

This question paper contains 4 printed pages]

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S. No. of Question Paper : 5582

Unique Paper Code : 2492012402

Name of the Paper : Hormones : Biochemistry and Function

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

Semester : IV

Duration : 2 Hours

Maximum Marks : 60

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

There are 6 questions.

Attempt any *four* questions.

All questions carry equal marks.

Question No. 1 is compulsory.

1. (A) Mention the location and function of the following cells :

- (a) Leydig cells
- (b) Zona reticularis cells
- (c) Alpha cells of Islet of Langerhans
- (d) Trophoblastic cells
- (e) PVN.

P.T.O.

(B) Comment on the following :

- (a) Urine of patients with diabetes insipidus contains no sugar.
- (b) Women have relatively higher chances of fractures after menopause.
- (c) Stress can lead to hyperglycemia
- (d) Vitamin D is actually a hormone
- (e) Hyperpigmentation is seen during pregnancy. (5,10)

2. (A) Differentiate between :

- (a) Diabetes mellitus Type I and Diabetes mellitus Type II
- (b) Hyperthyroidism and Hypothyroidism
- (c) Adrenal cortex and Adrenal medulla.

(B) Explain the physiologic basis for administering a posterior pituitary extract to induce or facilitate labour. (12,3)

3. (A) Discuss the regulation of PTH in maintaining calcium homeostasis.

(B) What is Parturition ? Explain the *four* stages of parturition. Explain why Progesterone causes low uterine contraction ? How does increasing Estrogen levels initiate parturition ? Explain the feed forward mechanism that increases strength of uterine contractions.

(C) Draw and explain the action of the Hypothalamic-pituitary axis.

(D) Elaborate upon the type of sexual dysfunction that might arise in men taking drugs that inhibit sympathetic nervous system activity as part of the treatment for high blood pressure ? Explain the biochemical mechanism. (4,4,4,3)

4. (A) List the cause and characteristic symptoms of the following diseases :
- (a) Cushing's syndrome
 - (b) Acromegaly
 - (c) Conn's syndrome
 - (d) Cretinism
 - (e) Dwarfism
 - (f) Graves's disease.
- (B) Tapping the facial nerve at the angle of the jaw in a patient with moderate hyposecretion of a particular hormone elicits a characteristic grimace on that side of the face. What endocrine abnormality could give rise to this so-called Chovstek's sign ? (12,3)
5. Write short notes on :
- (a) Hormone based contraceptives
 - (b) Fight or Flight response
 - (c) RAAS
 - (d) Lactation
 - (e) Regulation of insulin secretion. (3×5=15)

6. (A) Diagrammatically discuss the biosynthesis of thyroid hormone.
- (B) Show the hormonal changes occurring in ovarian and uterine phase during menstruation in a graphical format.
- (C) What actions of growth hormone would induce a full-grown athlete to take supplemental doses of this hormone ? What are the potential detrimental side effects ? (5,6,4)