

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

Q. 1) Write briefly:

- a) What is fluid mosaic model?
- b) What are the differences between transmembrane and peripheral membrane protein?
- c) Explain $\text{Na}^+\text{K}^+\text{ATPase}$.
- d) What is idiogram?
- e) What is the mode of action of a cytoskeletal inhibitory drug? Give example.
- f) What is the major structural protein of extracellular matrix in animal cells?
- g) Down syndrome is caused by ----- in human beings.
- h) What is the maximum recombination frequency?
- i) What is Punnett square?
- j) Does mitochondrial DNA follow Mendelian inheritance pattern? (10×1)

SECTION - A

- Q. 2)** a) Discuss detail structure of glycerophospholipids and sphingophospholipids.
b) Cell membrane has versatile role to maintain cell physiology. Justify the statement. (5, 5)
- Q. 3)** a) Differentiate between mitotic and meiotic cell division.
b) Write briefly on, i) Cell cycle check points, ii) polytene and lampbrush chromosomes. (5, 2.5, 2.5)
- Q. 4)** a) Explain structural and functional uniqueness of different cytoskeletal filaments.
b) Write briefly on:-
i) Glycosamioglycans
ii) Telomerase as drug target (5, 2.5, 2.5)

P.T.O.

(2)

SECTION – B

Q. 5) How did T.H. Morgan and C.B. Bridge experiments proved chromosomal inheritance. (10)

Q. 6) a) What are the experiments that prove maternal inheritance pattern?

b) Explain briefly:-

i) Chromosomal aberrations and disease

ii) Sex limited and sex influenced characters (5, 2.5, 2.5)

Q. 7) a) What are characteristic features of transposons and how do they create genetic variations?

b) Differentiate,

i) Co-dominance and incomplete dominance

ii) Penetrance and expressivity (5, 2.5, 2.5)

x-x-x