Maxprap. Chapter wise Series Class 10th – Biology

Class : 10th **Topic : Control and Coordination**

Max. Marks : 50 **Duration : 2 Hrs**

Sections: A (MCQs), B (Short Answer-I), C (Short Answer-II), D (Long Answer), E (Case-Based).

General Instructions:

(i). All questions are compulsory.

(ii). This question paper contains 23 questions divided into five Sections A, B, C, D and E. (iii). Section A comprises of 10 MCQs of 1 mark each. Section B comprises of 10 questions of 2 marks each. Section C comprises of 6 questions of 2 marks each. Section D comprises of 2 question of 5 marks each and Section E comprises of 2 Case Study Based Questions of 4 marks each.

(iv). There is no overall choice.

Section A

Questions 1 to 10 carry 1 mark each

1. Which of the following is not an involuntary action?

a) Chewing b) Vomiting c) Salivation d) Heart beat

2. Which of the following is secreted by the posterior lobe of Pituitary?

a) Growth hormone
b) Thyroid - stimulating hormone
c) Oxytocin
d) Vasopressin

a) B and C b) All of these c) A and C d) C and D

3. In a nerve cell, the site where the electrical impulse is converted into a chemical signal is known as:

a) Neuromuscular junction b) Dendrites c) Axon d) Cell body

4. The growth of pollen tubes towards ovules is due to

a) phototropism b) chemotropism c) hydrotropism d) geotropism

5. Four lobed endocrine glands is

a) Pituitary gland b) Adrenal gland c) Mucus gland d) Parathyroid gland

6. In a synapse, chemical signal is transmitted from

a) axonal end of one neuron to dendritic end of another neuron
b) dendritic end of one neuron to axonal end of another neuron
c) cell body to axonal end of the same neuron
d) axon to cell body of the same neuron

7. The movement of root away from light is:

a) Negative phototropism b) Negative hydrotropism
c) Positive phototropism d) Positive geotropism

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8. The movement of shoot towards light is
a) phototropism b) chemotropism c) hydrotropism d) geotropism

Assertion(A)/Reason(R) Based (9-10): In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

9. Assertion (A): Our body maintains blood sugar levels.
Reason (R): Pancreas secretes insulin which helps to regulate blood sugar levels in the body.

10. Assertion (A): A hormone called abscisic acid inhibits growth in plants.
Reason (R): The role of auxins is opposite to that of abscisic acid in plants.

SECTION – B

Questions 11 to 20 carry 2 marks each

11. Which hormone causes release of milk after the birth of young one?

12. Name the hormone which controls (i.e. reduces) the level of sugar in blood, and the gland which secretes it.

13. What is the main element of thyroxin hormone?

14. Name the part of brain which is responsible for the following actions:
a) Maintaining posture and balance
b) Beating of heart
c) Thinking
d) Blood pressure

15. Write name of gonadotropic hormones.

16. List in tabular form two differences between reflex action and walking.

17. Identify the stimulus in :
a) The tip of stem growing away from earth's surface.
b) Growth of pollen tube towards ovule during fertilisation.

18. Name the gland which function actively in emergency situations.

19. Name the disease caused by the deficiency of iodine.

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20. There are certain activities which we perform without thinking like vomiting, mouth-watering on smelling taste food etc. What term do we use to explain them? Which part of our nervous system controls them?

SECTION – C

Questions 21 to 26 carry 2 marks each

21. Classify the following plant movements as tropic or nastic.
   a) turning of flower towards light
   b) bending of tentacles in plants
   c) growth of stem away from earth's surface
   d) twirling of a tendril

22. Why Mimosa pudica (touch - me - not) leaves droop down when touched?

23. What will happen if intake of iodine in our diet is low?

24. (a) What is tropism?
   (b) How do auxins promote the growth of a tendril around a support?

25. Explain Thigmotropism

26. How is control and co - ordination brought about in organisms?

SECTION – D

Questions 27 to 28 carry 5 marks each

27. Draw a labeled diagram of neuron and explain its function.

28. Following are the two examples of plant movement. One is drooping of leaves in touch - me - not plant and second is attaching of pea plant to a support with the help of tendrils.
   a) What is the stimulus which is common for movement in both the cases?
   b) What is the difference in movement in both the plants? Explain.

Give appropriate scientific terms for the movements described in both cases.

SECTION – E (Case Study Based Questions)

Questions 29 & 30 carry 4 marks each

29. Read the following text carefully and answer the questions that follow:

We have seen that the different parts of our body have specific functions. Our mouth waters when we see the food we like without our meaning to. Our heart's beat without our thinking about it. In fact, we cannot control these actions easily by thinking about them even if we wanted to. So, in between the simple reflex actions like change in the size of the pupil, and the thought out actions such as moving a chair, there is another set of muscle movements over which we do not have any thinking control. Many of these involuntary actions are controlled by the mid - brain and hind - brain. All these involuntary actions including blood pressure, salivation and vomiting are controlled by the medulla in the hind - brain. Think

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about activities like walking in a straight line, riding a bicycle, picking up a pencil. These are possible due to a part of the hind - brain called the cerebellum. It is responsible for the precision of voluntary actions and maintaining the posture and balance of the body. Imagine what would happen if each of these events failed to take place if we were not thinking about it.

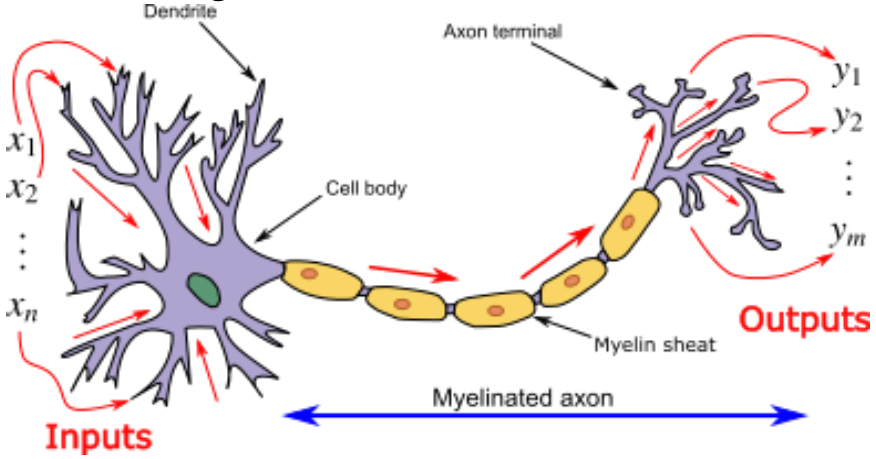
a) Identify the part of the nervous system which controls the reflex action. (1)
b) Does reflex action in volve all parts of the voluntary nervous system? (1)
c) Identify the part of the autonomic nervous system which controls involuntary actions. (1)

OR

Beating of heart muscles , which type of action is this? Out of voluntary and involuntary action which is slower? (2)

30. Read the following text carefully and answer the questions that follow:

In animals, control and coordination are provided by nervous and muscular tissues. Touching a hot object is an urgent and dangerous situation for us. We need to detect it and respond to it. How do we detect that we are touching a hot object? All information from our environment is detected by the specialised tips of some nerve cells. These receptors are usually located in our sense organs, such as the inner ear, the nose, the tongue, and so on. So gustatory receptors will detect taste while olfactory receptors will detect the smell. This information, acquired at the end of the dendritic tip of a nerve cell, see figure, sets off a chemical reaction that creates an electrical impulse. This impulse travels from the dendrite to the cell body, and then along the axon to its end.



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a) Name the largest cell present in the body. (1)
b) What is an axon? (1)
c) Name one gustatory receptor and one olfactory receptor present in a human beings.(2)
OR
Name the followingparts of a neuron: (2)
   a. Where information is acquired.
   b. Through which information travels as an electrical impulse.

Control and Coordination Paper Details – Analysis		
Objective Questions		
MCQ	1 marks x 8 question = 8	
Assertion Reason	1 marks x 2 question = 2	
Subjective		
Short type I	2 marks x 10 question = 20	
Short type II	2 marks x 6 question = 12	
Long Type	5 marks x 2 question = 10	
Case Studies Based		
Case 1	4 marks	
Case 2	4 marks	

Total = 50 marks Your Score =

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