

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.

Attempt all questions from Section I and 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

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Question 1

a) Name the following:

1. Types of cell division also known as reduction division.
2. Types of chlorophyll found in abundance.
3. Plant hormone which inhibits shedding of leaves and fruits.
4. Gaps in the myelin sheath throughout the length of the axon.
5. The process of sperm production..

[5]

b) State whether the following statements are true or false. If false, rewrite the correct statement by changing the underlined word/words.

[5]

1. The chief function of lymphocytes is to produce histamines.
2. The semicircular canals are responsible for static balance.
3. Blastocyst is a small hollow ball of numerous cells formed after fertilization.
4. Active transport is the passage of water molecules from their lower concentration to higher concentration.
5. Birth rate is the number of births per 1000 people of population per year.

c) Given below are groups of terms. In each group identify the odd term and state the category to which others belong.

[5]

1. Stomata, Lenticels, Cuticie, Hydathode.
2. TSH, ADH, ACTH, FSH
3. Bowman's capsule, Loop of Henle, PCT, DCT
4. Wisdom teeth, Vermiform appendix, Pinna, Neck.
5. Oil, chemical residues, fly ash, metallic ash.

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d) Choose the appropriate alternative from the options given below: [5]

① The 9:3:3:1 dihybrid ratio is due to:

- a. Segregation
- b. crossing over
- c. Independent assortment
- d. homologous pairing.

2. Largest cell organelle.

- a. Nucleus
- b. cell wall
- c. endoplasmic reticulum
- d. vacuole

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③ Arteries are

- a. Thin walled and blood flows under diminished pressure
- b. Thick walled and blood flows under high pressure.
- c. Thin walled and blood flows under low pressure
- d. Thick walled and blood flows under diminished pressure.

④ If the rate of transpiration becomes more than the rate of photosynthesis, plants will:

- a. Continue to live, but will not be able to store food.
- b. Be killed instantly.
- c. Grow more vigorously because more energy will be available
- d. Stop growing and gradually die of starvation.

5. Promotes fruit ripening.

- a. Abscisic acid
- b. Auxin
- c. Ethylene
- d. Gibberellins

e) Corresponding pair. [5]

① Chloroplast: Photosynthesis:: Leucoplast:

② G1 Phase: RNA and protein synthesis:: S Phase :

③ Cranial nerves: 12 pairs:: Spinal Nerves:

④ Growth hormone: Dwarfism:: ADH:

⑤ Tubectomy: Fallopian tube:: Vasectomy:

f) Given below are groups of terms. In each group arrange and rewrite the terms in the correct order so as to be in a logical sequence. [5]

1. Metaphase, Anaphase, Telophase, Interphase, Prophase.
2. Spongy mesophyll, xylem, intercellular spaces, stoma, sub stomatal spaces, water.
3. Afferent arteriole, DCT, Collecting duct, PCT, Loop of Henle
4. Hepatic portal vein, Hepatic vein, Vena cava, Intestine, Heart
5. Receptor, motor neuron, association neuron, effector, sensory neuron.

g) Explain the following terms.

1. Root pressure
- ② Neurotransmitter
3. Photolysis
- ④ Heredity
- ⑤ Population density

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[5]

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h) State the function of the following: [5]

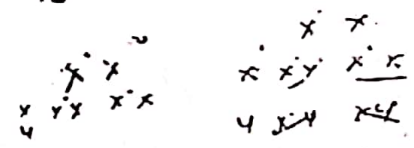
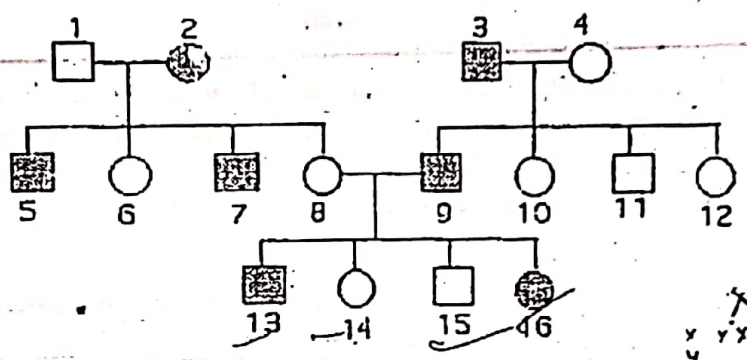
- ① Ureter
2. Bulbo-urethral or Cowper's glands
3. Amnion
4. Tricuspid valve
- ⑤ Vacuoles

Section II (40 Marks)

Attempt any four questions from this section

Question 2 *10/11*

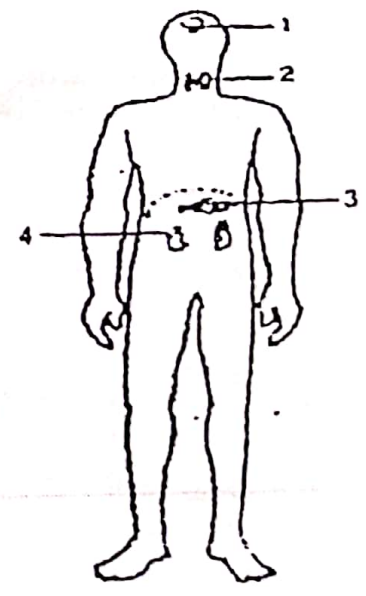
A. Examine the pedigree chart given below for colour blindness and answer the questions that follow: [5]



- a. What does 2 and 3 represent.
- b. Complete the depiction of probability for a cross between 13 and 14.
- c. Which chromosome is responsible for this trait.

B. Given below is the outline of human body with some important glands. Study the same and answer the questions. [5]

- a. Label the parts 1 to 4.
- b. Name the hormones released by part 3 and state their function.
- c. Name the term used to refer to hormones released by part 1 and why are they called so.



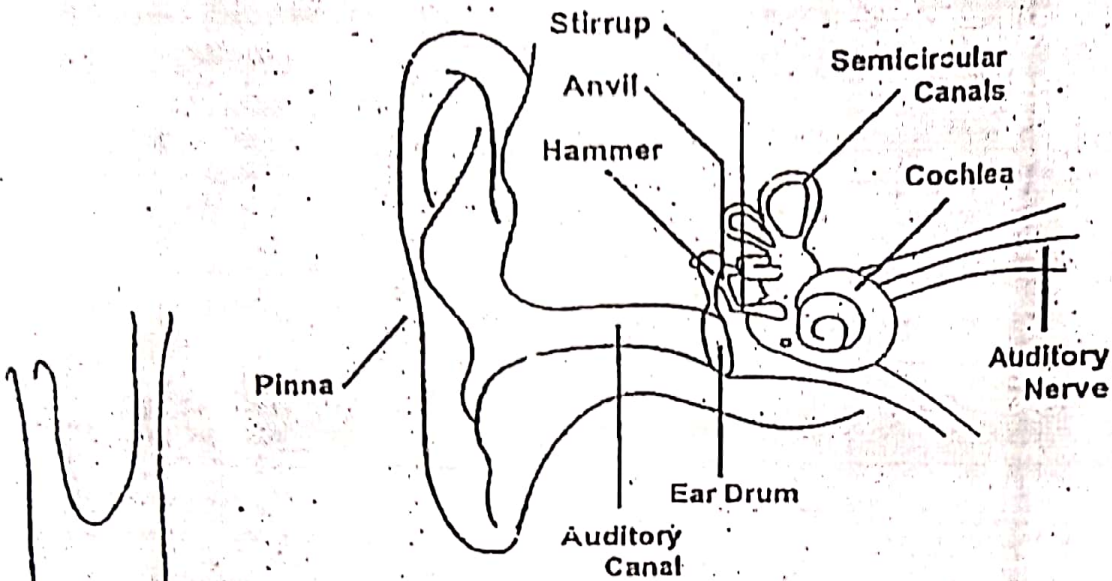
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Question 3

A. Draw a neat and labelled diagram of the nephron. [5]

B. Given below is the diagram of human ear Study the same and answer the questions. [5]



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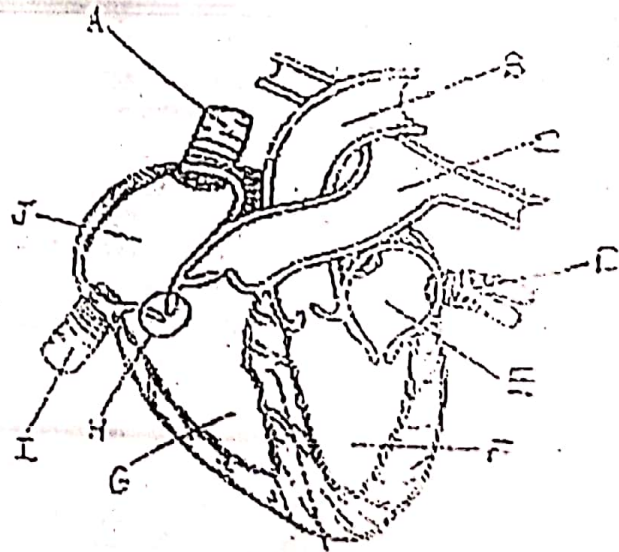
- From the above parts list which are a part of outer, middle and inner ear.
- How does having three bones instead of one facilitate hearing.
- Name the fluid found in the median canal of cochlea.
- Name the cells responsible for hearing.

Question 4

A. Given below is the diagram of human heart. Study the same. [5]

B. Label the parts A to D

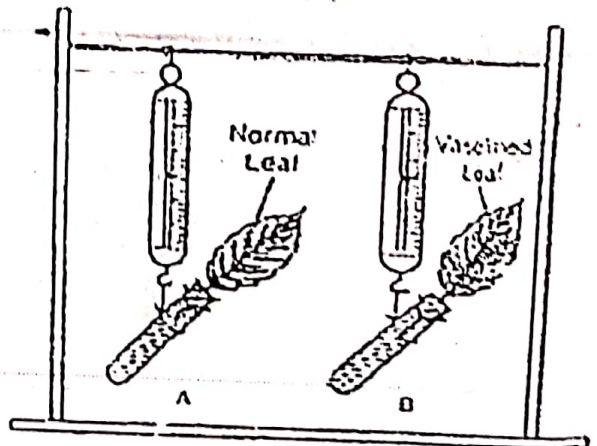
- Explain what happens during atrial systole
- Explain the role of the valves in the heart.



B. The diagram given below depicts a phenomenon seen in plants. [5]

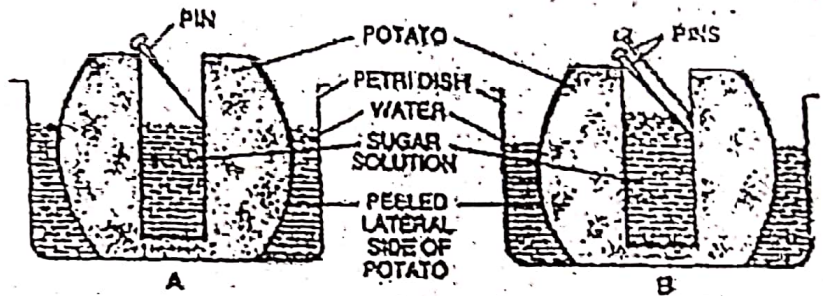
- Identify the phenomenon shown.
- Why is the leaf covered with Vaseline?
- What modifications need to be done to the setup to compare transpiration from dorsal and ventral side of a leaf.
- What would happen after 2hrs. Why

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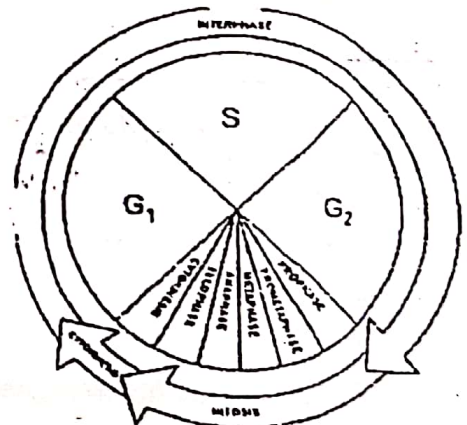
Question 5

- A. Given below is the diagrammatic representation of phenomenon seen in plants. Study the same. [5]
- Name the phenomenon shown.
 - Differentiate between the process shown above and active transport (definition).
 - Comment on the tonicity of the solution in the beaker with respect to the solution inside the potato.
 - Why is the potato peeled for the experiment?



- B. Given below is the diagram of cell cycle. Study the same and answer the questions that follow: [5]

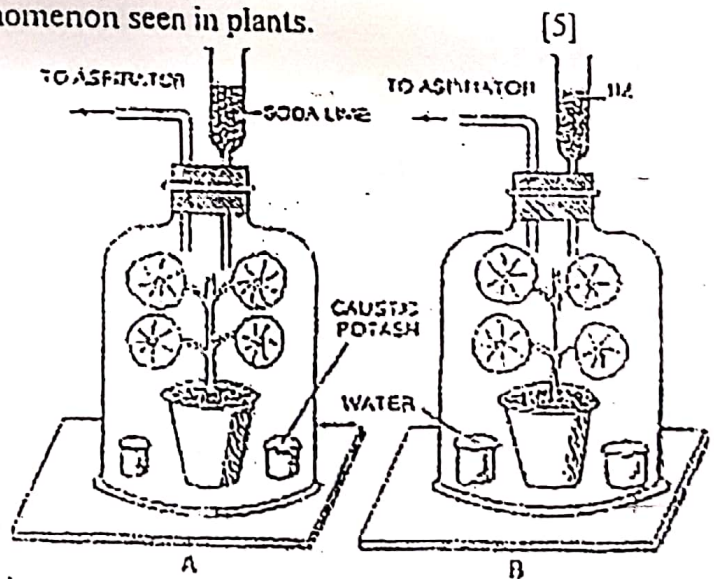
- The cell cycle precedes which phase of cell division.
- What happens in G₀ stage of cell cycle.
- Draw a neat and labelled diagram of the last stage of cell cycle.



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Question 6

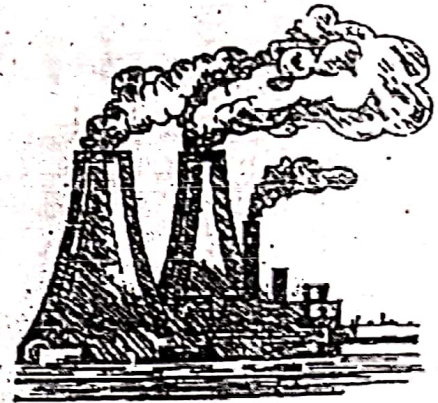
- A. Given below is an experimental set-up of a phenomenon seen in plants. [5]
- Define the phenomenon being studied.
 - Calvin cycle represents which part of photosynthesis.
 - Which organelle does the phenomenon take place in?
 - State in two modifications in plants to facilitate this phenomenon.



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B. Study the picture given below and answer the questions that follow: [5]

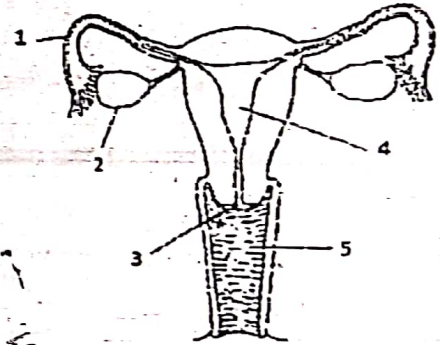
- a. Identify the pollution shown.
- b. List any two causes for this phenomenon.
- c. List any two effects of this on human health



Question 7

A. Given below is the diagram of female reproductive system. Study the same and answer the questions that follow: [5]

- a. Label the parts 1 to 4.
- b. Name the phases of menstrual cycle and the days for each.
- c. Name the female sex hormone.
- d. State the role of progesterone.



B. Explain the major functions of Abscisic Acid. [5]

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