

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - **BIOCHEMISTRY**

CELLULAR BIOCHEMISTRY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 What is the nature of membrane lipid?

(i) Hydrophilic	(ii) Lipophilic
(iii) Hydrotropic	(iv) Hydrophobic
- 2 The plasma membrane is impermeable to which of the following?

(i) Sodium	(ii) ATP
(iii) Urea	(iv) Potassium
- 3 Which one of the following ETC Component accepts only one electron?

(i) Oxygen	(ii) FMN
(iii) Cytochrome	(iv) Coenzyme Q.
- 4 Indicate 1 joule is equal to _____.

(i) 2.39 Cal	(ii) 0.04184 Cal
(iii) 1.390 Cal	(iv) 0.239 Cal
- 5 Which of the following has an antagonistic action to adenylate cyclase?

(i) cAMP	(ii) Protein kinase
(iii) G protein	(iv) Phosphodiesterase
- 6 Which surrounds the cell like a belt, preventing the passage of substances between the cells?

(i) Gap junctions	(ii) Desmosomes
(iii) Hemidesmosomes	(iv) Tight junctions
- 7 Identify number of Mitotic divisions are required to produce 128 cells from a single cell?

(i) 7	(ii) 28
(iii) 21	(iv) 10
- 8 Which cellular organelle is involved in the initiation of the intrinsic pathway of apoptosis?

(i) Mitochondria	(ii) Lysosomes
(iii) Nucleus	(iv) Golgi complex
- 9 Which of the following is believed to be a key cause of immortalization of cancer cells in many tumours?

(i) Loss of telomeres	(ii) Inactivation of the telomerase
(iii) Shortening of telomerase	(iv) Activation of telomerase
- 10 Which of the following is not encoded by oncogene?

(i) Protein receptors	(ii) Growth factors
(iii) DNA - dependent RNA polymerase	(iv) G-proteins

SECTION - B (35 Marks*)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a Illustrate fluid mosaic model of plasma membrane.
OR
b What are porins and ionophores ? Explain.
- 12 a State a note on complexes in ETC.
OR
b Exemplify the biological oxidation with its importance.
- 13 a Illustrate the cell surface receptors with examples.
OR
b Explain the role of CREB in brain functions.
- 14 a Describe the cell cycle study in *S. Pombe*.
OR
b Discuss the regulation of cell cycle.
- 15 a Explain the types of DNA viruses with examples.
OR
b Discuss on molecular diagnosis of cancer.

SECTION - C (30 Marks!)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Illustrate different types of transport across cell membrane.
- 17 Discuss the proton translocation in bacteria and chloroplast.
- 18 Write a note on (i) Ras protein (ii) MAP kinase pathway.
- 19 Explain the overview of cell cycle and its control.
- 20 Describe the mechanism of tetroviruses.

Z-Z-Z

END