how Meiosis I – differs from mitosis. **(04 Marks)**

Module-3

5 a. Define Gene Interactions. Explain supplementary type of Gene interaction with example. **(10 Marks)**
b. Define Law of independent assortment and explain it with an example. **(10 Marks)**

OR

6 a. "DNA is genetic material rather than protein". Justify the statement with Hershey Chase and Avery , McLeod experiments. **(12 Marks)**
b. Give expected genotypic and phenotypic ratios for the following crasses for ABO blood groups. **(08 Marks)**
i) $I^A I^O \times I^B I^O$ ii) $I^A I^B \times I^A I^O$ iii) $I^A I^B \times I^A I^B$ iv) $I^O I^O \times I^A I^O$.

Module-4

7 a. State the Hardy Weinberg principle and explain genetic analysis using it. **(10 Marks)**
b. With a neat diagram, explain lamp brush and polytene chromosome. **(10 Marks)**

OR

8 a. Define Speciation and explain the different types of speciation. **(10 Marks)**
b. Write short notes on :
i) Heterosis ii) Pedigree analysis. **(10 Marks)**

Module-5

9 a. Explain non – dysjunction as a proof of chromosomal theory of inheritance. **(10 Marks)**

b. What is Criss Cross inheritance? Explain the same with reference to haemophilia in man. **(10 Marks)**

OR

10 a. Discuss different chromosomal sex determination mechanisms in animals with examples. **(10 Marks)**

b. Define Crossing over and explain it with an example. **(10 Marks)**

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