

**QP Code : 77050**

(2½ Hours)

[ Total Marks : 75

- N.B. :** (1) All questions are **Compulsory**.  
(2) **Figures** to the **right** indicate total **marks**.  
(3) **Draw** neat and labeled **diagrams** wherever **necessary**.

1. (a) Explain the term (**Any One**) 2
  - (i) CALT
  - (ii) Phagocytosis
- (b) Give one example of (**Any One**) 1
  - (i) Cell belonging to myeloid lineage
  - (ii) Accessory molecule on T cell
- (c) Discuss in brief (**Any Two**) 12
  - (i) T cell maturation
  - (ii) Lymph node: structure and function
  - (iii) Natural selection and clonal selection
  - (iv) Alternate pathway in complement fixation
2. (a) Name a hormone associated with the following (**Any Three**) 3
  - (i) Calcium as second messenger
  - (ii) Posterior pituitary gland
  - (iii) Dwarfism
  - (iv) Placenta
  - (v) Increase in cardiac output
  - (vi) Glucose uptake by tissue
- (b) Discuss the following (**Any Two**) 12
  - (i) Mechanism of action of group II hormones
  - (ii) Release and physiological functions of vasopressin
  - (iii) Role of adrenalin in metabolism of carbohydrates, lipids and proteins
  - (iv) Various tropic hormones secreted by the hypothalamus
3. (a) Name the metabolic pathway to which the following enzymes belong (**Any Three**) 3
  - (i) Ribulose 5 - phosphate kinase
  - (ii) Sucrose 6 phosphate synthetase
  - (iii) Glycogen synthase
  - (iv) Fructose 1, 6 biphosphatase
  - (v) UDP - GlcNAc - enolpyruvate reductase
  - (vi) Rubisco

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- (b) Schematically explain the following (Any Two) 12
- (i) Mechanism of action of starch synthase
  - (ii) Carbon assimilation in C4 plants
  - (iii) Regulation of glycogen metabolism by epinephrine and glucagon action.
  - (iv) Biosynthesis of bacterial cell wall
4. (a) Give the role of (Any One) 2
- (i) Ligand in Chromatography
  - (ii) Wall effect of particles in centrifugation
- (b) Name the following (Any One) 1
- (i) A density gradient material
  - (ii) Gas used as mobile phase in GLC
- (c) Elaborate on the principle and application of (Any Two) 12
- (i) Ion Exchange Chromatography
  - (ii) Analytical Centrifugation
  - (iii) Exclusion Chromatography
  - (iv) Preparative Centrifugation
5. Write short note on (Any Three) :-- 15
- (i) MHC restriction
  - (ii) Preparation of density gradients for centrifugation
  - (iii) Detectors used in HPLC
  - (iv) Glycoprotein hormones of the anterior pituitary gland
  - (v) Allosteric regulation of sucrose synthesis
  - (vi) CO<sub>2</sub> fixation in CAM plants

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