This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : 8682

Unique Paper Code : 249503 C

Name of the Paper : BCHT-509 : Hormone Biochemistry

Name of the Course : B.Sc. (Hons.) Bio-Chemistry Part III

Semester : V

Duration : 3 Hours Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *Five* questions in all.

Question No. 1 is compulsory.

Use of scientific calculator/log tables may be allowed.

1. (A) What is the biochemical basis for the following ?

(*i*) Cold sensitivity in Hypothyroidism.

(*ii*) Increased urine output in Diabetes Insipidus.

(*iii*) Corticosteroids are anti-inflammatory

(*iv*) Bow legs in Rickets

(*v*) Atrial natriuretic factor causes natriuresis and diuresis. (5×2)

P.T.O.

(B) Write down the full form of the following and its function in brief :

(*i*) PH domain

(*ii*) BARK

(*iii*) STAT

(*iv*) GEF

(*v*) CRH

(*vi*) CCK (6×1.5)

2. (A) Compare and contrast :

(*i*) Protein kinase A and protein kinase C

(*ii*) Pertusis and cholera toxin

(*iii*) $G_{\alpha i}$ and $G_{\alpha q}$

(B) Ca^{2+} is a tertiary messenger. Comment. (4,4,4,2)

3. (A) Draw a neatly labelled diagram outlining the sequence of events of the following :

(*i*) Activation of ras by EGF.

(*ii*) Activation of transcription by Protein Kinase A.

(B) Differentiate between Homologous and Heterologous receptor desensitization.

(C) How does a steroid hormone mediate its action ? (4,4,3,3)

4. (A) Draw the hypothalamic-hypophysial system. How do hypothalamic factors affect the adenohypophysis ?

(B) How does TSH increase the production of thyroxine ?

(C) Elucidate the role of PTH in bone mineral metabolism and the kidney. (5,5,4)

5. (A) How does epinephrine show different effects in different tissues ?

(B) Explain how the Renin -Angiotensin system controls Na^+ homeostasis.

(C) What are somatomedins ? How do they affect bone growth ? (6,5,3)

6. (A) What is parturition ? What are the various hormonal changes that induce child birth.

(B) What is LH surge ? What causes it and what is its effect ?

(C) Inhibin is used as a male contraceptive. Explain.

(D) What is the basis of using hCG in pregnancy testing ? (5,4,3,2)

7. (A) Describe the action of Glucagon on hepatocytes.

(B) Describe the physiological role of insulin in liver and adipose tissue.

(C) Explain the neuroendocrine integration of gastric acid secretion.

(D) Ghrelin controls appetite. Explain. (4,5,3,2)

8. (A) Differentiate between :

(*i*) Gigantism and Acromegaly.

(*ii*) Cretinism and Myxedema.

(*iii*) Cushing and Conn disease.

(*iv*) Diabetes mellitus Type-I and Type-II.

(B) Lactation is natural contraceptive. (3,3,3,3,2)