Q.P. Code : 01239

[Time: $2\frac{1}{2}$ Hours] **[Marks:75]**

Please check whether you have got the right question paper.

N.B:
1. All Question are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat labelled diagrams wherever necessary.

Q.1 a) Explain the term: (**any one**) (02)

i) Agglutinins
Ii) Flocculation

b) Give one example of: (**any one)** (01)

i) Fluorescent compounds used in immunoassay
Ii) Precipitation reactions

c) Answer the following (**any two**) (12)

i) Outline the general features of antigen-antibody reaction
ii) Describe complement fixation test
iii) Explain the steps involved in sandwich ELISA
iv) Explain the working of Fluorescence-activated cell sorter and its application

Q.2 a) Answer in one word: (**any three**) (03)

i) Active form of androgen
ii) Gland on which TSH act
iii) Hormone that is secreted by zona glomerulosa
iv) Cells of the testes that produce androgen
v) Transport protein of T_3 and T_4
vi) Hormone associated with Cushing's syndrome

b) Discuss the following: (**any two**) (12)

i) Biochemical functions of calcitriol
ii) Mechanism of action of group I hormones
iii) Physiological and biochemical function of estrogen
iv) Release, transport and any two biochemical function of thyroid hormone

Q.3 a. Name the pathway to which the following molecules belong (**any three**) (03)

i) Acyl carrier protein
ii) PS synthase
iii) Malonyl ACP Transferase
iv) Prenyl transferase
v) Acetone
vi) Squalene

(P.T.O)

b) Attempt the following (**any two**) (12)

i) Discuss the role of acetyl CoA carboxylase in lipid metabolism
ii) Schematically represent synthesis of TAG from glycerol
iii) Write the flow-sheet for formation of activated isoprene on cholesterol biosynthesis
iv) Describe the formation of ketone bodies in the liver

Q.4 a) Explain the term: (**any one**) (02)

i) Curie
Ii) Secondary electron

b) Give one example of: (**any one**) (01)

i) Detector used in IR spectroscopy
Ii) Sources of radiation in fluorescent spectroscopy

c) Describe and give two applications of the following techniques (**any two**) (12)

i) Geiger-Muller counter
ii) Working of confocal microscope
iii) Monochromators used in fluorescent spectroscopy
iv) IR spectrophotometer

Q.5 Write short note on (**any three)** (15)

a. Coomb's test
b. RIA-Principle and application
c. Menstrual cycle
d. Abnormalities of thyroid function
e. Types of radioactive decay
f. Transcriptional regulation of cholesterol biosynthesis

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