

20/12/2018  
7.8.8.2

Booklet  
(Biochem, Immun, Histol)

Q.P. Code :32311

[Time: 2:30 Hours]

[Marks:75]

Please check whether you have got the right question paper.

- N.B: 1. All questions are compulsory.  
2. Figures to the right indicate full marks.  
3. Draw neat labeled diagram wherever necessary.

Q.1 (a) State two applications of the following: (any one) 02  
(i) Flow cytometer  
(ii) ELISA

(b) Give one example of the following: (any one) 01  
(i) Fluorescent dye used in Immunofluorescence  
(ii) Radioisotopes used to label antigen in RIA.

(c) Answer the following: (any two) 12  
(i) Elaborate on the principle and any two applications of western blotting.  
(ii) Give an account of complement fixation test.  
(iii) What is precipitation reaction? Explain Ouchterlony's method in detail.  
(iv) Describe passive and reverse passive agglutination reaction. 03

Q.2 (a) Name the following: (any three) 12  
(i) Region of DNA where hormone receptor complex binds.  
(ii) Biologically active metabolite of testosterone in many tissues.  
(iii) An example of a C-21 steroid hormone of the gonads.  
(iv) Hormone associated with Cushing's syndrome.  
(v) Disorder associated with deficiency of calcitriol in children.  
(vi) Glycoprotein required for synthesis and storage of thyroid hormone.

(b) Answer the following: (any two) 03  
(i) Vitamin D is a hormone - Justify  
(ii) Give an account of mechanism of action of group I hormones  
(iii) Elaborate on the biochemical functions of glucocorticoids  
(iv) Discuss the physiological and any three biochemical effects of female sex hormones.

Q.3 (a) Identify the pathway to which the following enzymes belong: (any three) 03  
(i) HMG-CoA synthase  
(ii) Fatty acyl-CoA desaturase  
(iii) Glycerol kinase  
(iv) PS synthase  
(v) Cyclase  
(vi) HMG - CoA reductase

P.T.O.



(b) Attempt the following questions: (any two)

12

- (i) Discuss the significance of fatty acid synthase system.
- (ii) Schematically represent mammalian pathway for synthesis of membrane phospholipids.
- (iii) Write a flow-sheet for the conversion of mevalonate to squalene via activated isoprene units.
- (iv) Using suitable biochemical reactions, describe the synthesis of cardiolipin in *E.coli*.

Q.4(a) Do as directed; (any three)

03

- (i) Define negatron emission.
- (ii) Give an example of 'stain' used in TEM.
- (iii) State True/False: Infrared spectroscopy used Golay cells as detectors.
- (iv) Fill in the blank: \_\_\_\_\_ is the SI unit for radioactivity.
- (v) Choose the correct option: In electron microscopy, sample preparation by freeze etching procedure uses cells that are frozen in \_\_\_\_\_ (liquid nitrogen/ dry ice)
- (vi) State True/False: Spectrofluorimetry can be used for enzyme assay and kinetic analysis.

(b) Attempt the following: (any two)

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- (i) Describe the process of image formation in SEM.
- (ii) Discuss the working of Geiger Muller counter.
- (iii) What are basic components of infrared spectrophotometer? Briefly discuss its working.
- (iv) Enlist and discuss any six applications of radioactive isotopes in biological sciences.

Q.5 Write short notes on: (any three)

15

- (a) Formation of ketone bodies from acetyl-Co A
- (b) Transcriptional regulation of cholesterol biosynthesis
- (c) Quenching in scintillation counters.
- (d) Hormonal pattern in women during the menstrual cycle.
- (e) Disorders associated with abnormal thyroid function.
- (f) Technique of Radio-Immuno Sorbent Test (RIST)