

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(First Semester)

Branch – BIOCHEMISTRY

CELLULAR BIOCHEMISTRY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Where do Carrier Proteins take part ?
(i) Water transport (ii) Active transport
(iii) Passive transport (iv) Osmosis
- 2 Name the final acceptor of electrons in the *electron transport chain*.
(i) Water (ii) Cytochrome C
(iii) Hydrogen (iv) Oxygen
- 3 Where do G-proteins specifically bind to?
(i) Cytosine (ii) Guanine
(iii) Thymine (iv) Adenine
- 4 Which of the following checkpoint is considered a restriction point?
(i) M Checkpoint (ii) G1 Checkpoint
(iii) G2 Checkpoint (iv) S Checkpoint
- 5 Indicate the role of p53 in the cell.
(i) Tumor suppressor gene (ii) Oncogene
(iii) Carcinogen (iv) Mutagen

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Discuss the process of receptor mediated Endocytosis .
OR
b Analyse the role of Porins in Gram negative bacterial membranes
- 7 a State the concept of Standard reduction Potential and free energy change.
OR
b With a neat sketch explain the process of Malate aspartate shuttle
- 8 a What are Ras Proteins. Mention their significance
OR
b Determine the role of CREB downstream genes in neuronal functions?
- 9 a Evaluate the biochemical studies with oocytes.
OR
b Justify why *S. pombe* is considered a good model organism for genetic studies?
- 10 a Determine what happens if a tumor is undergoing metastasis?
OR
b Explain the genetic basis of Oncogenes?

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11. (a) Summarize the Structural organisation and functions of membrane Proteins
(OR)
(b) Explain the mechanism of active transport by gastric H^+ - K^+ ATPase.
12. (a) Enumerate the mechanism of electron transfer in respiratory chain assembly.
(OR)
(b) Analyse how Proton translocating complexes assist in building Proton gradient in Chloroplast.
13. (a) Explain the process of cell signalling through MAP Kinases.
(OR)
(b) Appraise briefly on receptor tyrosine kinase Signalling.
14. (a) Explain the various pathways of Apoptosis and mention its significance.
(OR)
(b) Give an overview about Cell cycle. Briefly discuss the check points in cell cycle Regulation.
15. (a) What are DNA Viruse? Justify their characteristics with suitable examples.
(OR)
(b) Elucidate the various stages in Retroviral life cycle.

Z-Z-Z END