Exam. Code: 0907
Sub. Code: 33354

2076

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. I which is compulsory and selecting two questions from each Unit.

x-x-x

1. Write very short answer to following:-

   a) Chemical composition of histone H1

   b) Centromere position in acrocentric chromosome

   c) Role of CDK-cyclin complex

   d) Structure of dGTP

   e) Lampbrush chromosomes are found in _____.

   f) Barr body represents _____.

   g) Telomeric DNA sequence in humans

   h) 3:1 monohybrid ratio indicates _____.

   i) 47, XXY genotype refers to _____.

   j) Parental DNA strand acts as _____. (10x1)

UNIT - I

2. Using suitable diagrams, explain the working principles of uniporters, symporters, and antiporters with examples. (10)

3. Describe in detail the hierarchical organization of DNA from double helix to metaphase chromosome. (10)

4. Write a detailed note on *any two* of the following:-

   a) Lampbrushchrosmosome

   b) Meiosis-I

   c) Regulation of cyclins during cell cycle (2x5)

P.T.O.

UNIT - II

5. Explain numerical chromosomal abnormalities. Discuss trisomy and monosomy with human examples. (10)

6. With suitable examples, explain codominance and incomplete dominance. How do these differ from pleiotropy? (10)

7. a) Explain recombination frequency and its application in genetic mapping.
   b) Discuss the organization and significance of chloroplast genes. (2x5)

x-x-x