

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(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 The smooth endoplasmic reticulum (SER) is the site of
(i) phospholipids synthesis (ii) amino acid synthesis
(iii) cholesterol synthesis (iv) glucose synthesis
- 2 Na⁺ glucose transporter is an example of
(i) symport (ii) antiport
(iii) facilitated diffusion (iv) active transport
- 3 Which one of the following has highest redox potential in ETC.
(i) FMN (ii) Oxygen
(iii) NAD (iv) FAD
- 4 10 gm of ice at 0°C is placed into 100 gm of water at 50 °C. Temperature of water after the whole ice has melted will be
(i) 32.8 °C (ii) 19.5 °C
(iii) 31.5°C (iv) 38.1 °C
- 5 Synaptic signaling involves _____ signal.
(i) endocrine (ii) autocrine
(iii) paracrine (iv) neurotransmitter
- 6 The receptor for nitric oxide(NO) is
(i) intercellular (ii) intracellular
(iii) extracellular (iv) unicellular
- 7 Chiasmata are first seen in
(i) Pachytene (ii) Zygotene
(iii) Leptotene (iv) Diplotene
- 8 What roles in regulating the intrinsic pathway of apoptosis are played by the Bel - 2 protein family members Bax and Bel - 2?
(i) Bax inhibits apoptosis (ii) Bax stimulates apoptosis
(iii) Bax and Bel - 2 inhibit apoptosis (iv) both Bax and Bel - 2 stimulates apoptosis
- 9 Cancer cells are destroyed by radiation is due to
(i) fast mutation (ii) rapid cell division
(iii) lack of mutation (iv) lack of oxygen
- 10 Migration of cancerous cells from the site of origin to other part of the body forming secondary tumors is called
(i) Diapedesis (ii) Metastasis
(iii) Proliferation (iv) Apoptosis

SECTION - B (35 Marks)

Answer **ALL** Questions

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

11 a Describe the structure and functions of plasma membrane.

OR

b Write a note on passive diffusion and group translocation. .

12 a Explain the laws of thermodynamics.

OR

b Illustrate glycerol phosphate shuttle.

13 a What is cell signaling? Explain with its types.

OR

b Exemplify the role of CBP in brain functions and signaling.

14 a What are the check points in cell cycle? Describe.

OR

b Explain the study of cell cycle in oocytes and embryos.

15 a Compare and contrast normal cells with cancer cells.

OR

b Write a note on retroviruses with its mechanism.

SECTION - C (30 Marks)

Answer any **THREE** Questions

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

16 Give an account on (i) active transport (ii) Ionophores.

17 Describe the Chemiosmotic mechanism of ATP formation.

18 Elaborate on MAP kinase pathways.

19 Explain the overview and regulation of cell cycle.

20 Discuss the mechanism of chemical carcinogenesis and tumor suppressor genes.

Z-Z-Z

END