QP Code : 05046

(2 ½ Hours) [ Total Marks : 75

: (1) All questions are compulsory.
(2) Figures to the right indicate full marks.
(3) Draw neat, labelled diagrams wherever necessary.

(a) Do as directed (any three) 3
(i) Define : Antigenic determinants.
(ii) Give an example of Agranulocyte.
(iii) Name the lymphoid organ where T-cells mature.
(iv) _____ are produced by virus infected cells to protect the neighbouring cells (Fill in the blank).
(v) Choose the correct answer :— Macrophages present in liver are called _____.
(a) Histiocytes (b) Osteocytes
(c) Microglial cells (d) Kupffer cells
(vi) Give the role of hypervariable region in an antibody.

(b) Describe in brief (any two) 12
(i) Structure and functions of IgG.
(ii) Mechanism of action of adjuvants.
(iii) Anatomical barrier present in skin, urinogenital tract and mammary gland.
(iv) Lymph node - Structure and function.

(a) Explain the term (any one) 2
(i) Peptide binding cleft.
(ii) Agglutination reaction.

(b) Give an example of (any one) 1
(i) Cell that express CD-8.
(ii) Enzyme used in ELISA.

(c) Discuss the following (any two) 12
(i) Complement fixation test.
(ii) Precipitation curve.
(iii) BCR with its heterodimers.
(iv) Structure of MHC class I.

3. (a) Name the enzyme catalyzing following reactions (any three) 3
(i) Sucrose 6 phosphate to sucrose.
(ii) Glucose 6 phosphate to glucose 1 phosphate.
(iii) Amylose to amylopectin.
(iv) Glucose 1 phosphate to ADP-glucose.
(v) UDP - galactose to UDP - glucose.
(vi) Galactose to galactose 1 phosphate

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(b) Answer the following (any two)

(i) Schematically represent biosynthesis of peptidoglycan.

(ii) Give an account of three bypass reactions of gluconeogenesis (structures).

(iii) "Fructose 2, 6 bisphosphate regulates the biosynthesis of sucrose".

(iv) Elaborate on the hormonal regulation of glycogen synthase.

4. (a) Name the biochemical pathway to which the following reactions belong (any three)

(i) Acetyl CoA to acetoacetyl CoA.

(ii) Glycerol 3 phosphate to phosphatidic acid.

(iii) Phosphatidyl glycerol to cardiolipin.

(iv) Palmitate to stearate.

(v) Malonyl ACP to β Ketoacyl ACP.

(vi) Geranyl pyrophosphate to farnesyl pyrophosphate.

(b) Attempt the following (any two)

(i) Give a schematic overview of the biosynthesis of membrane phospholipids in *E.coli*.

(ii) Describe the formation of activated isoprene units in cholesterol biosynthesis.

(iii) Give the scheme for the biosynthesis of unsaturated fatty acids and discuss the role of mixed function oxidase in it.

(iv) Explain regulation of cholesterol biosynthesis.

5. Write short notes on the following (any three)

(i) Role of glycogenin in glycogen biosynthesis.

(ii) Inflammatory response.

(iii) Artificially acquired immunity.

(iv) Principle of antigen-antibody interaction.

(v) Fatty acid synthase.

(vi) Biosynthesis of triacylglycerol.

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