

[64/A18]

Seat No. \_\_\_\_\_

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

B.Sc [Biochemistry] Examination, Vth Semester

Monday, Date: 18-11-2019

Time 10:00 a.m. to 1:00 p.m.

Subject /Course Code US 05 CBCH 04

Subject/Course Title: Cell Biology

Max Marks : 70

Q.1 Choose the most correct answer and write in the answer sheet.

(10 marks)

1. Which of the following contain lignin as one of its components?
  - (a) Primary cell wall of plants
  - (b) Fungal cell wall
  - (c) Secondary cell wall of plants
  - (d) none of the above
2. Neighboring plant cells communicate with each other via
  - (a) Circulating sucrose
  - (b) Plasmodesmata
  - (c) cell membrane
  - (d) endoplasmic reticulum
3. Microtubules are made up of monomers of \_\_\_\_\_, whereas microfilaments are \_\_\_\_\_ filaments.
  - (a) tubulin, actin
  - (b) actin, myosin
  - (c) actin, tubulin
  - (d) none of the above
4. Which of the following organelle functions in cellular respiration?
  - (a) lysosome
  - (b) mitochondrion
  - (c) Endoplasmic reticulum
  - (d) Golgi apparatus
5. Plant cells differ from animal cells in that plant cells have
  - (a) an endoplasmic reticulum
  - (b) mitochondrion
  - (c) a central vacuole
  - (d) Golgi apparatus
6. Which of the following organelle degrade engulfed bacteria and viruses in cells?
  - (a) Bacteria and viruses cannot be degraded in cells
  - (b) Endoplasmic reticulum
  - (b) Lysosomes
  - (d) Golgi bodies
7. Which of the following organelle forms spindle fibers for separation of chromosomes during cell division?
  - (a) Mitochondria
  - (b) Golgi bodies
  - (c) Nucleus
  - (d) Centrioles
8. The Golgi apparatus is involved in
  - (a) transporting the proteins
  - (b) altering & modifying the proteins
  - (c) packaging the proteins
  - (d) all of the above
9. During meiosis crossing over occurs between the
  - (a) Two sister chromatids
  - (b) Within chromatid
  - (c) Two non-sister chromatids
  - (d) None of the above
10. ATP Synthetase is present in
  - (a) mitochondria only
  - (b) Nucleus
  - (c) both mitochondria and chloroplast
  - (d) None of the above

①

(PTO)

**Q.II Answer the following questions in short. (Any ten).**

**(20 marks).**

- 1) Give any two examples of each of eukaryotic and prokaryotic cells.
- 2) What is interkinesis? How is it different from interphase?
- 3) Give compositional difference between primary and secondary cell wall of plants.
- 4) What is the difference between cilia and flagella?
- 5) How substances going inside and outside the cells are controlled?
- 6) What is the function of microtubules?
- 7) What is the size and function of nuclear pore?
- 8) Define apoptosis.
- 9) What are stem cells?
- 10) Explain the basal body of flagellum.
- 11) What is cell cycle? Do different types of cells have same cell cycle time?
- 12) What are peroxisomes and what is their function in cells?

**Q.III Answer the following questions:**

- Q.3 (a) Explain the structural organization of prokaryotic cells. (5 marks)  
(b) Narrate the evolution of eukaryotic cells from prokaryotes. (5 marks)
- OR
- Q.3 (a) What are cell junctions? Give functions of cell junctions. (5 marks)  
(b) Explain the structure, biochemical composition and functions of plant cell wall. (5 marks)
- Q.4 (a) Explain the structure and functions of cilia and flagella. (5 marks)  
(b) Discuss the functions of microfilaments and intermediate filaments. (5 marks)
- OR
- Q.4 (a) Which three types of protein filaments forms the cytoskeleton? Give the functions of cytoskeleton. (5 marks)  
(b) Distinguish between microfilaments and microtubules. (5 marks)
- Q.5 (a) Explain the structure and functions of chloroplast. (5 marks)  
(b) Explain the structure and functions of Smooth and Rough Endoplasmic reticulum. (5 marks)
- OR
- Q.5 (a) Explain the structure and functions of mitochondria. (5 marks)  
(b) Explain the structure and functions of eukaryotic nucleus. (5 marks)
- Q.6 (a) Explain the events in prophase I and prophase II of meiosis. (5 marks)  
(b) Explain the significance of meiosis. (5 marks)
- OR
- Q.6 (a) Explain the importance and applications of stem cells. (5 marks)  
(b) Differentiate between mitosis and meiosis. (5 marks)