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15BT35

Third Semester B.E. Degree Examination, Dec.2017/Jan.2018
Cell Biology and Genetics

Time: 3 hrs.

Max. Marks: 80

Note: *Answer FIVE full questions, choosing one full question from each module.*

Module-1

1   a. Explain the Singer and Nicolson model and discuss why this model is accepted one to describe the structure of plasma membrane. **(10 Marks)**
    b. Briefly explain the differences between plant and animal cells. **(06 Marks)**

OR

2   a. What are Microfilaments? Describe their structure and functions. **(10 Marks)**
    b. Briefly explain the cytoplasmic micro trabecular system / lattice. **(06 Marks)**

Module-2

3   a. What is Melosis? Describe the various stages of melosis with diagrams and explain the significance of melosis. **(10 Marks)**
    b. Write short notes on : i) Endoplasmic reticulum   ii) Vaculoles. **(06 Marks)**

OR

4   a. Briefly explain the cell to cell integration methods in plants and animal cells. **(08 Marks)**
    b. What is Apoptosis? Briefly explain the role of caspases in programmed cell death. **(08 Marks)**

Module-3

5   a. Explain the Law of Segregation and the Law of Independent Assortment with examples. **(10 Marks)**
    b. What is Gene Interactions? Explain with one example. **(06 Marks)**

OR

6   a. Explain the classical experiments that led to the discovery of DNA as genetic material. **(10 Marks)**
    b. Briefly explain multiple alleles and group antigens. **(06 Marks)**

Module-4

7   a. Write short notes on : i) Telomere ii) Heterochromatin   iii) Polytene chromosomes iv) Human chromosomes. **(12 Marks)**
    b. Explain Inbreeding and Heterosis. **(04 Marks)**

OR

8   a. Explain Population Genetics and Hardy – Weinberg law. **(10 Marks)**
    b. Define Mutation. Differentiate Induced and Spontaneous mutations. **(06 Marks)**

Module-5

9   a. Explain in brief XX – XY , XX – XO , ZW – ZZ type of sex determination with examples. **(08 Marks)**
    b. Discuss sex linked inheritance and add a note on colour blindness and hemophilia. **(08 Marks)**

OR

10 a. Briefly discuss Bridges work as a proof of Chromosomal theory of inheritance. **(08 Marks)**
    b. Write short notes on : i) Chromosomal maps   ii) Interference and Coincidence. **(08 Marks)**

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