PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(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 × 1 = 10)

1 In order for a protein to be an integral membrane protein it wouldhave to be which of the following?
a) hydrophilic b) hydrophobic
c) amphipathic d) completely covered with proteins

2 _____ has a stalk on cytosolic face that links domain containingthe ATP- binding site.
a) Na^+/ K^+ATP ase b) Ca^{2+} ATP ase
c) Glucose/proton pump d) MG^{2+}ATP ase

3 The tight coupling of electron transport and phosphorylation inmitochondria can be disrupted by
a) 2,4 DNP b) oligomycin
c) rotenone d) amytal

4 The initial step in respiratory chain oxidation reduction reaction_____are transferred from NADH center chain to NADHdehydrogenase.
a) Neutrons b) protons
c) electrons only d) electrons and protons

5 The ligand for rhodopsin plays an essential role in vision is a
a) Electron b) photon c) odorants d) positron

6 PKA stimulates the expression of specific genes by phosphorylating a transcriptional activator called _____
a) cAMP b) adenylate cyclase cascade
c) CREB d) 7TM

7 All GPCR consists of single polypeptide of multipass nature called as
a) immunoglobulin superfamily b) serpentine
c) nucleotide d)polypropylene

8 Mamalian cells use several cdks and cyclins to regulate cell cycle with ___ functions in the mid to late G1S phase.
a) Cdk 4-cyclin D b) Cdk 4-cyclin B
c) Cdk 2-cyclin A d) Cdk 2-cyclin A

9 In_____fusion protein called BCr-Abl consists sequences ofgene over-expressed for c-Abl kinase proteins.
a) Lymphoid myeloma b) Acute myeloma
c) acute myelogenous leukemia d) chronic myelogenous leukemia

10 Cells of malignant tumors exhibit.
a) Metastasis b) contact inhibition
c) high differentiation d) slowproliferation

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

11 a. What types of pumps are functioning in transport of glucose to different organs?

OR

11 b. Explain active transport of mechanism of H^+ & K^+ ATP ase in parietal cells.

12 a How does Flavin coenzyme and cytochrome complex conducts H^+ & e^-?

OR

12 b. Explain how proteins are translocated in chloroplast.

13 a. Explain GPCR pathway. Mention GPCR pathway linked organ function.

OR

13 b. Explain types of neurogenerative disorders.

14 a. Compare and differentiate on the mechanism of embryogenesis and oocytogenesis.

OR

14 b. What is apoptosis? Explain different pathways in apoptosis.

15 a. Mention different types of cancer. Compare and differentiate the architecture of transformed cell and metastatic cell.

OR

15 b. Differentiate DNA & RNA viruses.

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

16 Illustrate with a neat diagram mechanism of Na^+ K^+ATP ase pump and its significances in biological system.

17 Narrate with a neat diagram process of oxidative phosporylation and machineries in translocation of electrons and protons.

18 Classify and signify MAP kinase pathways.

19 Describe the phenomenon and significance of each phases in cell cycle. List out the factors or proteins functions.

20 Explain in detail various chemicals induce carcinogenesis. Write how is cell culture performed for transformed cells?

Z-Z-Z END