

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2019  
(First Semester)

Branch - **BIOCHEMISTRY**

**SUBCELLULAR BIOCHEMISTRY**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer ALL questions

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

\_\_\_\_\_ is a rigid outer boundary of the plant cell.

- (i) Cell membrane
- (ii) Plasma membrane
- (iii) Cell wall
- (iv) Peptidoglycan layer

Hydrolytic enzymes are found in \_\_\_\_\_.

- (i) Lysosomes
- (ii) Peroxisomes
- (iii) Ribosomes
- (iv) Nucleus

Which of the following statement about the mechanism of Na<sup>+</sup> / k<sup>+</sup> is correct?

- (i) Uses energy to pump Na<sup>+</sup> outside
- (ii) Uses energy to pump Na<sup>+</sup> inside
- (iii) Phosphorylation does not change conformation
- (iv) Bind both Na, k in turn

\_\_\_\_\_ is an example of gap junction.

- (i) Connexons
- (ii) Occludin
- (iii) Claudin
- (iv) Desmosomes

Microfilaments are composed mainly of a protein called \_\_\_\_\_.

- (i) Tubulin
- (ii) Myosin
- (iii) Actin
- (iv) Tropomyosin

\_\_\_\_\_ organelle is involved in the conversion of lipid into carbohydrates.

- (i) Ribosome
- (ii) Glyoxysome
- (iii) Peroxisome
- (iv) Lysosome

Which organelle is responsible for producing energy for the cell?

- (i) Mitochondria
- (ii) Ribosome
- (iii) Nucleus
- (iv) Golgi bodies

\_\_\_\_\_ organelle checks, makes necessary changes, packages and secretes protein.

- (i) Ribosome
- (ii) Golgi bodies
- (iii) Cytoplasm
- (iv) Vacoules

Adjacent epithelial cells are held together by means of \_\_\_\_\_.

- (i) Microsomes
- (ii) Liposomes
- (iii) Glyoxysomes
- (iv) Desmosomes

10 Cell adhesion molecules (CAMs) are made up of \_\_\_\_\_.

- (i) Glycoprotein
- (ii) Glycolipid
- (iii) Phospholipid
- (iv) Proteins

Cont...

**SECTION - B (35 Marks)**

Answer **ALL** Questions

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

- 11 a Compare the prokaryotic and Eukaryotic cell.  
OR  
b Describe the structure of RBC membrane.
- 12 a How does the transport occurs in uniport, symport and antiport?  
OR  
b Prepare a notes on cell junctions.
- 13 a Narrate the occurrence, structure, composition and functions of peroxisomes.  
OR  
b Sketch the structure of cilia an Flagella. Mention its functions.
- 14 a Describe the structure and function of ER.  
OR  
b Show the structure and function of mitochondria.
- 15 a Outline the cell-cell interactions.  
OR  
b Summarise the proteins present in ECM.

**SECTION - C (30 Marks!)**

Answer any **THREE** Questions

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

- 16 Discuss the lipid bilayer structure, membrane asymmetry and fluidity.
- 17 Elucidate the  $\text{Na}^+$  /  $\text{K}^+$  pump, and  $\text{Ca}^{2+}$  pump.
- 18 Examine the proteins present in microfilament and add a note on its functions.
- 19 Highlight the structure and functions of nucleus and nuclear membrane.
- 20 Outline the cell junctions - Gap, tight junctions and desmosomes.

Z-Z-Z

END