

*Answers to this Paper must be written on the paper provided separately.*

*You will not be allowed to write during the first 10 minutes.*

*This time is to be spent in reading the question paper.*

*The time given at the head of this Paper is the time allowed for writing the answers*

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**Section A is compulsory. Attempt *any four* questions from Section B.**

*The intended marks for questions or parts of questions are given in brackets []*

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## SECTION A

*(Attempt **all** questions from this section)*

### Question 1

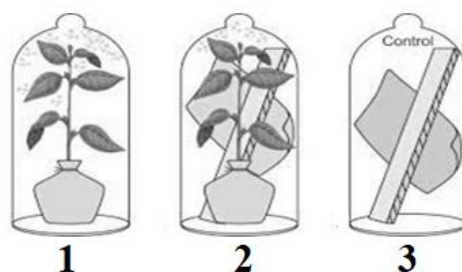
Choose the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answers only)

- (i) Diya notices that the lettuce leaves that she had brought have wilted. Her mother suggests her to keep the lettuce leaves in the cold water. What could be the scientific reason for such a suggestion?
- (a) Exosmosis will take place and the cell becomes turgid making the leaves crisp.
  - (b) Plasmolysis will take place and the cell becomes turgid making the leaves crisp.
  - (c) Endosmosis will take place and the cell becomes turgid making the leaves crisp.
  - (d) Flaccidity will take place and the cell become turgid making the leaves crisp.
- (ii) The blood vessel carrying de-oxygenated blood from right ventricle to the lungs.
- (a) Pulmonary vein
  - (b) Pulmonary artery
  - (c) Renal artery
  - (d) Renal Vein
- (iii) Priya is a tallest girl in her class and thus teacher makes her sit on the last bench. After few days, she expresses her concern of not being able to clearly see the distant objects as they appeared blurred to her. She visited the doctor to find out the reason for the same. After diagnosis, she found that her eye lens had become too curved.
- Which eye defect is she suffering from?
- (a) Hyperopia
  - (b) Myopia
  - (c) Astigmatism
  - (d) Cataract

- (iv) An experiment is set up as shown below. Observe the same and answer what happens after a few hours.



- (a) 1 – No change, 2 – Blue cobalt chloride paper turns pink, 3 – Droplets of water  
 (b) 1 – No change, 2 – Pink cobalt chloride paper turns blue, 3 – Droplets of water  
 (c) 1 – Droplets of water, 2 – Blue cobalt chloride paper turns pink, 3 – No change  
 (d) 1 – Droplets of water, 2 – Pink cobalt chloride paper turns blue, 3 – No change
- (v) Throat infections can lead to ear infections as:  
 (a) Outer ear is connected to the throat by the Eustachian tube.  
 (b) Inner ear is connected to the throat by the Eustachian tube.  
 (c) Middle ear is connected to the throat by the Eustachian tube.  
 (d) Semi circular canal is connected to the throat by the Eustachian tube.
- (vi) Assertion (A): Insulin is a steroid  
 Reason (R): It would be digested if taken orally.  
 (a) Both A and R are True  
 (b) Both A and R are False  
 (c) A is True and R is False  
 (d) A is False and R is True
- (vii) The photochemical phase in the plant occurs in (P) \_\_\_\_\_ and the biosynthetic phase occurs in (Q) \_\_\_\_\_ of the chloroplast.  
 (a) P – Stroma, Q – Thylakoids  
 (b) P – Thylakoids, Q – Stoma  
 (c) P – Thylakoids, Q – Stroma  
 (d) P – Fret, Q – Thylakoids
- (viii) Assertion (A): The blood flows through the glomerulus under great pressure which is much greater than in the capillaries elsewhere.  
 Reason (R): The afferent arteriole is narrower than the efferent arteriole.  
 (a) Both A and R are True  
 (b) Both A and R are False  
 (c) A is True and R is False  
 (d) A is False and R is True
- (ix) The disease caused due to hypersecretion of cortisone from adrenal cortex.  
 (a) Cushing's syndrome  
 (b) Addison's Disease  
 (c) Hemorrhage  
 (d) Myxoedema

- (x) **Assertion (A):** Bananas undergo parthenocarpy.  
**Reason (R):** As the development of fruits takes place with fertilization.  
(a) A is true and R is false  
(b) A is false and R is true  
(c) Both A and R are false  
(d) Both A and R are true
- (xi) A sheet of fibres connecting the two cerebral hemispheres.  
(a) Corpus callosum  
(b) Corpus Luteum  
(c) Pons  
(d) Hypothalamus
- (xii) **Assertion (A):** Osmoregulation is an important function of the kidneys.  
**Reason (R):** It helps in maintaining the salt and water concentration in the blood.  
(a) A is true and R is false  
(b) A is false and R is true  
(c) Both A and R are false  
(d) Both A and R are true
- (xiii) An alcoholic person was unable to maintain his body balance and muscular coordination. According to you, which part of the brain would have been affected by alcohol?  
(a) Thalamus  
(b) Pituitary  
(c) Cerebellum  
(d) Cerebrum
- (xiv) In photosynthesis, polymerization means:  
(a) Conversion of carbon dioxide into carbohydrate  
(b) Conversion of solar energy into ATP  
(c) Conversion of starch into glucose  
(d) Conversion of glucose into starch
- (xv) Raj suffers from a coronary artery blockage. He experiences the chest pain due to insufficient supply of blood to the heart muscles.  
Which term is used to indicate the pain in chest?  
1. Deadening  
2. Myocardial Infarction  
3. Heart attack  
4. Angina Pectoris  
  
(a) Only 4  
(b) Only 1 and 3  
(c) Only 1, 3 and 4  
(d) Only 1, 2 and 3

Question 2

- (i)

Name the following:

[5]
- (a)

The hormone that stimulates growth by cell division.
- (b)

The structural and functional unit of kidney.
- (c)

The loss of cell sap from the ruptured part of a plant.
- (d)

The transport in which ions move from the region of lower concentration to the region higher concentration using energy.
- (e)

The instrument used in the lab to demonstrate Geotropism.
- (ii)

Arrange and rewrite the terms in each groups in the correct order so as to be in a logical sequence beginning with the term that is underlined.

[5]
- (a)

Thrombin, Fibrin, Platelets, Fibrinogen
- (b)

PCT, Loop of Henle, DCT, Malpighian tubule
- (c)

Throxine, TSH, Thyroid gland, TRH
- (d)

Intercellular spaces, Sub-stomatal space, Mesophyll cell, Stomata
- (e)

Epidermis, Endodermis, Xylem, Cortex
- (iii)

Fill in the blanks with suitable words:

[5]
- The (a) \_\_\_\_\_ collects the sound waves and conducts them through the external
- (b) \_\_\_\_\_. They finally strike the (c) \_\_\_\_\_ which is set into vibration
- leading to vibrations of three ear (d) \_\_\_\_\_. They transmit the vibration to
- membrane of oval window which in turn sets the fluid contained in the cochlear canal
- also into vibration. This stimulates the sensory cells of cochlea and the impulses are
- transmitted to the brain via the (e) \_\_\_\_\_.
- (iv)

Choose the odd one out from the following terms and name the category to which the others belong:

[5]
- (a)

Erythrocytes, Plasma, Leucocytes, Thrombocytes
- (b)

ACTH, GH, FSH, LH
- (c)

Deer, Rabbit, Lizard, Elephants
- (d)

Stomata, Cuticle, Roots, Lenticels
- (e)

Croton, Coleus, Germanium, Mango
- (v)

Given below is a structure of a brain in median section. Match the structures marked (a) to (e) with their correct functions:

[5]
- Example: (f) – 6. Controls the body temperature

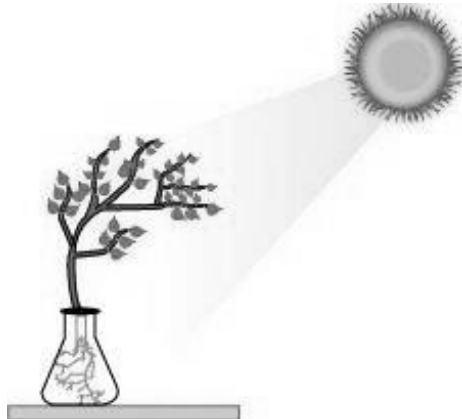
Structure of a brain in median section	Functions
	<div><div>1.</div><div>Coordinates muscular activities</div></div> <div><div>2.</div><div>Carries impulses from one hemisphere of the cerebellum to the other.</div></div> <div><div>3.</div><div>Seats for intelligence</div></div> <div><div>4.</div><div>Transfers information from one cerebral hemisphere to the other.</div></div> <div><div>5.</div><div>Controls the involuntary activities of the internal organs.</div></div> <div><div>6.</div><div>Controls the body temperature</div></div>

SECTION B

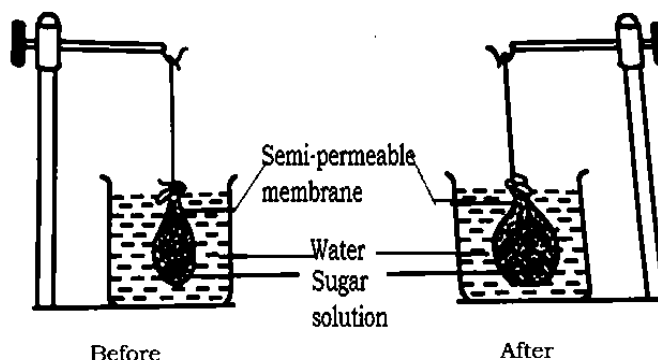
(Attempt **any four** questions from this Section.)

### Question 3

- (i) Explain the term – Micturition [1]
- (ii) Name the part of brain which extends as spinal cord. State its function. [2]
- (iii) The diagram given below represents a tropic movement. Study the same and answer the questions that follow: [2]



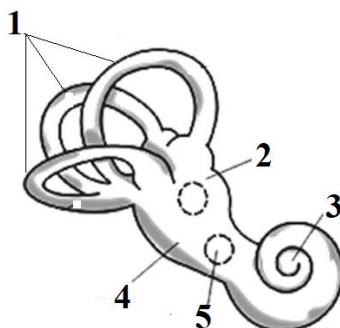
- (a) Name the type of tropic movement.
- (b) Which phytohormone is associated with this type of movement?
- (iv) Avinash goes for a Jungle safari. He observes a Lion coming towards him from a distance. In fear, he runs away to escape the situation. Name the endocrine gland and its hormone secreted in this situation. [2]
- (v) To perform an experiment on osmosis, Student sets up the apparatus as shown below and waits for the result. Study the same and answer the questions that follow: [3]



- (a) Give your observation after the experiment is done?
- (b) What will happen, if the sugar solution is replaced by water?
- (c) Give suitable example of a semi-permeable membrane.

### Question 4

- (i) Differentiate between simple goiter and exophthalmic goiter. [1]
- (ii) What are the two adaptations in leaves for photosynthesis? [2]
- (iii) Given below is the diagram of a part of the human ear. Study the same and answer the question that follow: [2]



- (a) Write the number and name of the part responsible for dynamic balance.
- (b) Name the part 3 and the sensory cells containing spiral structure present in part 3.

(iv) Which phytohormone is the following? [2]

- (a) A gas
- (b) A growth retarding hormone.

(v) Draw a neat labeled diagram of the chloroplast. [3]

### Question 5

(i) Explain the term – Pulse [1]

(ii) State two functions of spleen. [2]

(iii) Write one function of each hormone secreted by posterior lobe of pituitary glands. [2]

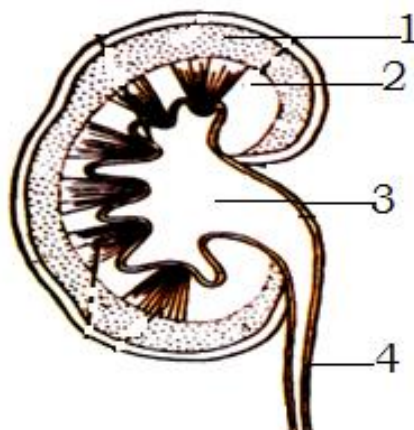
(iv) Write any two functions of Gibberellins. [2]

(v) What is the significance of transpiration? [3]

### Question 6

(i) Differentiate between diapedesis and phagocytosis. [1]

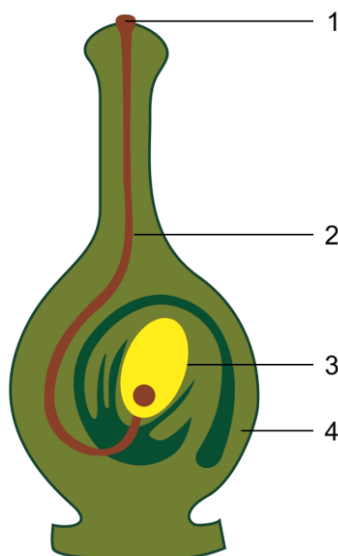
(ii) The diagram given below shows a section of a human kidney. Study the same and answer the questions that follow: [2]



(a) Name the part marked '1'.

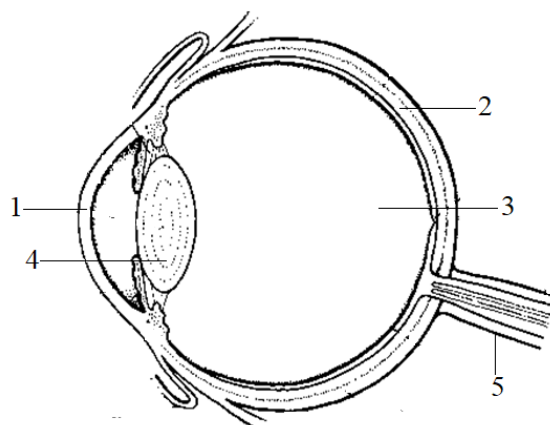
(b) Why does part '2' appear to be striped?

(iii) The diagram given below shows a type of tropism. Study the same and answer the questions that follow: [2]



(a) Define the type of tropism shown in the figure.

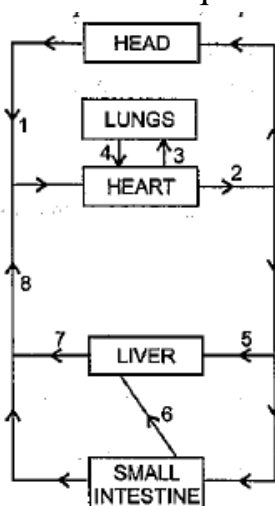
- (b) Name two effective stimulants that help in growth of part 2.
- (iv) How is the arrangement of gray and white mater in the brain and the spinal cord respectively? [2]
- (v) Study the diagram given below and answer the questions that follow: [3]



- (a) Name the fluid present in part 3.
- (b) State the name and number of the part, which is richly supplied with blood vessels for providing nourishment to the eye?
- (c) What happens when light rays strike part 1

### Question 7

- (i) Which phytohormone is known as stress hormone and why? [1]
- (ii) What is conditioned reflex? Give an example. [2]
- (iii) Ram observes that the wooden door swells up on coming in contact with moisture, during the rainy season. Define this phenomenon occurring in plants. And write one application of this phenomenon. [2]
- (iv) If you places few plants cells in a hypertonic solution and a few in hypotonic solution. What will be the state of cell in each of the solutions? [2]
- (v) Study the diagram given below and answer the questions that follow: [3]

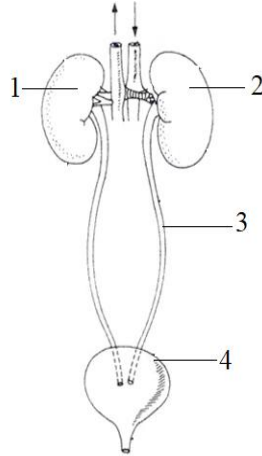


- (a) Name the part labelled 8.
- (b) Give one significance of part 6.
- (c) What type of blood is carried by blood vessel 2?

### Question 8

- (i) A well-watered plant shows wilting of leaves on a hot sunny day. Why? [1]
- (ii) Why is the pancreas referred to as exo-endocrine glands? [2]
- (iii) How will plants adapt to curtail transpiration in dry climatic conditions? [2]

- (iv) Vikas wants to find the reason for the opening of stomata during the day time due to potassium ions. He needs your help in understanding the same. Give an appropriate reason explaining the above. [2]
- (v) Study the diagram given below and answer the questions that follow: [3]



- (a) Name the main nitrogenous waste present in fluid flowing through part 3.
- (b) Why is part 3 important?
- (c) What happens if part 1 and 2 both are damaged?
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