

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)

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- 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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