

[A-30]

No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY
 M.Sc. (I Semester- CBCS) Examination
 Subject: BIOTECHNOLOGY
 PS01CBIT03; Cell Biology & Genetics
 Friday, April 24, 2015
 Time: 10.30 a.m. to 1.30 p.m.

Total Marks: 70

Note: Figures in brackets indicate marks
 Answer all the questions in the given answer book

Q1. Choose the appropriate answer for the following multiple choice questions: (8x1=8)

- i) The phospholipid that plays crucial role in cell signaling is
 (a) Phosphotidyl choline (b) Phosphotidyl inositol
 (c) P. Serin (d) P. ethanolamine
- ii) Transmembrane proteins can be visualized by
 (a) Freeze fraction technique (b) Thin sectioning technique
 (c) Shadowing technique (d) Negative staining
- iii) Protein folding and processing takes place in
 (a) ER (b) Golgi
 (c) Vacuoles (d) Endosomes
- iv) Plasmodesmatal connections are found in:
 (a) Animal cell (b) Plant cell
 (c) Yeast cell (d) Bacterial cell
- v) Cell plate formation takes place during:
 (a) G1-phase (b) G2-Phase
 (c) M-phase (d) S-phase
- vi) In which interaction of the genes the genotypic ratio appears as 2:1.
 (a) Incomplete dominance (b) lethal genes
 (c) co-dominance (d) pleiotropy
- vii) In Drosophila white eye color is recessive to normal red eye color. If red eyed male is crossed to red eyed female heterozygous the resultant progeny in F₁ are:
 a) All Females are white eyed and males are red eyed
 b) All Females and males are red eyed
 c) All Females and males are white eyed
 d) All Females are red eyed and half of males are red eyed and other half white eyed
- viii) When two genes are situated very close to each other in a chromosome
 (a) The percentage of crossing over between them is very high/low
 (b) Hardly any cross overs are detected
 (c) Single crossing over can takes place between them
 (d) double crossing over can takes place between them

Q2. Answer any SEVEN of the following in brief: (7x2=14)

- (a) Lipid rafts
- (b) electromagnetic lenses
- (c) Nuclear lamina
- (d) Microfibrils
- (e) coated vesicles
- (f) Polyploidy
- (g) Test Cross
- (h) Gynandromorphs
- (i) Crossing over

Q3. (a) Discuss the similarities and dissimilarities between TEM & SEM (6)
(b) Compare and contrast the structure and organization of pro- and eukaryotic cells. (6)

OR

(b) Explain the molecular organization and functions of plasma membrane. (6)

Q4 (a) Explain the process of protein folding in ER lumen (6)
(b) Describe the structure and functions of nuclear pore complex (6)

OR

(b) Compare and contrast the structure and functions of mitochondria and chloroplast (6)

Q5 (a) Write a short note on intercellular communication in animal cells (6)
(b) Explain the modified Medelian ratios with suitable examples (6)

OR

(b) Explain the transmission of traits in humans with the help of pedigree analysis. (6)

Q6 (a) Discuss the experiments that led to understanding of the sex linked inheritance. (6)
(b) Write short notes on Ploidy. (6)

OR

(b) With suitable examples known to you explain the extra chromosomal inheritance. (6)