

[15/A-11]

No. of printed page: [02]

Sardar Patel University
External Theory Examination - November 2019
B.Sc. Biotechnology Fifth Semester
US05CBIT06- (Cell Biology)
Friday, 22nd November 2019, 10:00 a.m. to 01:00 p.m.

Total marks: 70

- Q.I Multiple choice questions: (10)
- Gases such as Oxygen and Carbon dioxide cross the cell membrane by _____.
 - Passive diffusion through lipid bilayer
 - Primary active transport
 - Specific gas transfer protein
 - Secondary active transport
 - Na⁺ glucose transporter is an example of _____.
 - Symport
 - Antiport
 - Facilitated diffusion
 - ATP driven active transport
 - Movement of phospholipid across the lipid bilayers called as _____.
 - Flip flop diffusion
 - Osmosis
 - Integral diffusion
 - Lateral diffusion
 - Which type of cytoskeleton element described as tough, rope like fibres composed of variety of related proteins like keratin?
 - Microtubules
 - Microfilament
 - Intermediate filament
 - None of the above
 - Microfilament is made up of
 - Actin
 - Tubulin and Actin
 - Desmin
 - Vimentin
 - Why G protein is called as Stimulatory G protein (G_s)?
 - It stimulates the production of cAMP
 - It stimulates the production of GDP
 - It stimulates the binding of insulin
 - It stimulates the binding of G-protein to Receptor
 - Grb2 is the prototype of _____.
 - Adaptor protein
 - G Protein
 - MAPK family
 - None of above
 - _____ signaling pathway is responsible for the formation of erythrocytes in mammals.
 - JAK STAT pathway
 - Receptor Tyr Kinase
 - GPCR
 - a and B both
 - _____ is a cancer that starts in the skin or the tissues that line other organs.
 - Carcinoma
 - Sarcoma
 - leukemia
 - Lymphoma.
 - Caspases are a distinctive group of _____.
 - Tyrosine proteases
 - Cysteine proteases
 - Lysine proteases
 - None of above.

①

(P.T.O)

(20)

Q.II

Answer the following (Any Ten)

1. Draw neat and labelled diagram of fluid mosaic model.
2. Discuss in brief passive transport.
3. List out the functions of membrane fluidity.
4. Define Centrosome.
5. Give the functions of cytoskeleton.
6. Draw and label myosin I.
7. Define: Biosignaling. Give its basic features.
8. Why cAMP is called as Second messenger?
9. What are the roles of G-Protein coupled receptor and Receptor tyrosine kinase in human body?
10. Describe the steps of tumorigenesis.
11. Enlist the types of cancer.
12. What is apoptosis? Give the role of proto-oncogene & tumor suppressor gene.

Q.III

Explain various components of plasma membrane. Discuss lipids involved in membrane structure in detail. (10)

OR

Q.III

- (a) Write a note on active transport. (05)
(b) Give an explanatory note on osmosis. (05)

Q.IV

- (a) Discuss the structure, assembly and disassembly of microfilament. (06)
(b) Explain kinesin as a motor protein. (04)

OR

Q.IV

- (a) Discuss the structure, assembly and disassembly of Intermediate filament. (05)
(b) Write a note on Myosin II. Enlist the functions of Motor proteins. (05)

Q.V

Write a detail note on β -adrenergic pathway. (10)

OR

Q.V

- (a) Explain regulation of gene expression by insulin through a MAP kinase cascade. (06)
(b) Describe JAK-STAT signaling system. (04)

Q.VI

- (a) Explain intrinsic pathway of apoptosis. (07)
(b) Write a brief note on different proteins which are targeted by Caspases. (03)

OR

Q.VI

- (a) Explain in detail activation of proto-oncogene to an oncogene. (07)
(b) Describe in brief about causes of cancer. (03)

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(2)