

Biochemistry: Paper II

VCD - 17/10/19

(3 Hours)

(100 Marks)

- Note: 1. All questions are compulsory. Choice is internal.
2. Figure to right indicates full-marks
3. Draw diagrams wherever necessary

Q1 a) State True or False:

(04)

1. Genetics arose out of the identification of genes, the fundamental units responsible for heredity.
2. Dihybrid cross is a cross between parents in which one pair of contrasting characters are studied simultaneously for the inheritance pattern.
3. 'O+' blood group is universal donor.
4. A Mendelian trait is one that is controlled by more than one locus in an inheritance pattern.

Q1 b) Attempt any three of the following:

(09)

1. Why is Mendel considered Father of Genetics?
2. A cross found between round radishes (RR) and long radishes (LL) produces oval radishes (RL). What would the offspring be like if you cross a round radish with an oval radish?
3. Explain dominance and co-dominance.
4. Enlist types of gene interaction. Explain any 1 of the types.
5. Explain recessivity and lethal genes.
6. Explain the difference between dominant trait and recessive trait.

Q1 c) Attempt any two of the following:

(12)

1. Explain correspondence between Mendelian factors and chromosomes.
2. Discuss in detail gene interaction.
3. Write an informative note on Mendel's law of inheritance.
4. In addition to the summer squash, it is known that disk shape is dominant to sphere shape. A cross between a plant with white disk fruit and one with yellow sphere fruits yielded 25 plants with white disk, 26 plants with white sphere, 24 with yellow disk, and 25 with yellow sphere fruits. If the white disk parent is self-fertilized, what proportion will have yellow disk fruits?

Q2 a) State True or False:

(04)

1. Interstitial fluid is intracellular fluid.
2. The pH of lymph is basic.
3. Blood is first transporting agent for liver hormone.
4. Lymph helps in transportation the vitamin A.

Q2 b) Attempt any three of the following:

(09)

1. What is a blood coagulation?
2. Give the name of all blood clotting factors.
3. What is the composition of bile acid?
4. Explain the composition of urine.
5. Explain the role of urine in human body.
6. Explain the composition of lymph.

Q2 c) Attempt any two of the following:

(12)

1. Write a difference between intracellular fluid and extracellular fluid.
2. Give brief explanation on function of extrinsic blood clotting factors in activation of prothrombin activator.
3. Explain the urine formation with the help of neat and labelled diagram.
4. Justify: the blood act as a principal transporting agent in human body.

Q3 a) State True or False:

(04)

1. In active transport, energy is required to move a substance across a cell membrane.
2. Respiratory gas exchange takes place in lungs.
3. When intracellular proteins are high, gene expression is activated and HMG-CoA reductase is synthesized.
4. Plasma is found in liquid state.

Q3 b) Attempt any three of the following:

(09)

1. Write a note on storage of food in plants.
2. Give a role of chlorine in human body.
3. How does Oxygen and Carbon dioxide exchange take place in lungs?
4. What is bioaccumulation? Explain its relationship in transportation system with an example.
5. What is a root pressure? Explain its importance.
6. Draw a neat and labelled diagram of stomata.

Q3 c) Attempt any two of the following:

(12)

1. Explain the transportation of calcium.
2. What is a lipoprotein? Give its Classification.
3. Explain the transportation of Fe-Ferritin.
4. Explain the transportation of Carbon dioxide.

Q4 a) Define any five of the following:

(10)

1. Lymphatic vessels
2. Bowman capsule
3. RBC
4. pka
5. Co-dominance
6. Lethal genes
7. Epistasis

Q4 b) Attempt any three of the following:

(15)

1. Write a detail note on transportation and storage of Nitrogen in human body.
2. Write a note on transportation of drug throughout the human body.
3. Discuss on deficiency of chlorine.
4. Write a role of K^+ and Na^+ in plant.
5. Types of epistasis
6. Explain allelic gene interaction.