SC

[59] SEAT No._____ No. of Printed Pages: 02

SARDAR PATEL UNIVERSITY
S.Y.B.Sc EXAMINATION, III[rd] Semester
Tuesday, 20[th] November 2018, 2[illegible].00p.m to 05.00p.m
Genetics: US03CGEN01
[Cell Molecular Biology and Genetics]

NOTE- Figures in the right indicate full marks. Maximum Marks-70

Q.1. Multiple Choice Questions (10 marks- One Mark for Each MCQ)

1. How many mitotic divisions are required for a single cell to make 128 cells

a.7 b. 28 c. 32 d.14

2. The pairing of homologous chromosomes takes place during sub stage of meiosis—

a. Pachytene b. Zygotene c. Diakinesis d. Diplotene

3. Fusion of male gamete with a female gamete is called

a. Pollination b. Fertilization c. Progamy d. Combination.

4. --------- is abundant in plasma membrane of mammalian cells

a. Phospholipid b. sphignolipid c. cholesterol d. glycolipid

5. These proteins form the backbone of plasma membrane

a. Structural proteins b. Enzyme proteins c. Transport protein d. all the above

6. Plant cell junctions are known as

a. gap junction b. Occluding junction c. anchoring junction d. plasmodesmata

7. Which eukaryotic cellular organelles are believed to be evolved from symbiotic bacteria?

a. endoplasmic reticulum and the Golgi
b. Lysosomes
c. mitochondria and chloroplasts
d. peroxisomes

8. The DNA threads which appear inside the nucleus at the time of cell division

a. Spindle fibers b. Centrioles c. Asters d. Chromosomes

9. The compound consists of ribose linked by an N-glycosidic bond to N-9 of adenine is:

a. a deoxyribonucleoside.
b. a purine nucleotide.
c. a pyrimidine nucleotide.
d. adenosine monophosphate.

10. On which of the following molecules would you find a codon?

a. messenger RNA b. ribosomal RNA c. transfer RNA d. small nuclear RNA

(P.T.O)

Q.2.Short Questions (Attempt any10 question x2 marks each) [20]

1. Draw a neat and labeled diagram of animal cell.
2. What is cell cycle? Describe the G phase of cell cycle.
3. Define oogenesis and give its significance.
4. Write a brief note on lampbrush chromosome.
5. Explain the role of acetylcholine.
6. Explain in brief about the "Chromosome theory of inheritance."
7. Discuss mitochondria as a power house of cell.
8. Discuss membrane excitability in animals.
9. Describe the transmission of nerve impulse.
10. Write four difference between Purine and pyrimidine.
11. Describe the structure of tRNA with its function.
12. Discuss the importance of supercoiling of DNA in eukaryote.

Q.3. Describe the process of meiosis with its significance in sexually reproducing organism. [10]

OR

Q.3.a. Describe the mechanism of spermatogenesis with a labeled diagram. [05]

Q.3.b. Describe the various stages of mitosis with a labeled diagram. [05]

Q.4.a. Describe fluid mosaic model to explain the structure of plasma membrane. [06]

Q.4.b. Write notes on membrane proteins. [04]

OR

Q.4.a. Discuss the role of plasma membrane in cell adhesion and junction in eukaryotes. [06]

Q.4.b. Discuss membrane transport with its significance. [04]

Q.5. Write notes on –

(a). Ultra structure and functions of endoplasmic reticulum. [05]

(b). Structure and function of chloroplast. [05]

OR

Q.5.a. Describe the ultra structure and functions of nuclear envelope. [06]

Q.5.b. Discuss the important features of organelle genome. [04]

Q.6.a. Discuss the molecular events in Hershey–Chase experiment. [05]

Q.6.b. Describe the structure and function of mRNA. [05]

OR

Q.6.a. Enlist the difference between the A, B and Z forms of DNA. [05]

Q.6.b. Discuss Watson and crick model of DNA with a labeled diagram. [05]

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