

CBSE TEST PAPER-03
CLASS - XI BIOLOGY
(Chemical Co – Ordination and Integration)

General Instruction:

- All questions are compulsory.
 - Question No. 1 to 3 carry one marks each. Question No. 4 to 6 carry two marks each. Question No. 7 and 8 carry three marks each. Question No. 9 carry five marks.
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1. What is the function of Leydeig's cells?
2. Name the gland which secrets vasopressin.
3. Name one mineralocorticoid.
4. In general, how steroid hormones do effects changes in their target cells.
5. What is corpus luteum? How does it function as a endocrine gland?
6. Name the gland that functions as a biological clock in our body where it is located? Name its one secretion.
7. Differentiate between vitamin, hormone & enzyme.
8. A patient was complaining of frequent urination, excursive thirst, hunger and tiredness. His fasting glucose level was found higher than 130 mg / dL an two occasions :
 - (i) Name the disease
 - (ii) Give the root cause of this disease
 - (iii) Explain why the blood glucose level is higher than 130 mg / dL.
9. Explain the mechanism of hormone action.

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[ANSWERS]

Ans 01. Leydig cells or interstitial cells of the testes secrete testosterone hormone. It stimulates the development of external male sex characters such as beards, moustaches and low pitch voice in man & stimulates the formation of sperms in testis.

Ans 02. It is secreted by posterior part of the pituitary gland.

Ans 03. Aldosterone.

Ans 04. Steroid hormones are lipid soluble. These quickly pass through plasma membrane of a target cell into the cytoplasm. There they bind to intercellular receptor proteins and form a complex. This complex enters the nucleus and binds itself to specific regulatory sites on the chromosomes. This binding changes gene expression and stimulates transcription of some genes. It may repress some other genes. Finally mRNA acts for protein synthesis. The lipid soluble hormones are slow in action. They are long acting hormones.

Ans 05. Corpus luteum is the structure formed by the ruptured ovarian follicle after ovulation.

- It secretes the hormone progesterone, which is necessary for pregnancy changes.

Ans 06. Pineal gland functions as biological clock in our body.

Location – It is located on the dorsal side of the forebrain.

Secretion – It secretes melatonin.

Ans 07.

	Vitamin	Hormone	Enzyme
1.	It is carried in the food.	It is carried by the blood.	It is not carried by the blood.
			It remains

2.	It is used up during the process.	It is consumed during the metabolic reaction.	unchanged after the reaction.
3.	It is obtained from food.	It is produced by an endocrine gland.	It is produced by exocrine gland.
4.	It may be organic acid, amide, amine, ester, alcohol or steroid.	It is glycoprotein, steroid or polypeptide.	It is always proteinaceous in nature.
5.	It act as coenzyme.	It act as a stimulating substance.	It act as a biocatalyst.
6.	Its deficiency causes deficiency diseases.	It excess as well as deficiency causes many hormonal disorders & diseases.	It is required in small amount.

Ans 08.

(i) The disease is diabetes mellitus.

(ii) It is caused by under secretion of insulin resulting in hyperglycemia.

(iii) In the absence of insulin, the following functions are impaired.

- utilization and uptake of glucose by adipocytes and hepatocytes.
- Conversion of glucose into glycogen by the above target cells.

Ans 09. Upon the target cells, two main kinds of hormone action have been observed

i) action at membrane level

ii) Induction of protein synthesis at gene level.

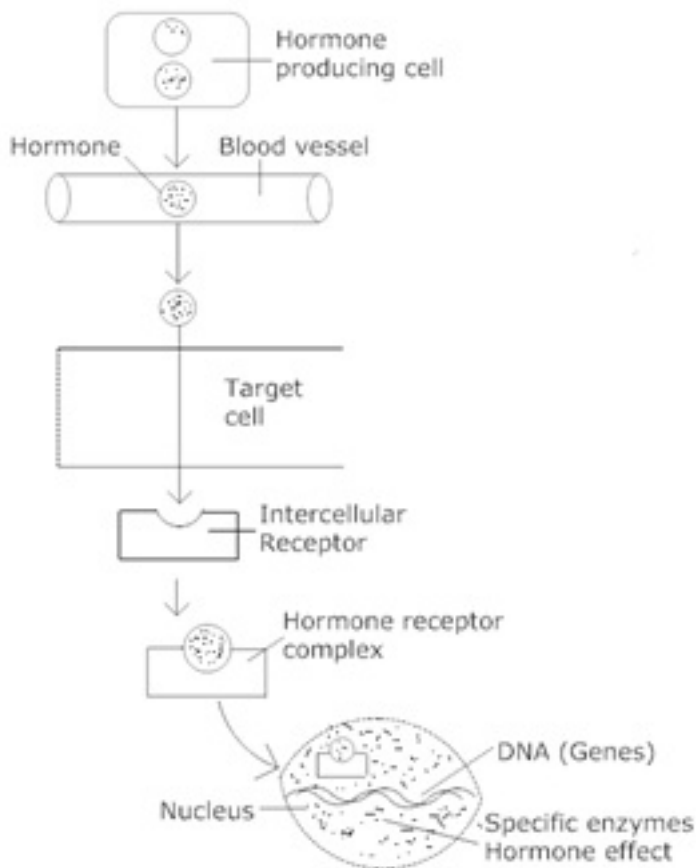


Fig : Mechanism of hormone action

- 1) Hormone acts as first messenger : It is attached to some integral protein at specific receptor site on the surface of cell membrane (of target cell). It stimulates adenyl cyclase (enzyme). It catalyses conversion of ATP to cyclic AMP which acts as second messengers). It affects cell metabolism.
- 2) Gene activation – The steroid hormone enters into the cytoplasm through cell membrane and binds to protein receptors there of the target cells. This hormone receptors complex stimulates the gene to synthesize a particular enzyme.