

GANPAT UNIVERSITY

B. Tech. Semester: II Biomedical & Instrumentation Engineering

CBCS Regular Examination April - June 2015

2BM101 Basic Biology

Time: 3 Hours

Total Marks: 60

- Instruction:**
- 1 Write each section in separate answer book.
 - 2 Please explain with the help of diagram wherever it is necessary.
 - 3 Figure to the right indicates marks.
 - 4 Assume suitable data, if necessary.

SECTION - I

Q. 1. [10]

- 1) What is the importance of movement of substances in the body? Enlist the types of movement and explain any one movement.
- 2) Explain red blood cells. Explain the transport of oxygen.

OR

Q. 1. [10]

- 1) What is blood? Explain the various functions of blood and give the composition of blood.
- 2) What is haemostasis? Explain all the stages of the process of haemostasis.

Q. 2. [10]

- 1) What are electrolytes? Why are electrolytes important for the body? [3]
- 2) Write a short note on body fluids. [3]
- 3) What is the difference between active movement and passive movement? Explain osmosis in detail. [4]

OR

Q. 2. [10]

- 1) Define tissue. What is the difference between simple and stratified epithelial tissues? [3]
- 2) Write three points of difference between the skeletal muscles, cardiac muscles and smooth muscles. [3]
- 3) Define neuron. What are the axon, dendrites and myelin sheath? Draw the diagram of a neuron and label all the parts. [4]

Q. 3. Answer any two:

[10]

- 1) Explain all the possible structures of proteins with figures. & State the difference between essential and non-essential amino acids.
- 2) Explain Fluid Mosaic Model of cell membrane or plasma membrane with diagram.
- 3) Draw and explain the structure of DNA double helix with all the points.

SECTION - II

Q. 4.

[10]

- 1) Give all the characteristics of secondary structure of proteins.
- 2) Classify monosaccharides on the basis of no. of carbon atoms and functional groups.
- 3) Write any 4 functions of lipids.
- 4) Write a short note on cholesterol.
- 5) Write a short note on saponification (along with the reaction).

OR

Q. 4.

[10]

- 1) Give the functional classification of enzymes.
- 2) Explain the formation of peptide bond.
- 3) What is the difference between dipeptide, tripeptide and polypeptide.
- 4) Define cell membrane. What a cell membrane is made up of?
- 5) Write a short note on mitochondria.

Q. 5. Answer the following (definition 1 mark and rest questions 3 marks each)

[10]

- 1) Define protein.
- 2) Write any three points of difference between DNA and RNA.
- 3) Name two amino acids each having
 - a) Acidic nature
 - b) Basic nature
 - c) Aromatic nature
- 4) Write two examples each for
 - a) Simple proteins
 - b) Conjugated proteins
 - c) Derived proteins

OR

OR

Q. 5. Answer the following (definition 1 mark and rest questions 3 marks each): [10]

- 1) Define saponification number.
- 2) Give functional classification of proteins. / Give functions of proteins.
- 3) What is lipoprotein? What is good cholesterol? What is bad cholesterol?
- 4) Draw the structure of glucose. Write the functions of carbohydrates.

Q. 6. Answer any ten: [10]

- 1) Define lipids.
- 2) Define carbohydrates.
- 3) Define gene.
- 4) Define chromosome.
- 5) What are essential fatty acids?
- 6) What is nucleotide?
- 7) What is an enzyme?
- 8) What is the function of a ribosome?
- 9) What is the function of Golgi apparatus?
- 10) What is the function of mitochondria?
- 11) What is a glycolipid?
- 12) Which cells have sphingophospholipids? Where is sphingophospholipid found?
- 13) What is a polysaccharide?

-----END OF PAPER-----