

Greenlawns High School
Preliminary Examination 2025-26
Subject: Biology

Time: 2 Hours

Marks: 80

- Answers to this Paper must be written on the paper provided separately.
- You will not be allowed to write during 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.
- Section A is compulsory. Attempt any four questions from Section B.
- The intended marks for questions are given in brackets [].

SECTION A

(Attempt all questions from this Section.)

Question 1

Choose the correct answer to the questions from the given option. [15]

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

- (i) In human beings, the sex of a child is determined during the _____.
- (a) Gamete formation
 - (b) Birth
 - (c) Crossing over
 - (d) Process of fertilization
- (ii) The expanded form of a pesticide DDT is:
- (a) Dichloro-diphenyl-trichloromethane
 - (b) Dichloro-diphenyl-trichloroethane
 - (c) Diphenyl-dichloro-trichloroethane
 - (d) Dichloro-diphenyl-tetrachloroethane
- (iii) In certain cancer treatments, rapidly dividing cells are targeted. Which stage of the cell cycle is most affected?
- (a) G1 phase
 - (b) G2 Phase
 - (c) S phase
 - (d) M phase

(iv) A student is analyzing the nucleotide sequence of a DNA strand. She notices that the sequence is ATCG.

What is the complementary sequence of this DNA strand?

- (a) TCGA
- (b) ATCG
- (c) TAGC
- (d) GCTA

(v) Mrs. X has opted for a surgical method of contraception. According to you, which procedure is it?

- (a) Medical termination of pregnancy
- (b) Induced abortion
- (c) Vasectomy
- (d) Tubectomy

(vi) A person drinks salty sea water when stranded. Soon after, he felt more dehydrated. This is due to:

- (a) Plasmolysis of red blood cells
- (b) Exosmosis from body cells
- (c) Endosmosis into intestinal cells
- (d) Diffusion of salt into cells

(vii) Which hormone deficiency might lead to excessive urination and dehydration?

- (a) ADH
- (b) Insulin
- (c) Thyroxin
- (d) Adrenaline

(viii) Rachit went to buy fruits and vegetables. He had kept oranges and potatoes in the same bag. He forgot to remove them from bag. After few days he noticed potatoes started sprouting. Which plant hormone is responsible for sprouting?

- (a) Auxins
- (b) Ethylene
- (c) Cytokinins
- (d) Gibberlins

(ix) Which of the following factors affect the rate of transpiration in plants?

P- High temperature increases evaporation

Q- High humidity reduces the water potential gradient

R- Increased light intensity opens stomata

S- Soil fertility improves root absorption

- (a) P and Q
- (b) Q and R
- (c) P, Q, and R
- (d) All of them

(x) Which component is reabsorbed by the kidney tubules and returned to blood?

- (a) Urea
- (b) Uric acid
- (c) Creatinine
- (d) Glucose

xi) **Assertion (A):** A person suffering from myopia can see nearby objects clearly while distant objects appear blurred.

Reason (R): The lens is too flat.

- (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

(xii) Which of the following are parts of functions of the hepatic portal system?

P- Capillaries in the intestinal wall absorb nutrients

Q- Hepatic portal vein carries nutrient rich blood to liver

R- Livers filters and stores nutrients

S- Renal artery transports deoxygenated blood to kidney

- (a) P, Q and R
- (b) P and Q
- (c) Q and R
- (d) R and S

(xiii) **Assertion (A):** Damage to Pons can lead to loss of coordination and balance.

Reason (R): The pons carries impulses from one hemisphere of the cerebellum to the other hemisphere and coordinates muscular movements.

- (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

(xiv) **Assertion (A):** Prostate gland secretes an acidic secretion.

Reason (R): Its secretion neutralizes the acid in the female vagina.

- (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

(xv) Which of the following adaptations are seen in plants to perform photosynthesis efficiently?

P- Broad leaves to capture more sunlight

Q- Chloroplast in mainly in palisade cells

R- Sunken stomata to retain carbon dioxide.

S- Thick waxy cuticle to allow light to enter

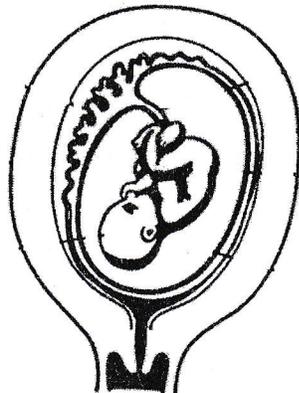
- (a) P and Q
- (b) Q and R
- (c) P, Q, and R
- (d) All of them

Question 2

i) Name the following:

- (a) The number of individuals per square kilometer at any given time. [5]
- (b) An act of expelling the full-term foetus from the mother's uterus at the end of gestation period.
- (c) The organelle which initiates cell division.
- (d) The part of inner ear responsible for dynamic balance.
- (e) The genetic constitution of an organism.

ii) Given below is the representation of human foetus inside the uterus. Read the information given below the diagram and fill in the blanks: [5]



When the male and female gamete fuse together a zygote is formed which develops into a blastocyst which is ready for implantation. In early stages

of gestation, the blastocyst develops certain extra-embryonic membranes to protect the developing embryo.

A sac is developed around the embryo/foetus, and a/an (a) _____ is filled in between the sac and the embryo/foetus to maintain an even pressure all around it. (b) _____ is the disc like structure attached to the uterine wall, which helps in the diffusion of oxygen and nutrients from the mother to the foetus by a/an (c) _____. The disc like structure is formed of two sets of minute finger like projections called (d) _____, one set of projections is given out by the uterine wall and other set by a/an (e) _____ from the embryo.

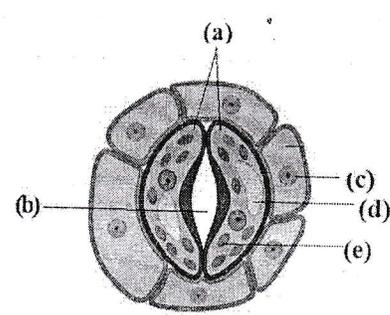
iii) Choose the odd one out from the following terms and name the category to which others belong: [5]

- (a) Endometrium, Seminiferous tubule, Epididymis, Interstitial cells.
- (b) Progesterone, Testosterone, Oestrogen, Prolactin
- (c) Conjunctiva, Cornea, Cochlea, Choroid
- (d) Cell Wall, Visking bag, Cellophane paper, Parchment paper
- (e) Simple goitre, Myxoedema, Cretinism, Acromegaly

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

- (a) Prophase, Telophase, Anaphase, Metaphase
- (b) Kidney, Urethra, Ureter, Urinary bladder,
- (c) Right Ventricle, Lungs, Pulmonary vein, Pulmonary artery
- (d) Ear Pinna, Membranous Labyrinth, Ear Ossicles, Auditory canal
- (e) Stimulus, Effector, Receptor, CNS.

v) Given below is a structure of a plant cell. Match the structures marked (a) to (e) with their correct functions: [5]

Structure of an Plant cell	Functions
	<ol style="list-style-type: none"> 1. Photosynthesis 2. Turgidity of cell 3. Regulates cell functions 4. Regulates opening and closing of stoma. 5. Exchange of respiratory gases

SECTION B

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

Question 3

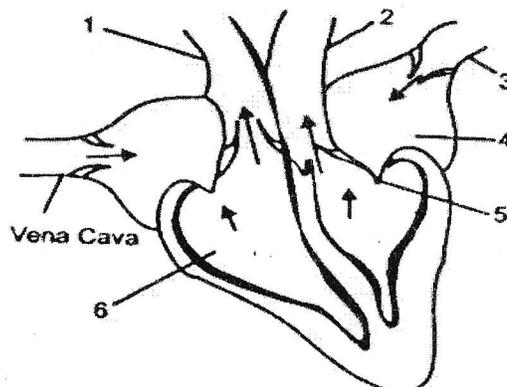
- (i) State the law of independent assortment. [1]
- (ii) Give reasons: [2]
 - (a) Shoots of the plant bend towards the light source
 - (b) Pea tendrils curl around a nearby stick or wire.
- (iii) Bleeding stops after a few minutes when you get a small cut. [2]
 - (a) What is the role of platelets in stopping the blood?
 - (b) How calcium is important in this process?
- (iv) Differentiate between Sympathetic and Parasympathetic Nervous system based on their location and their effect on our body as whole. [2]
- (v) Study the picture and answer the questions that follow: [3]



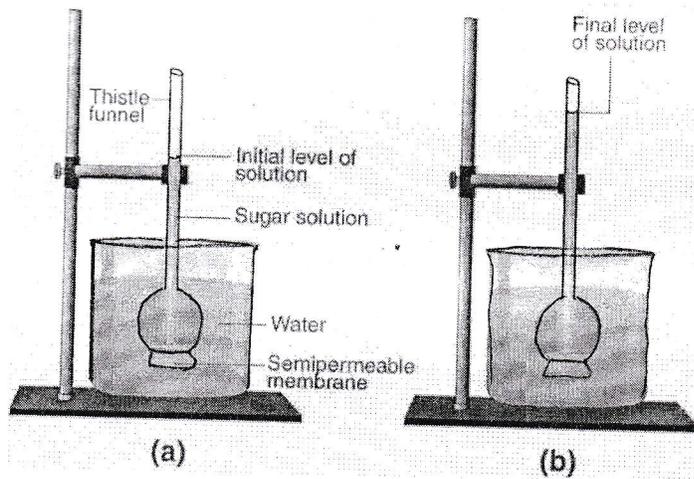
- (a) How is acid rain caused?
- (b) What are the harmful effects of acid rain? (Any 2)
- (c) Suggest one measure you will take to prevent acid rain.

Question 4

- (i) What is adrenal virilism? [1]
- (ii) (a) Define: Mutation [2]
 - (b) Write one example of a disease caused by a gene mutation
- (iii) The diagram given below represents the human heart in one phase of its activity. Study the same and then answer the questions that follow: [2]



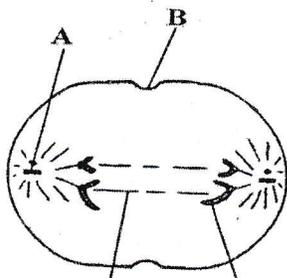
- (a) Which part of the heart is contracting in this phase? Give a reason to support your answer.
- (b) Which valves are closed in this phase?
- (iv) Write any two functions of Cytokinins. [2]
- (v) The diagram given below represents an experimental set up to demonstrate certain process. Study the same and answer the questions that follow: [3]



- (a) Name the process.
- (b) What could be the control for this experiment?
- (c) Why the level of the solution rises after an hour or so?

Question 5

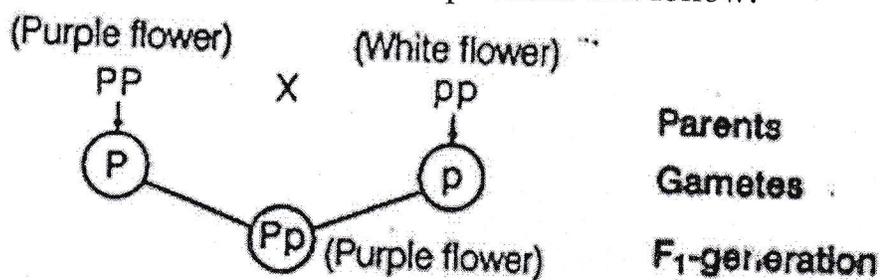
- (i) Explain – Injury to medulla oblongata can be fatal. [1]
- (ii) Humans can estimate distance and depth while driving, catching ball or climbing stairs etc. [2]
- (a) What is the term for this ability?
- (b) Name the defect in which some parts of the object are seen in focus while others are blurred due to uneven curvature of the cornea.
- (iii) A patient develops swelling in the legs after lymph node removal during surgery. [2]
- (a) Why does lymph node removal lead to swelling?
- (b) Write the composition of lymph.
- (iv) State any two reasons for the sharp rise in the world human population. [2]
- (v) The diagram below represents a stage during cell division. Study the same and answer the questions that follow: [3]



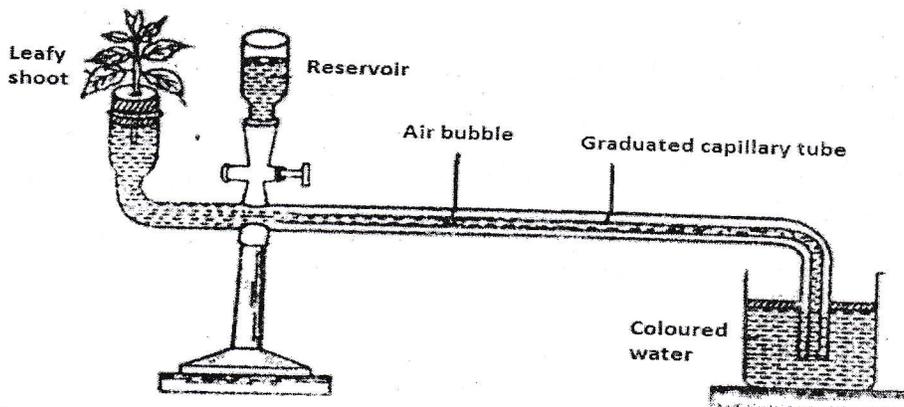
- (a) Identify the stage.
- (b) Write a reason to support your answer in (a)
- (c) Write the number of chromosomes given in the diagram.

Question 6

- (i) Pinna is a vestigial organ. Justify the statement [1]
- (ii) The cross between a plant bearing pure homozygous purple flowers with a plant bearing pure homozygous white flowers in the F₁ generation is shown below. Study the same and answer the questions that follow: [2]



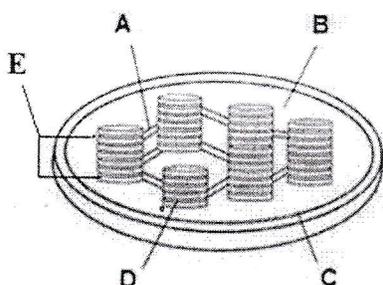
- (a) Draw a Punnett square to represent the F₂ generation.
- (b) Write the genotypic ratio of the same.
- (iii) Explain why: [2]
 - (a) Cutting ring of a bark (girdling) from a stem does not stop the upward movement of water.
 - (b) If you sprinkle some common salt on grass growing on a lawn, it is killed at that spot.
- (iv) Write exact location of: [2]
 - (a) Chlorophyll
 - (b) Palisade cells
- (v) The apparatus shown below is used to study a particular process in plants. Study the same and answer the questions that follow: [3]



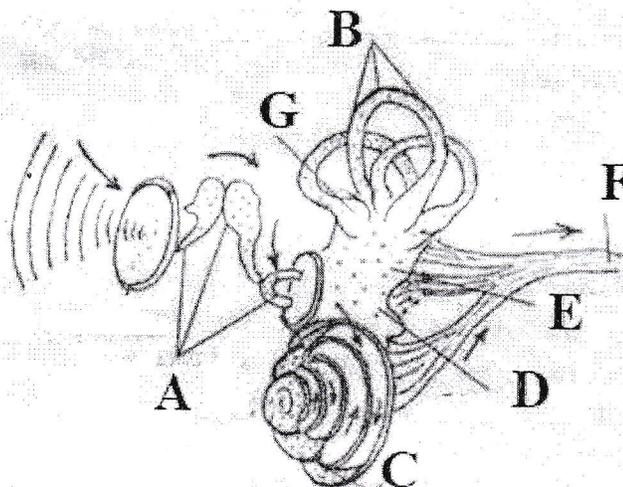
- (a) What does movement of air bubble represent?
- (b) Which phenomenon is studied with the help of this apparatus?
- (c) Mention one limitation of this apparatus.

Question 7

- (i) Differentiate between: Diffusion and Active transport. [1]
- (ii) Answer the following questions with respect to sex-linked disorder. [2]
- (a) A woman is a carrier of haemophilia. Her husband is normal. What is the chance of her son will be affected?
- (b) Why do sex-linked disorders appear more in males than females?
- (iii) What is chiasma? Draw a neat labelled diagram to show chiasma formation. [2]
- (iv) Study the diagram of a chloroplast given below and answer the questions that follow: [2]



- (a) In which part light dependent and Light independent reactions of photosynthesis take place? Write its label and name.
- (b) Write balanced chemical equation to represent photosynthesis.
- (v) The figure given below shows the principal parts of a human ear. Study the diagram answer the questions that follow: [3]



- (a) Label the three parts of A
- (b) In which part organ of corti is located? Write its label and Name.
- (c) What is the collective term used for E and D. Write its function.

Question 8

- (i) Name two Intra uterine Devices commonly used in India for Contraception. [1]

(ii) Mention any two characteristics of the Homo erectus. [2]

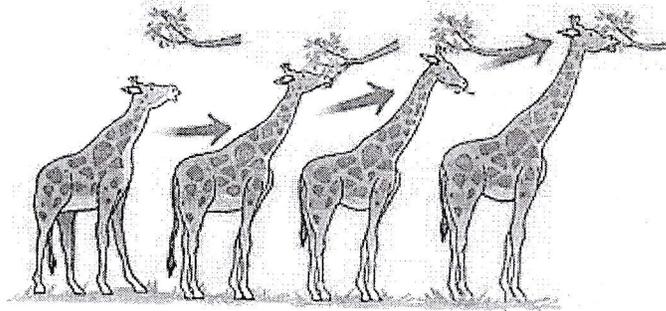
(iii) Urine Analysis of a patient shows following findings. Study the report and answer the following questions: [2]

Colour: Dark yellow
Urea: High
Glucose: Absent
Protein: Absent
Volume: 350 ml in 24 hours
Bacteria: Nil
Weather: Summer, 42°C.

(a) Why is the urine volume low though there no sign of infection?

(b) Name the condition in which glucose is found in urine.

(iv) Observe the figure given below and answer the questions that follow: [2]



(a) How did Lamarck explain this trend?

(b) How Darwin's explanation was different than Lamarck?

(v) Draw a neat labelled diagram of one malpighian capsule. [3]
