

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 6383    D                          Your Roll No.....

Unique Paper Code                          : 249503

Name of the Course                          : **B.Sc. (Hons.) Biochemistry**

Name of the Paper                            : Hormone Biochemistry (BCHT-509)

Semester    : V

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question No. 1 is compulsory.

1. (a) Define the following terms :

- (i) Polydypsia
- (ii) Autocrine response
- (iii) Receptor down regulation
- (iv) Parturition
- (v) Natriuresis
- (vi) Goitrogens

(1.5×6=9)

(b) Comment on the following statements :

- (i) Premenopausal women have a lower incidence of cardiovascular disorders.

*P.T.O.*

- (ii) Human milk is mitogenic in tissue culture.
  - (iii) Endorphins are natural analgesics.
  - (iv) Growth hormone is considered to be a trophic hormone.
  - (v) Inhibin acts as a male contraceptive. (2×5=10)
2. (a) Draw the juxtaglomerular apparatus and describe its role in blood pressure regulation.
- (b) Outline the feedback regulation cascade of hormone secretion, using Thyroxine as an example.
- (c) With a neat diagram describe the mechanism of action of Insulin. (5,5,4)
3. Explain the following :
- (a) Different tissues show a different responses to Epinephrine.
  - (b) Growth hormone has both a direct and indirect mode of action.
  - (c) The role of leptin in the regulation of obesity. (4,5,5)
4. Compare and contrast :
- (a) Mineralocorticoids and glucocorticoids
  - (b) NIDDM and IDDM
  - (c) PKC and PKG
  - (d) Oxytocin and Vasopressin
  - (e) Secretin and gastrin (3,4,2,3,2)

5. (a) Write the mode of action of the following :
- (i) Anthrax toxin
  - (ii) Theophylline
  - (iii) Forskolin (2×3=6)
- (b) Graphically outline the hormonal changes that occur during menstruation.
- (c) Name a gas that acts as a primary messenger ? How does it stimulate a physiological response ? (5,3)
6. (a) Discuss the aetiology and biochemical basis of the following conditions.
- (i) Grave's disease
  - (ii) Laron type dwarfism
  - (iii) Osteoporosis
  - (iv) Cushing's disease (4×2.5=10)
- (b) Expand POMC. Explain the basis for this nomenclature. (4)
7. (a) Give the full forms for the following and explain their significance.
- (i) GIP
  - (ii) EGF
  - (iii) COMT
  - (iv) GHRH
  - (v) ANF
  - (vi) SH<sub>2</sub> domain
  - (vii) MAP kinase (1.5×7=11.5)

- (b) Which Vitamin acts as a hormone ? Explain its role in bone remodelling.  
(3.5)

8. Write short notes on the following :

- (a) Scatchard analysis  
(b) Hypothalamic- hypophysial axis  
(c) Endocrine secretions of the heart and kidney  
(d) Steroid receptor superfamily (3.5×4=14)