

Q.P. Code :19322**[Time: 2½ Hours]****[Marks:75]**

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figure to the right indicates full marks.
 3. Draw neat labeled diagrams wherever applicable

- Q. 1 a) Explain the following term: (Any One) 02**
- i) T cytotoxic cell (Tc)
 - ii) Phagolysosome
- Q. 1 b) Give an example of the following: (Any One) 01**
- i) Macrophage found in kidney
 - ii) Granulocyte
- Q. 1 c) Describe the following: (Any Two) 12**
- i) Structure of MHC-II and add a note on its peptide interaction
 - ii) Structure and function of lymph node
 - iii) Maturation and activation of B cells
 - iv) Structure and function of TCR-CD3 complex
- Q. 2 a) Name a hormone associated with the following: (Any Three) 03**
- i) Posterior pituitary gland
 - ii) Pheochromocytomas
 - iii) Gigantism
 - iv) Milk ejection
 - v) Alpha cells of Islets of Langerhans
 - vi) Water reabsorption in renal tubules
- Q. 2 b) Give an account of the following: (Any Two) 12**
- i) Effect of glucagon on carbohydrate, lipid and protein metabolism.
 - ii) Release, biochemical functions and disorder of ADH.
 - iii) Biochemical functions of FSH and LH.
 - iv) Effect of growth hormone on carbohydrate, lipid and protein metabolism.
- Q. 3 a) Name the enzyme catalyzing the following reaction : (Any Three) 03**
- i) Sedoheptulose 1, 7 bisphosphate to Sedoheptulose 7 phosphate
 - ii) Xylulose 5 phosphate to Ribulose 5 phosphate
 - iii) Glucose 6 phosphate to glucose
 - iv) Glucose 1 phosphate to ADP – glucose
 - v) Oxaloacetate to Phosphoenol pyruvate
 - v) Glycogen_(n) to glycogen_(n-1) + glucose 1 phosphate.

Q.P. Code :19322

- Q.3** b) Attempt the following **(Any Two)** **12**
- Describe the second stage of carbon assimilation in Calvin cycle.
 - What is glycogenesis? Describe the role of glycogenin in this process.
 - Discuss the carbon fixation in C_4 plants.
 - Give an account of biosynthesis of glucose from pyruvate.
- Q. 4** a) Name a separation technique associated with the following: **(Any Three)** **03**
- Sucrose
 - rpm
 - Pellet
 - Void volume
 - Guard column
 - FID
- Q. 4** b) Discuss the following: **(Any Two)** **12**
- Isopycnic centrifugation and give any two applications.
 - Different types of rotors used in centrifugation
 - Principle of ion exchange chromatography and give any two applications.
 - Principle and working of affinity chromatography
- Q. 5** Write short notes on the following: **(Any three)** **15**
- Release and physiological function of catecholamine hormones
 - Overview of peptidoglycan biosynthesis
 - NK cells
 - Relative centrifugal field
 - Disorders associated with deficiency of insulin
 - Applications of gel permeation chromatography
