

SCIENCE
Paper 3 (Biology)
(Two Hours)

Answers to this paper must be written on the paper provided separately.
*You will **not** be allowed to write during the first **15** 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.

Section I is compulsory. Attempt any **four** questions from **Section II**.
The intended marks for questions or parts of questions are given in brackets []

SECTION I (40 MARKS)

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

Question 1

A. Choose the correct answer

[15]

- 1) Kidneys regulate arterial blood pressure by secreting a hormone called ____
a) Rennin b) Renin c) Insulin d) Oxytocin
- 2) Cornea remains alive upto nearly ____ hours after the death of a person.
a) 10 b) 15 c) 25 d) 40
- 3) Assertion(A): Seminiferous tubules produce sperms
Reason (R) : Seminiferous tubules secrete Oxytocin, which aids in the production of sperm.
a) A is true and R is false b) A is false and R is True
c) Both A and R are true d) Both A and R are false
- 4) During ventricular systole, the atrioventricular valves (P) _____
and semilunar valves (Q) _____
a) P close, Q open b) P open, Q close
b) c) P close, Q close d) P open, Q open
- 5) The organelle which is absent in the nerve cell is
a) Nucleus b) Centrosome c) Neurofibrils d) Neuri lemma
- 6) The acrosome of a sperm contains
a) Hydrolytic Enzymes b) Mitochondria c) DNA d) RNA
- 7) A:Semicircular canals are the parts of middle ear
R: It helps in static balance when the body is stationary
a) Both A and are True b) Both A and R are False
c) A is True R is False d) A is False R is true
- 8) A squirrel is in a scary situation. The secreted adrenaline prepares the body to meet the situation which of the following is Not True for this situation?
a) Adrenaline prepares the body to fight danger.
b) Extra energy and strength are provided to the body.
c) At the time of stress, fewer hormones are released into the blood.
d) Adrenaline prepares the body to run away from danger.
- 9) The pigmented circular area seen in front of the eye is called
a) Cornea b) Lens c) Iris d) Ciliary muscles

- B. Given below is the transverse section of the human Kidney. Read the information below the diagram and fill in the blanks. [5]



The kidney is bounded externally by a thin sheet of white fibrous tissue called (a) _____. In each kidney about 1.25 million highly coiled tubules called (b) ____ or (c) _____ are present. The outer darker region is called (d) _____. The inner lighter region is called (e)_____

- C. Arrange and rewrite the terms in each group in the correct order so as to be in a logical sequence beginning with the term that is underlined. [5]

- 1) Tympanum, Incus, Malleus, Stapes.
- 2) Fibrin, Thrombin, Fibrinogen, Platelets.
- 3) Pulmonary artery, left ventricle, Lungs left auricle.
- 4) Fertilization, Ovulation, implantation Zygote.
- 5) Apical meristem, Positive phototropism, Auxins, Cell elongation.

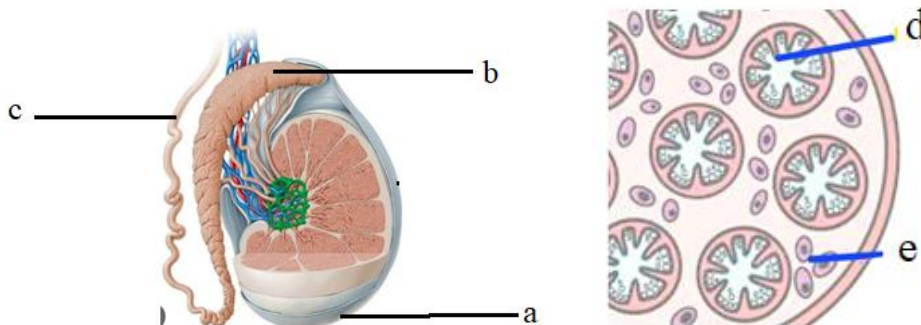
- D. Read the explanation and name the structure: [5]

Eg. The master gland Ans: Pituitary

- 1) The gene that expresses itself phenotypically in the presence of its contrasting gene.
- 2) The mineral essential for photolysis of water.
- 3) Loss of cell sap through the hydathodes
- 4) Removal of starch from the plant
- 5) A genetic disease in which the blood fails to clot.

- E. Given below is a cross section of Testis Match the structures with their correct functions [5]

- 1) Sac like structure that houses the testis
- 2) Cells that produce Sperms
- 3) Cells that secrete testosterone
- 4) Helps the sperms to attain maturity.
- 5) Transports sperms from epididymis to urethra

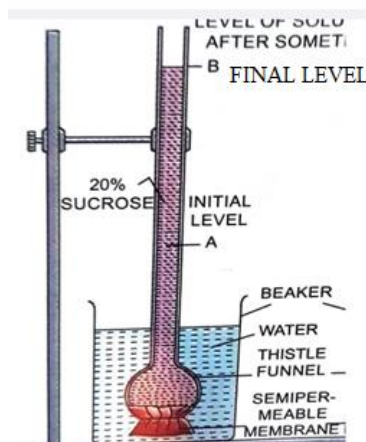


SECTION II (40 MARKS)

(Attempt **any four** questions from this section)

Question 3:

- A. Define Plasmolysis. [1]
 B. Name any two adaptations in plants to reduce transpiration. [2]
 C. Give the specific function of [2]
 a) Guard cells b) Xylem
 D. Write the overall equation for photosynthesis. [2]
 E. Rohan conducted the following experiment and obtained the results as depicted in the diagram. [3]
 a) Name the process.
 b) What is the nature of cellophane paper?
 c) What change takes place in the level of liquid in thistle funnel after a few hours?

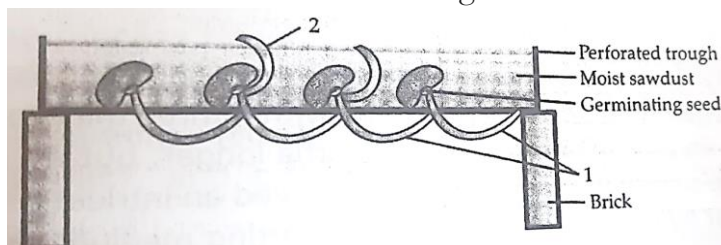


Question 4:

- (i) What is Acromegaly? [1]
 (ii) Expand the abbreviation ADH. Give one example of a diuretic substance. [2]
 (iii) Name the diseases caused due to hyposecretion and hypersecretion of thyroid hormone in adults. [2]
 (iv) Name the exocrine and endocrine part of pancreas. [2]
 (v) Draw a neat labelled diagram of an animal cell in the Metaphase stage. [3]

Question 5:

- (i) What is photophosphorylation? [1]
 (ii) Give any two physiological effects of Auxins in plants. [2]
 (iii) State the differences between micturition and parturition. [2]
 (iv) State any two functions of white blood corpuscles. [2]
 (v) Study the picture and answer the questions below: [3]
 a) Name the tropic movement shown by 1 and 2.
 b) Part 1 is affected by 2 stimuli. Name the one that is stronger.

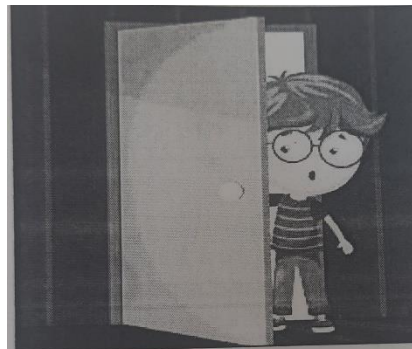


Question 6:

- (i) State Mendel's law of segregation. [1]
 (ii) Differentiate between phenotype and genotype. [2]
 (iii) Name any two hormones secreted by the pituitary gland. [2]
 (iv) Why are testes located outside the body of a male? [2]
 (v) Draw a neat labelled diagram of human sperm. [3]

Question 7:

- (i) Which phytohormone causes fruit ripening in plants? [1]
- (ii) Give differences between Arteries and Veins. [2]
- (iii) Name any two functions of kidneys. [2]
- (iv) How are cytons and axons placed in the brain? [2]
- (v) Keshav enters a dark room from a brightly lit area. He experiences difficulty in viewing objects, but gradually his vision improves. [3]
 - a) What is the reason? Explain.
 - b) Name the pigment synthesized in the darkness.



Question 8:

- (i) How does transpiration help in the uptake of water from the soil? [1]
- (ii) Shruti's mother gave birth to two male babies. Both the babies had strong resemblance to each other. The doctor said that they have been formed from a single ovum. [2]
 - a) What kind of twins are they?
 - b) Why are they of the same gender?
- (iii) State the effect of Adrenaline on [2]
 - a) Pupils
 - b) Heartbeat
- (iv) Rewrite the statements correctly. [2]
 - a) Pituitary controls respiration.
 - b) Fresh water fish when placed in hypertonic salt solution absorbs water and burst.
- (v) Manoj was writing a composition on "The importance of Education in Life" [3]
 - a) Name the part of brain that Manoj uses for writing.
 - b) Is it a voluntary or an involuntary action?
 - c) Trace the nervous pathway for: Muscles of hand, Sensory nerve, Fingertips, Motar nerves, Spinal cord.

