

2123  
B.E. (Biotechnology) Third Semester  
BIO-314: Cell Biology and Genetics

Time allowed: 3 Hours

Max. Marks: 50

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.*

*x-x-x*

1. Write very short answer to followings

(1\*10=10)

- a) dNTPs are structural unit of which molecule?
- b) DNA in B-form is right- or left-handed helix?
- c) Keratin is mainly present in which organelle?
- d) Histone proteins are major component of which structure?
- e) Nucleotides are structural units of which molecule?
- f) Write two major features of euchromatin.
- g) Which is the largest cytoskeletal element?
- h) What is F2 phenotypic ratio in Dominant epistasis?
- i) What is the genotype of Turner syndrome?
- j) Inheritance of human mitochondria is an example of

**Section-A**

2. a) Give structural and functional details of active transporters present in membrane. (draw diagrams) (6)
- b) Describe the hierarchical packaging of chromatin fibre. (4)
3. a) Differentiate between intermediate filaments and microfilaments. (5)
- b) Describe structural and functional details of Lampbrush chromosome. (5)
4. a) Describing the importance, explain stepwise process of reductional division. (6)
- b) Write a detailed note. (Any one) (4)
  - I. Malfunctions in ECM signalling
  - II. Function of cyclins

**Section-B**

5. a) Step wise describe the process and draw cot curve for human genome. Give its significance. (4)
- b) Give genotypic, phenotypic and structural details of two numerical chromosomal abnormalities. (6)

P.T.O.

(2)

6. a) Write a detailed note on Ac-Ds elements. (4)
- b) Taking an example, explain how genetic linkage are employed in genetic mapping? (6)
7. a) Draw F2 ratio of dominant and co-dominant epistasis phenomena of inheritance, taking one example each. (6)
- b) Differentiate between sex limited and sex influenced characters. (4)

x-x-x