# **Control and Co-ordination**

## Multiple Choice Questions

**1.** Which of these labelled parts controls peristaltic movements?



**2.** Which of the following parts make the peripheral nervous system?



(a) Only (i)	(b) Only (i) and (ii)
(c) Only (ii) and (iii)	(d) All the three

**3.** Which of the following statements distinguishes a motor neuron from a sensory neuron?

(i) It carries information to the brain.(ii) It carries impulses away from the central nervous system.(iii) Motor neurons carry information to the brain and impulses from the brain.

(a) Only (i)	(b) Only (i) and (ii)
(c) Only (ii)	(d) All the three

The sheath which covers the axon of a neuron is made up of(a) glucose.(b) protein.

(c) minerals. (	d)	myelin.
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**5.** The relay or connector neuron is located in which of the following parts?

(i) Brain	(ii) Spinal cord
(iii) Cranial nerves	(iv) Spinal nerves

- (a) Only (i) and (ii)
- (b) Only (i), (ii) and (iv)
- (c) Only (ii), (iii) and (iv)  $% \left( \left( {{{\left( {{{{\left( {{{}_{i}}} \right)}}} \right)}_{ii}}} \right)$
- (d) All the four

**6.** Which of the following functions is performed by the sensory neuron?

(a) It transfers impulses from the receptor to the effector.

(b) It transfers impulses from the effector to the motor neuron.

(c) It transfers impulses from the receptor to the central nervous system.

(d) It transfers impulses from the central nervous system to the receptor.

**7.** Which of the following is the correct sequence of the components in the transfer of impulses in a reflex arc?

(i) Sensory nerve(iii) Muscle(ii) Sensory organ(iv) Motor nerve

(a) $i \rightarrow ii \rightarrow iii \rightarrow iv$	(b) iv $\rightarrow$ iii $\rightarrow$ ii $\rightarrow$ i
(b) ii $\rightarrow$ i $\rightarrow$ iv $\rightarrow$ iii	(d) iii $\rightarrow$ iv $\rightarrow$ I $\rightarrow$ ii

**8.** Which of the following is an effector organ?

(i)Skin (ii) Skeletal muscles (iii) Salivary glands

(a) Only (i)	(b) Only (i) and (ii)
(c) Only (ii) and	(iii) (d) All the three

**9.** Which of the following Sequences is correct in transfer of impulses in a reflex arc?

(a) Receptor  $\rightarrow$  sensory nerve  $\rightarrow$  spinal cord  $\rightarrow$  motor nerve  $\rightarrow$  effector.

(b) Effector  $\rightarrow$  motor nerve  $\rightarrow$  spinal cord  $\rightarrow$  sensory nerve  $\rightarrow$  receptor.

(c) Spinal cord  $\rightarrow$  sensory nerve receptor  $\rightarrow$ 

motor nerve  $\rightarrow$  effector.

(d) Spinal cord  $\rightarrow$  motor nerve  $\rightarrow$  effector  $\rightarrow$  sensory nerve  $\rightarrow$  receptor.

- 10. Which of the following is an example of a reflex action?(a) A knee-jerk
  - (a) A knee-jerk
  - (b) Blinking of an eye
  - (c) Pumping of blood by the heart
  - (d) Both (a) and (b)

- **11.** Which of the following is/are the characteristic features of reflex action?
  - (a) It is a fast response.
  - (b) It is an automatic response.
  - (c) It is an involuntary action.
  - (d) All of these
- 12. When Anvesh's cerebellum is injured in an accident, Anvesh is unable to do which of the following actions?(a) Hand movements
  - (b) Balancing of body
  - (c) Coordinate his body movements
  - (d) All of these
- **13.** The medulla oblongata of the brain controls which of the following actions?



- (a) Heart beat(b) Peristalsis(c) Body balance(d) Both (a) and (b)
- **14.** Which statement about the human brain is incorrect?

(a) Human brain is made up of cerebrum, cerebrellum and medulla oblongata.

(b) The outer brain is white and the inner one is grey in colour.

(c) Brain is the main controlling centre of the human nervous system.

(d) Brain receives impulses from the sensory organs.

**15.** Ali lost his vision in an accident. Which of the following labelled pans injury cause the loss of Ali's vision?



16. Which of the following transport(s) hormones from the place of origin to the place of target?
(a) Ducts
(b) Blood
(c) Nerves
(d) All these

(a) P

(c) R

**17.** Which of the following not function well endocrine gland is leads to body loss thirst all time and high concentration of glucose in urine?

- (a) Adrenal glands(b) Pancreas(c) Pituitary gland(d) Thyroid gland
- **18.** Read the given information and identify the gland.
  - Secreted by endocrine glands located on the top of kidneys
    Deficiency can cause Addison's disease,
  - (a) Adrenal gland(b) Pituitary gland(c) Thyroid gland(d) Parathyroid gland
- **19.** Various activities and functions in the human body is/are controlled and coordinated by which of the following organ systems?

(i) Circulatory system(ii) Respiratory system(iii) Nervous system(iv) Endocrine system

(a) Only (i) and (ii)(b) Only (iii) and (iv)(c) Only (i), (ii) and (iii)(d) All the four

- 20. Which of the following hormones prevents water loss from plants?
  (a) Gibberellins
  (b) NAA
  (c) In dole acetic acid
  (d) ABA
- 21. Which of the following is used to destroy dicotyledonous weeds?
  (a) In dole acetic acid
  (b) 2, 4- dichlorophenoxy acetic acid
  (c) Abscisic acid
  (d) Naphthalene acetic acid

22. Which of the following hormones causes the shedding of leaves and fruits?
(a) In dole acetic acid
(b) Naphthalene acetic acid
(c) Gibberellins
(d) Abscisic acid

23. Which of the following hormones helps in parthenocarpy?
(a) Abscisic acid
(b) Gibberellin
(c) Ethylene
(d) Cytokinin

**24.** Which of the following hormones plays an important function in embryo implantation?

- (a) Testosterone
- (b) Insulin
- (c) Prolactin
- (d) Progesterone

**25.** Which of the following is a mixed gland?

(a) Pituitary	(b) Adrenal		
(c) Pancreas	(d) Ovary		

- **26.** Which of the following functions are stimulated by hormones in the agricultural field?
  - (a) The ripening of fruits
  - (b) The growth of plant
  - (c) The development of fruit
  - (d) All of these
- **27.** Which part of nervous system controls involuntary actions?

(a) Mec	lulla	a oblongata	(b) Cerebellun	n
()	. 1	1	$(1) \cap (1)$	1

- (c) Hypothalamus (d) Spinal cord
- **28.** Which of the following is caused by the hormone auxin?

(a) Stimulates the development of cell division.

- (b) Stimulates the falling off of ripe fruits.
- (c) Inhibits growth.

(d) Stimulates the development of fruit and prevents the falling off of fruits.

**29.** Identify 'X' and its function?



X Function of X		Function of X
(a)	Ribosome	Synthesises protein
(b)	Lysosome	Produces enzyme
(c)	Vesicle	Release neurotransmitter
(d)	Granule	Stores starch

**30.** Which of the following statement are true about endocrine glands?

(i) They are ductless glands.

(ii) They secrete h ormones directly into the blood(iii) Examples are mammary glands and salivary glands.

(a) Only (i) and (ii)(b) Only (i) and (iii)(c) Only (ii) and (iii)(d) All the three

**31.** The chart given below shows the human nervous system. Identify P and Q.



	Р	Q
(a) Cranial nerves		Spinal nerves
(b)	Neurons	Spinal cord
(c) Spinal nerves		Cranial nerves
(d)	Spinal cord	Spinal nerves

**32.** Which of the following represents the part labelled 'P' in the given figure?



(a) Dendrite(b) Cell body(c) Dendron(d) Axon

**33.** The following shows the sequence in the pathway of a nerve impulse through a reflex arc.

$P \rightarrow Q \rightarrow$ synapse $\rightarrow$ relay neuron $\rightarrow$ synapse $\rightarrow R \rightarrow$	S
What does R Q, R and S represent?	

	Р	Q	R	S
(a)	Tongue	Motor	Sensory	Tear glands
		neuron	neuron	
(b)	Muscle	Sensory	Motor	Nose
		neuron	neuron	
(c)	Eye	Motor	Sensory	Muscle
		neuron	neuron	
(d)	Skin	Sensory	Motor	Muscle
		neuron	neuron	

What is the importance of reflex actions?
(a) Protects the body from serious damage by quick automatic responses towards stimuli
(b) Enables a person climb the stairs without looking
(c) Enables a person to protect himself from attack

by using self-defense techniques (d) Enables a person to choose his actions according to his will

**35.** Identify P, Q and R in the given figure.



	Р	Q	R
(a)	Cerebellum	Cerebrum	Medulla
			oblongata
(b)	Cerebrum	Medulla	Cerebellum
		oblongata	
(c)	Medulla	Cerebellum	Cerebrum
(d)	Cerebrum	Cerebellum	Medulla
			oblongata

- 36. Flowers like tulip, crocus open at high temperature, but close with fall of temperature. Which of the following movements does it involve? (a) Photonastu (b) Nyctinasty
  - (d) Thermo nasty (c) Seismonasty
- 37. What will happen if part P is injured? (a) Breathing will be affected.
  - (b) The person will not be able to think rationally.

(c) Coordination and stability of the body will be adversely affected.

(d) The person will not be able to move.

- 38. Which of the following movements involves the opening and closing of flowers?
  - (a) Nastic movement
  - (b) Tropic movement
  - (c) Mutation
  - (d) Autonomic movement
- 39. What is the immediate effect on a person if the gland shown below is removed?



- (a) The metabolic rate increases.
- (b) The blood sugar levels in blood are disturbed.
- (c) The heartbeat rate decreases.
- (d) The blood pressure increases.
- **40**. Which of the following involves growth movement of the plant or plant part towards the soil? (a) Hydrotropism (b) Geotropism (d) Thigmotropism
  - (c) Phototropism
- 41. Which of the given statements are true about the given gland?



(a) Controls the organic and mineral metabolism (b) Controls the mental and physical development of the body in children (c) Prepares the body for fight of flight (d) Both (a) and (b)

- **42**. Which of the following movements is induced by a change in light intensity? (a) Nyctinasty (b) Thermo nasty (c) Photo nasty (d) Chemo nasty
- 43. Leaflets of Mimosa pudica exhibit which of the following plant movements? (a) Chemo nasty (b) Seism nasty
  - (c) Thigmonasty (d) Thermo nasty
- 44. Match the following terms in Column-I with those in Column - II correctly.

	Column-I			Column-II	
a.	Seed germination	( )	1.	Auxin	
b.	Leaf	( )	2.	Cytokinin	
с.	Cell division	( )	3.	Abscisic acid	
d.	Root formation	( )	4.	Gibberellines	
(a) a - 1, b - 2, c - 3, d - 4					
(b) a - 3, b - 4, c - 1, d - 2					
(c) a - 4, b - 3, c - 2, d - 1					
(d) a - 2, b - 1, c - 4, d – 3					

**45**. Match the following plants in Column -I with the movements they exhibit in Column- II.

	Column-I			Column-II
a.	Bittergourd	( )	1.	Photonasty
b.	Mimosa pudica	( )	2.	Thigmonasty
				movement
с.	Dandelion	( )	3.	Thigmostropism
d.	Roots	( )	4.	hydrotropison

(a) a - 1, b - 2, c - 3, d - 4 (b) a - 3, b - 2, c - 1, d - 4

- (c) a 4, b 3, c 2, d 1
- (d) a 2, b 1, c 4, d 3

## **Previous Contest Questions**

**1.** Which of these labelled structures and their functions is correctly matched?



	Control of body movement and	Control of breathing rate and blood		
	posture	pressure		
(a)	Р	Q		
(b)	Q	S		
(c)	S	Р		
(d)	R	Q		

- **2.** Which of the followinsg cells stops dividing after birth?
  - (a) Nerve cell(b) Glialcell(c) Epithelial cell(d) Liver cell
- Which of the following maintains homeostasis electrolyte balance and thermoregulation?
  (a) Medulla oblongata (b) Cerebellum
  (c) Hypothalamus (d) Diencephalon
- Which of the following is present in grey matter?
  (a) Nerve cell bodies
  (b) Nerve axons
  (c) Pons
  (d) Myelin sheath

- **5.** How many pairs of spinal nerves are found in human beings?
  - (a) 8 (b) 12 (c) 25 (d) 31
- 6. Which of the following elements is essential to make a neuron electrically charged?
  (a) Potassium (b) Sodium
  (c) Phosphorous (d) Calcium
- Which of the following regulates body temperature, apetite and emotions in the brain?
  (a) Thalamus
  (b) Hypothalamus
  (c) Cerebrum
  (d) Cerebellum
- 8. Which of the following parts of the brain helps in analysing a problem?
  (a) Diencephalon
  (b) Cerebellum
  (c) Medulla oblongata
  (d) Cerebrum
- 9. Which of the following movements involves the movement of sprouts towards sunlight?
  (a) Phototropism
  (b) Geotropism
  (c) Seismotropism
  (d) Chemotropism
- 10. Which of the following tropic movements involves by the mechanism of climbing in some plants?
  (a) Phototropism
  (b) Geotropism
  (c) Chemotropism
  (d) Directional

## **Answers With Solution**

#### Multiple Choice Questions

- **1.** (d) Z represents medulla. Medulla controls peristaltic movements in human body.
- **2.** (d) Spinal nerves and cranial nerves together constitute the peripheral nervous system.
- **3.** (c) Nerves that carry impulses from brain to effectors organs are called motor nerves. Nerves coming from receptor or sense organs are called sensory nerves.
- **4.** (d) Myelin sheath covers the axon of a neuron,
- **5.** (a) The relay neuron is located in brain and spinal cord.
- **6.** (c) The sensory neuron transfers impulses from the receptor to the central nervous system,
- 7. (c) The pathway of a reflex arc is  $ii \rightarrow i \rightarrow iv \rightarrow iii \rightarrow$ . Sensory organ  $\rightarrow$  Sensory nerve  $\rightarrow$ motor nerve  $\rightarrow$  muscle
- **8.** (d) Skin, skeletal muscles and salivary glands are called effectors organs.
- 9. (a) The pathway is receptor  $\rightarrow$  sensory nerve  $\rightarrow$  spinal cord  $\rightarrow$  motor nerve  $\rightarrow$  effecter.
- **10.** (d) The kneejerk and blinking of eye is due to reflex action.
- **11.** (d) A reflex action is a fast response, and automatic and an involuntary action.
- **12.** (d) Cerebellum coordinates the body movements.
- **13.** (d) Heart beat and peristalsis are the functions of medulla oblongata.
- **14.** (b) The outer brain is grey and inner is white in colour,
- **15.** (b) Q is cerebrum or the forebrain. It controls vision,
- **16.** (b) Blood acts as a medium of transport for hormones.

- **17.** (b) Pancreas secretes insulin hormone, Insulin controls blood sugar level.
- (a) Adrenal glands are present as a cap on the top of a kidney. Its deficiency leads to Addison's disease,
- **19.** (b) Nervous and endocrine system coordinates various activities in the body.
- **20.** (d) ABA helps the plant in preventing water loss, by closing the stomata.
- **21.** (b) 2,4 dichlorphenoxy acetic acid are used to destroy dicotyledonous weeds.
- **22.** (d) The leaves, flowers and fruits fall due to the action of ABA.
- **23.** (b) Gibberllin induces parthenocarpy.
- **24.** (d) Progesterone hormone help in the implantation of the embryo.
- **25.** (c) Pancreas is both exo and endocrine gland,
- **26.** (d) In the agriculture field hormones are used to stimulate growth, formation and ripening of fruit,
- **27.** (d) Spinal cord controls involuntary actions.
- **28.** (d) Auxins stimulate development of fruit and inhibit the abscission of leaves and fruits.
- **29.** (c) X represents a vesicle. It releases chemicals that act as neuro transmitters.
- **30.** (a) Endocrine glands are ductless glands and they secrete hormones directly into the blood.
- **31.** (d) P represents spinal cord and Q represents spinal nerves.
- **32.** (b) 'P' represents cell body of neuron.
- **33.** (d) The following is the correct combination. P - Skin Q - Sensory neuron R - Motor neuron S – Muscle
- **34.** (a) Reflex actions protect the body from serious damage by quick automatic responses towards stimuli.

- **35.** (d) In the given figure, P is Cerebrum, Q is Cerebellum and R is Medulla oblongata.
- **36.** (d) Movements induced in plants due to temperature are called thermo nastic movements.
- **37.** (c) 'P' represents Cerebellum. Cerebellum maintains and coordinates the stability of the body.
- **38.** (a) Nastic movements control the opening and closing of flowers.
- **39.** (b) The given figure is that of pancreas. It controls blood sugar level.
- **40.** (b) The growth movement of roots exhibit geotropism.
- **41.** (d) Thyroid gland controls the mental and physical development in children. It controls the growth of hair.
- **42.** (c) Movements due to change in light intensity is called photonasty.
- **43.** (c) Mimosa pudica exhibit thigmonastic movements.
- 44. (c) (a) Seed germination is controlled by gibberellins.
  (b) Leaf senescence is controlled by Absciscic acid.
  (c) Cell division is controlled by Cytokinins.
  (d) Root formation is controlled by auxins.
  45. (b) Bitter gourd Thigmotropism
- Mimosa Pudica Thigmonastic movements Dandelion – Photo nasty movements Roots - Hydrotropism

## **Previous Contest Questions**

- (c) In the given figure S represents cerebellum which controls body posture and movement. W represents medulla oblongata which controls breathing rate and blood pressure.
- **2.** (a) Nerve cells stop dividing after birth.

- **3.** (c) Hypothalumus controls electrolyte balance, maintains thermoregulation and electrolyte balance.
- (a) Nerve cell bodies are present in the grey matter.
- **5.** (d) 31 pairs of Spinal nerves are present in the human body.
- **6.** (b) Sodium is an essential element to make a neuron electrically charged.
- **7.** (b) Hypothalamus regulates body temperature, appetite and emotion.
- **8.** (d) Cerebrum is the main integrating centre in the brain.
- **9.** (a) Movements of plants towards light is phototropism.
- **10.** (d) Climbing of stems in climbers is called directions movement.