

**Q.P. Code :01240**

**[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) Avidity
  - ii) Hemagglutination
- b) State any one application of: **(any one)** (01)
- i) Ouchterlony method
  - ii) ELISPOT
- c) Answer the following **(any two)** (12)
- i) With the help of an example explain agglutination inhibition test.
  - ii) What is immunofluorescence? Describe the indirect method and state its application.
  - iii) Describe the steps involved in competitive ELISA.
  - iv) Explain immunoprecipitation test.
- Q.2 a) Answer in one word: **(any three)** (03)
- i) Hormone responsible for development and maturation of ovarian follicles.
  - ii) Hormone which suppresses inflammatory response
  - iii) Organ producing estradiol
  - iv) Hormone required for the implantation of fertilized ovum
  - v) Active form of testosterone
  - vi) Hormone associated with Grave's disease
- b) Discuss the following: **(any two)** (12)
- i) Physiological and biochemical functions of androgen.
  - ii) Release, transport and any two biochemical functions of thyroid hormone.
  - iii) Action of calcitriol on intestine, bone and kidney.
  - iv) Release and biochemical functions of estrogen
- Q.3 a) Name the pathway to which the following molecules belong **(any three)** (03)
- i) Biotin carrier protein
  - ii)  $\beta$  Hydroxyacyl ACP dehydratase
  - iii) Fatty acyl CoA desaturase
  - iv) Mevalonate
  - v) Acetoacetate
  - vi) Malonyl CoA

**(P.T.O)**

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- b) Attempt the following (**any two**) (12)
- i) What is ketogenesis? Describe the process using a pathway.
  - ii) Schematically represent synthesis of fatty acid on FAS complex.
  - iii) Write the flow-sheet for formation of cholesterol from activated isoprene.
  - iv) Jusify: Phosphatidic acid is the precursor for synthesis of Phospholipids in *E coli*.

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

- i) Negatron emission
- li) Vibrational frequency.

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

- i) Heavy metal used for staining of specimen in electron microscopy
- li) Light source used in IR spectroscopy

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

- i) Liquid scintillation counter
- ii) Image formation in TEM
- iii) Spectrofluorimetry
- iv) Working of end window GM counter.

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

- a. Complement fixation test
- b. Precipitation curve
- c. Effect of glucocorticoid on carbohydrate and lipid metabolism
- d. Hormone regulating menstrual cycle
- e. Uses of IR spectroscopy
- f. Atherosclerosis

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