

**CBSE Test Paper-03**  
**Chapter 07 Science Control and Coordination**

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1. Four lobed endocrine gland is **(1)**

- a. Pituitary
- b. Adrenal gland
- c. Parathyroid gland
- d. None of these

2. Match the following with correct response. **(1)**

(1) Thyroid gland	(A) Testosterone
(2) Pancreas	(B) thyroxin
(3) Testis	(C) Estrogen
(4) Ovaries	(D) Insulin and glucagon

- a. 1-C, 2-B, 3-D, 4-A
- b. 1-D, 2-A, 3-C, 4-B
- c. 1-A, 2-C, 3-B, 4-D
- d. 1-B, 2-D, 3-A, 4-C

3. Select the mis-matched pair **(1)**

- a. Estrogen - Ovary
- b. Testosterone - Testes
- c. Adrenaline - Pituitary gland
- d. Thyroxin - Thyroid gland

4. Which one of the endocrine glands is known as master gland? **(1)**

- a. Adrenal
- b. Pituitary gland
- c. Thyroid
- d. Parathyroid

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5. Which hormone brings the development of mammary gland? **(1)**
    - a. Relaxin
    - b. Estrogen
    - c. Oxytocin
    - d. Progesterone
  6. Name the hormone which controls (i.e. reduces) the level of sugar in blood, and the gland which secretes it. **(1)**
  7. Name the part of the pituitary gland which controls growth and development of gonads. **(1)**
  8. Name the structure that is responsible for reflex action. **(1)**
  9. In which part adrenaline is produced? **(1)**
  10. What do you understand by the sleep movement of plant organs? **(3)**
  11. What are the physiological effects of gibberellins? **(3)**
  12. Describe cavities of brain. **(3)**
  13. How does the plant shoot bends, when the plant is placed in a room having only one open window? **(3)**
  14. Describe the central nervous system in human beings. **(5)**
  15. 'Nervous and hormonal systems together perform the function of control and coordination in human beings.' Justify the statement. **(5)**

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**Answers**

1. c. Parathyroid gland

**Explanation:** Parathyroid gland is four lobed, this gland is present in the neck region.

2. d. 1-B, 2-D, 3-A, 4-C

**Explanation:** Thyroxin is secreted by the thyroid gland to regulate the metabolic rate and help control body temperature; Insulin and glucagon are hormones that help regulate the levels of blood glucose in the body secreted by pancreas; The testes are the most essential organs of the male reproductive system. They are the glands where sperm and testosterone are produced; Estrogen is a female steroid hormone that is produced by the ovaries.

3. c. Adrenaline - Pituitary gland

**Explanation:** Adrenaline hormone is not released from pituitary gland. It is released by adrenal gland.

4. b. Pituitary gland

**Explanation:** Pituitary gland is known as master gland as it controls the release of other hormones that are required for growth and development.

5. b. Estrogen

**Explanation:** Estrogen hormone released from pituitary gland to help in the development of mammary gland to feed the young ones.

6. Insulin, controls (i.e. reduces) the level of sugar in blood, and Pancreas is the gland which secretes it.

7. Anterior lobe (Adenohypophysis) controls growth and development of gonads.

8. Spinal cord is responsible for reflex action.

9. Adrenaline is produced in adrenal gland.

10. Sleep movement or Nyctinasty is the circadian rhythmic nastic movement of higher plants in response to the onset of darkness. Examples are the closing of the petals of a flower at dusk and the sleep movements of the leaves of many legumes.

11. **Physiological effects of gibberelline are:**

- i. Elongation of stem and expansion of leaf.
- ii. Reversal of Dwarfism particularly in corn.
- iii. Parthenocarpy.
- iv. Breaking of seed and bud dormancy.

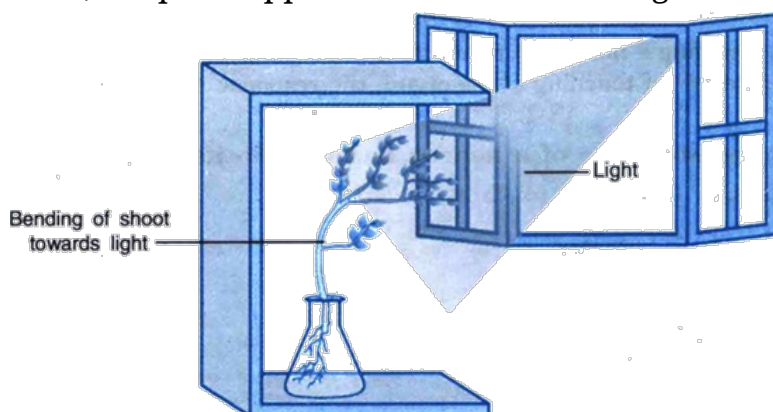
12. The brain is somewhat a hollow structure containing many cavities of various sizes. These cavities are known as **ventricles**.

Each cerebral hemisphere contains a cavity, the first and second ventricles. These ventricles are connected with the third ventricle by a canal.

The third ventricle is present in the thalamus. It is connected with the fourth ventricle by a small central canal present in the mid brain. The roof of the third ventricle also contains clusters of blood vessels which secrete cerebrospinal fluid.

The medulla contains the fourth ventricle. This ventricle is formed by the enlargement of the central canal of the spinal cord. The roof of the fourth ventricle also contains tufts of blood vessels which secrete part of the cerebrospinal fluid.

13. When the plant is placed in such a room that has only one open window, the shoot of the plant bends towards the direction of light. Plant hormone auxin is synthesized at the shoot tips, helps the cells to grow longer. When light is coming from one side of the plant, auxin diffuses towards the shady side of the shoot. This concentration of auxin stimulates the cells to grow longer on the side of the shoot which is away from light. Thus, the plant appears to bend towards light while growing phototropism.



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14. The central nervous system in human beings consists of brain and spinal cord.
- i. **Brain:** Brain is the highest coordinating centre in the body. It is covered by meninges, which is made up of three layers. It is protected by cranium. Brain is broadly divided into three parts, forebrain, midbrain and hindbrain
    - a. **Forebrain:** The forebrain includes cerebrum and olfactory lobes. Cerebrum is the largest part of the brain. It consists of two cerebral hemispheres. Sensory and motor receptors are present in the brain. There are various regions for reception of vision (occipital lobe), reception of sound (temporal lobe), touch, smell, temperature (parietal lobe) and muscular activities (frontal lobe). Olfactory lobes are one in pair and receives olfactory nerves.
    - b. **Midbrain:** It is the small portion of the brain that connects cerebrum with the other parts of the brain and spinal cord.
    - c. **Hindbrain:** It consists of cerebellum, pons and medulla oblongata. Cerebellum is responsible for coordination and adjustment of movement and posture. Pons regulate respiration. Medulla oblongata regulates swallowing, coughing, sneezing and vomiting.
  - ii. **Spinal cord:** Medulla oblongata extends downwards, enclosed in vertebral column to form a cylindrical structure known as spinal cord. It is also covered by meninges. It is the reflex centre of the body.

15. The working together of various organs of human being in a systematic, controlled and efficient way to produce a proper response to various stimuli is known as coordination.

In human beings, the control and coordination is brought about by both nervous system and endocrine system. Nervous system consists of receptors that receive the stimulus from surrounding environment and send the message received by them to the spinal cord and brain in form of electrical impulses through the sensory nerves. The motor nerves then transmit the response to the effector. The effectors are mainly the muscles and glands of our body. Thus, endocrine glands secreting hormones are directly or indirectly controlled by the nervous system. For example, when an emergency stimulus is detected by the nervous system, the stimulus is detected by the nervous system, the stimulus is received and analysed by central nervous system that send message to effectors to provide proper response. At the same time, the

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sympathetic nervous system activates adrenal gland to release adrenaline that prepares body by increasing heart rate, blood pressure, respiration and dilates pupil etc.

Hence, control and coordination in humans (or animals) depend on two things for transmitting information, i.e. chemical signals of hormones and nerve impulses.

If they depended only on nerve impulses through nerve cells, only a limited range of tissues would be stimulated. Since, they get additional chemical signals as well, a large number of tissues are stimulated. This is why animals can show a wide range of response to stimulus.