CHAPTER 22

CHEMICAL COORDINATION AND INTEGRATION

MULTIPLE CHOICE QUESTIONS

1. Select the right match of endocrine gland and their hormone among the options given below

A.	Pineal	i.	Epinephrine
B.	Thyroid	ii.	Melatonin
C.	Ovary	iii.	Estrogen
D.	Adrenal medulla	iv.	Tetraiodothyronine

Options:

a. A-iv, B-ii, C-iii, D-i
b. A-ii, B-iv, C-i, D-iii
c. A-iv, B-ii, C-i, D-iii
d. A-ii, B-iv, C-iii, D-i

2. Which of the following hormones is not sereted by anterior pit.
   a. Growth hormone
   b. Follicle stimulating hormone
   c. Oxytocin
   d. Adrenocorticotrophic hormone

3. Mary is about to face an interview. But during the first five minutes before the interview she experiences sweating, increased rate of heart beat, respiration etc. Which of the following hormones are responsible for her restlessness?
   a. Estrogen and progesterone
   b. Oxytocin and vasopressin
   c. Adrenaline and noradrenaline
   d. Insulin and glucagon

4. The steroid responsible for balance of water and electrolytes in our body is
   a. Insulin
   b. Melatonin
   c. Testosterone
   d. Aldosterone

5. Thymosin is responsible for
   a. Raising the blood sugar level
   b. Raising the blood calcium level
   c. Differentiation of T lymphocytes
   d. Decrease in blood RBC

6. In the mechanism of action of a protein hormone, one of the second messengers is
   a. Cyclic AMP
   b. Insulin
   c. T_3
   d. Gastrin

7. Leydig cells produce a group of hormones called
   a. Androgens
   b. Estrogens
   c. Aldosterone
   d. Gonadotropins

8. Corpus luteum secretes a hormone called
   a. Prolactin
   b. Progesterone
   c. Aldosterone
   d. Testosterone

9. Cortisol is secreted by
   a. Pancrease
   b. Thyroid
   c. Adrenal
   d. Thymus

10. A hormone responsible for normal sleep-wake cycle is
   a. Epinephrine
   b. Gastrin
   c. Melatonin
   d. Insulin

11. Hormones are called chemical signals that stimulate specific target tissues. Their action depends on the presenc3e of receptors on the respective target tissues. Which of the following is the correct location of the receptors in the case of protein hormones?
    a. Extra cellular matrix
    b. Blood
    c. Plasma membrane
    d. Nucleus

12. Choose the correct option among the following options

	Coloumn I		Column II
A.	Epinephrine	i.	Stimulates muscle growth
B.	Testosterone	ii.	Decrease in blood pressure
C.	Glucagon	iii.	Breakdown of liver glycogen content
D.	Atrial natriuretic factor	iv.	Increases heart beat

Options:

a. A-ii, B-i, C-iii, D-i
b. A-iv, B-i, C-iii, D-ii
c. A-i, B-ii, C-iii, D-iv
d. A-i, B-iv, C-ii, D-iii

13. Which of the following organs in mammals does not consist of a central incalcium balance in the human body?
    a. Vitamin D
    b. Parathyroid hormone
    c. Thyrocalcitonin
    d. Thymosin

14. Which of the following organs in mammals does not consist of a central meduallary' region surrounded by a cortical region?
    a. Ovary
    b. Adrenal
    c. Liver
    d. Kidney

15. Which of the following conditions is not linked to deficiency of thyroid hormones?

a. Cretinism
b. Goitre
c. Myxedema
d. Exophthalmia

VERY SHORT ANSWER TYPE QUESTIONS

1. There are many endocrine glands in human body. Name the glands which is absent in male and the one absent in female.
2. Which of the two adrenocortical layers, zona glomerulosa and zona reticularis lies outside enveloping the other?
3. What is erythropoiesis? Which hormone stimulate it?
4. Name the only hormone secreted by pars intermedia of the pituitary gland.
5. Name the endocrine gland that produces calcitonin and mention the role played by this hormone.
6. Name the hormone that helps in cell - mediated immunity.
7. What is the role of second messenger in the mechanism of protein hormone action?
8. State whether true or false:
   a. Gastrointestinal tract, kidney and heart also produce hormones.
   b. Pars distalis produces six trophic hormones.
   c. B-lymphocytes provide cell-mediated immunity.
   d. Insulin resistance results in a disease called diabetes mellitus.
9. A patient complains of constant thirst, excessive passing of urine and low blood pressure. When the doctor checked the patients' blood glucose and blood insulin level, the level were normal or slightly low. The doctor diagnosed the condition as diabetes insupidus. But he decided to measure one more hormone in patients blood. Which hormone does the doctor intend to measure?
10. Correct the following statements by replacing the term underlined.
    a. Insulin is a <u>steroid</u> hormone.
    b. TSH is secreted from the <u>corpus luteum</u>
    c. Tetraiodothyronine is an <u>emergency</u> hormone.
    d. The <u>pineal gland</u> is located on the anterior part of the kidney.

11. Rearrange the following hormones in Column I so as to match with their chemical nature in Column II.

	Column I		Column II	
a.	Oxytocin	i.	Aminoacid derivative	( )
b.	Epinephrine	ii.	Steroid	( )
c.	Progesterone	iii.	Protein	( )
d.	Growth hormone	iv.	Peptide	( )

SHORT ANSWER TYPE QUESTIONS

1. What is the role-played by luteinizing hormones in males and females respectively?
2. What is the role of second messenger in hormone action?
3. On an educational trip to Uttaranchal, Ketki and her friends observe that many local people were having swollen necks. Please help Ketki and her friends to find out the solutions to the following questions.
   a. Which probable disease are these people suffering from?
   b. How is it caused?
   c. What effect does this condition have on pregnancy?
4. George comes on a vacation to India from US. The long journey disturbs his biological system and he suffers from jet lag. What is the cause of his discomfort?
5. Inflammatory responses can be controlled by a certain steroid. Name the steroid, its source and also its other important functions.
6. Old people have weak immune system. What could be the reason?
7. What are the effects of hypothyroidism (observed during pregnancy) on the development and maturation of a growing baby?
8. Mention the difference between hypothyroidism and hyperthyroidism.
9. You have learnt that a characteristic feature of endocrine system is the presence of feed back loops. By this what is meant if hormone A stimulates gland 'X' to secrete hormone B, the production of 'A' could be modified when the level of B changes in our blood. An example is the relation between hormones LH and estrogen (E_2). An old woman exhibits the following features. High levels of LH in blood but low levels of E_2 in the blood. Another woman exhibits high level of LH in blood and also high level of E_2 in the blood. Where is the defect in both these women? Provide suitable diagram to support this answer.

LONG ANSWER TYPE QUESTIONS

1. A milkman is very upset one morning as his cow refuses to give any milk. The milkman's wife gets the calf from the shed. On fondling by the calf, the cow gave sufficient milk. Describe the role of endocrine gland and pathway associated with this response?
2. A sample of urine was diagnosed to contain high content of glucose and ketone bodies. Based on this observation, answer the following:
   a. Which endocrine gland and hormone is related to this condition?
   b. Name the cells on which this hormone acts.
   c. What is the condition called and how can it be rectified?
3. Calcium plays a very important role in the formation of bones. Write on the role of endocrine glands and hormones responsible for maintaining Calcium homeostasis.
4. Illustrate the differences between the mechanism of action of a protein and a steroid hormone.
5. Hypothalamus is a super master endocrine gland. Elaborate.