

Biology Olympiad Paper - 2

Control & Cordination

Q.1 Breathing occurs involuntarily but its rate is controlled by which of the following respiratory centers of brain?

- a) Medulla oblongata b) Cerebrum
c) Pons varolii d) Both (a) & (c)
e) None of these

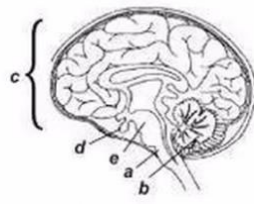
Q.2 (i) Labelled part a is involved in control of blood pressure, salivation and vomiting.

(ii) Labelled part b is responsible for precision of voluntary actions and maintaining the posture and balance of the body.

(iii) The part labelled c is responsible for change in size of the pupil and activity like walking in a straight line

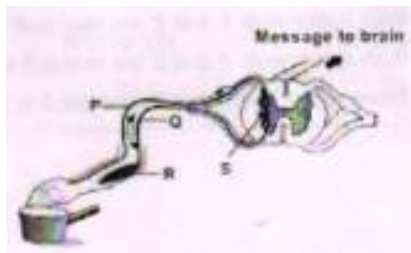
(iv) The secretions of part labelled d are responsible for functioning of hypothalamus

(i) The part labelled e receives and integrates signals from spinal cord



Q.3 The given figure shows the pathway taken by a nerve impulse in a reflex action. Which part serves as a link between other nervous?

- a) P
b) Q
c) R
d) S



Q.4 Match column 1 with column II and select the correct option from the codes given below.

Column I

Column II

- | | |
|------------------|-------------------------------------------|
| a) Auxin | (i) Fruit ripening |
| b) Cytokinin | (ii) Phototropism |
| c) Gibberellins | (iii) Stimulation of cell division |
| d) Abscisic acid | (iv) Suppression of cell division |
| e) Ethylene | (v) Stomata opening & closing |
| | (vi) Growth of lateral buds |
| | (vii) Stem elongation in "rosette" plants |

(A) a – (iii), (vi), b – (vii), c – (ii), d – (i), (iv), e – (v)

(B) a – (ii), b – (v), c – (iii), (vi), d – (vii), e – (i), (iv)

(C) a– (iii), (vi), b – (ii), c – (vii), d – (v), e – (i) (iv)

(D) a – (ii), b – (iii), (vi), c – (vii), d – (v), e – (i), (iv)

Q.5 Correct the following statements by replacing the terms underlined (wherever necessary) and select the correct option.

- (i) The part of human brain which regulates heart beat is called cerebrum
- (ii) Chemotropism is directional movement
- (iii) The centre for sexual behaviour is situated in medulla oblongata
- (iv) The plant hormone named after the fungus causing bakane disease is IAA
- (v) Centre for hunger and thirst is located in diencephalon.

- | | (i) | (ii) | (iii) | (iv) | (v) |
|---|-------------------|-------------|--------------|-------------|---------------|
| a | Hypothalamus | Tropic | Cerebrum | Auxin | Diencephalon |
| b | Medulla Oblongata | Directional | Hypothalamus | Gibberellin | Diencephalon |
| c | Hypothalamus | Tropic | Cerebrum | Auxin | Metencephalon |
| d | Medulla Oblongata | Directional | Hypothalamus | Gibberellin | Metencephalon |

Q.6 What would happen to a person if cerebellum of his brain is damaged?

- a) He will lose his memory power.
- b) He will not be able to swallow food properly.
- c) He will be unable to co-ordinate and stand properly.
- d) He will lose his power of vision and hearing.

Q.7 Read the given statements and select the correct option.

- (i) In light, hormone auxin helps the cells to grow longer.
- (ii) Plant hormone gibberellin helps in growth of a stem.
- (iii) Cytokinin inhibits cell division.
- (iv) Abscisic acid promotes growth in plants.

- a) Statements (i) and (iii) are correct.
- b) Statements (ii) and (iv) are correct.
- c) Statements (i) and (ii) are correct.
- d) Statements (i) and (iv) are correct.

Q.8 Cut leaves remain green for longer time if dipped in

- a) Auxin
- b) Cytokinins
- c) Ethylene
- d) Gibberellins

Q.9 Which one is an anti-transpirant hormone?

- a) Auxin
- b) Cytokinins
- c) Abscisic acid
- d) Gibberellins

Q.10 Match column I with column II and select the correct option from the codes given below.

Column I	Column II
(a) Luteinizing) hormone (LH	Regulates calcium and phosphate levels in blood.
(b) Thyroxin	Stimulates the rate of cellular oxidation and metabolism.
(c) Oxytocin	Stimulates the secretion of male sex hormones.
(c) Parathyroid hormone (PTH)	Stimulates contraction of smooth muscles at the time of child birth.