VCD/ 28/10/23 **S.Y.B.Sc SEM III BIOCHEMISTRY II 3 HRS 100 marks**

Note:

1. All the questions are compulsory. Choice is internal.
2. Figures to the right indicate full marks.
3. All questions carry equal marks.
4. Draw flowcharts/diagrams wherever necessary.

Q.1.A) State True or False: **(04)**

(i) Genetic variations are always advantageous.
(ii) The tendency of an offspring to resemble its parent is known as inheritance.
(iii) An exception to mendel's law is independent assortment
(iv) The alternate form of gene is allele.

Q.1.B) Write short notes on: (Any three) **(09)**

(i) Linkage
(ii) Law of segregation.
(iii) Characteristics of a true breeding line.
(iv) Genetics
(v) How are the alleles of a gene different from each other?
(vi) Artificial selection.

Q.1.C) Answer of the following: (Any two) **(12)**

(i) Explain down syndrome.
(ii) List out the characteristics of the chromosome theory of inheritance?
(iii) What is recombination? Mention its application with reference to genetic engineering.
(iv) Describe the individual with any two chromosomal abnormalities?

Q.2.A) State True or False: **(04)**

(i) Blood is basic in nature.
(ii) Lymph is an intracellular fluid.
(iii) ADH is a urine formation regulator
(iv) VLDL is a very good lipoprotein.

Q.2.B) Answer the following: (Any three) **(09)**

(i) Give the name of any six blood clotting factors.
(ii) What are the compositions of bile?
(iii) Explain the composition of urine.
(iv) Explain the composition of lymph.
(v) Write a function of blood.
(vi) Comment on lymph characteristics.

Q.2.C) Answer the following: (Any two) **(12)**

(i) Write the difference between intracellular fluid and extracellular fluid.
(ii) Give a brief explanation on the function of extrinsic blood clotting factors in activation of prothrombin Activator.
(iii) Explain the urine formation with the help of a neat and labelled diagram.
(iv) Describe the composition of blood.

Q.3.A) State True or False: **(04)**

(i) GLUT I is the most abundant glucose transporter in the body.
(ii) Lymph circulation is a double circulation.
(iii) Phospholipid is amphoteric in nature.
(iv) Sodium-potassium pump is an example of antiporter diffusion.

Q.3.B) Answer the following: (Any three) **(09)**

(i) Write a note on transportation of food in plants.
(ii) What is osmosis?
(iii) How does exchange of Oxygen and Carbon dioxide in lungs take place?
(iv) What is aquaporin?
(v) What is root pressure? Explain its importance.
(vi) What will happen if pH of blood gets changed?

Q.3.C) Answer the following: (Any two) **(12)**

(i) Explain the transportation of calcium.
(ii) What is lipoprotein? Give its classification.
(iii) Explain the transport of Fe-Ferritin.
(iv) Explain the transport of carbon dioxide.

Q.4.A) Define and explain: (Any five) **(10)**

(i) Diffusion (ii) Body fluid (iii) Insulin (iv) Hemostasis (v) BMP6
(vi) Albumin (vii) Antibody

Q.4.B) Write Short notes on: (Any three) **(15)**

(i) Law of dominance.
(ii) Genetic mutation.
(iii) Difference between active transportation & passive transportation.
(iv) Glucose transporter.
(v) Difference between channel proteins and carrier proteins.
(vi) Lymph circulation.