GREENLAWNS SCHOOL, WORLI

PRELIMINARY EXAMINATION: 2025-26

BIOLOGY

Std: X Marks: 80

Date: 16/01/2026 Time: 2 hrs

Answers to this paper must be written of 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 A is compulsory. Attempt any four questions from **Section B**.

SECTION A

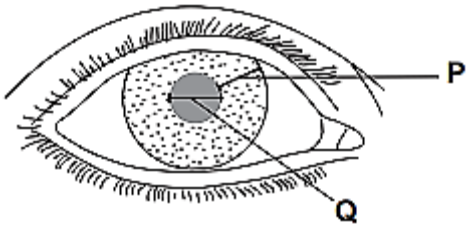
*(Attempt **all** questions from this section)*

Question 1

Choose the correct answers to the questions from the given options. **[15]**

(Do not copy the question, write the correct answer only.)

(i) The diagram shows the eye of a person in a brightly – lit room:



What happens to distance P and Q when this person moves from the brightly – lit room into a dark room?

	Distance P	Distance Q
(a)	Decreases	Increases
(b)	Deceases	Stays the same
(c)	Increases	Decreases
(d)	Stays the same	Increases

(ii) Select the correct statements from the following about the human heart:

1. Right atrium receives oxygenated blood from lungs through pulmonary artery.
2. Right atrium receives deoxygenated blood through vena cava from upper and lower body.
3. Left atrium transfers oxygenated blood to left ventricle which sends it to various parts of the body.
4. Left atrium transfers oxygenated blood to aorta which sends it to various parts of the body.

(a) 1 and 2
(b) 2 and 3
(c) 3 and 4
(d) 1 and 4

(iii) A gland which does not occur as a pair in the human body is:

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

(iv) The part of the hindbrain present immediately above the medulla is:

(a) Cerebellum
(b) Pons
(c) Cerebrum
(d) Spinal cord

(v) Application of Abscisic acid on plants promotes:

(a) Development of fruits
(b) Wilting of leaves
(c) Elongation of stem
(d) Formation of flowers

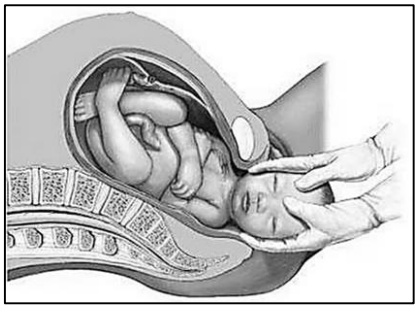
(vi) The end product of meiosis in a reproductive cell in plants is:

(a) Zygote
(b) Sperms
(c) Pollen grains
(d) Egg

(vii) **Assertion**: Transpirational pull helps in the upward movement of sap.
Reason: The effect of root pressure in transport of water is more significant at night.

(a) Both A and R are true, and R is the correct explanation of A.
(b) Both A and R are true, but R is not the correct explanation of A.
(c) A is true, but R is false
(d) A is false, but R is true

(viii) Identify this phenomenon:



(a) Parturition
(b) Placentation
(c) Implantation
(d) Gestation

(ix) The metallic element present in chlorophyll molecule that facilitates photosynthesis:

(a) Potassium
(b) Carbon
(c) Magnesium
(d) Phosphorus

(x) Sonam went to a pathological lab to get herself tested for blood group. Which type of antigen and antibodies are present in her blood if her blood group is O?

(a) Antigen A & B and no antibody
(b) No antigen and both antibodies A and B
(c) Antigen A and antibody B
(d) Antigen B and antibody A

(xi) While studying the stages in the evolution of man, perfect bipedalism is observed in:

(a) *Homo erectus*
(b) *Homo habilis*
(c) *Australopithecus*
(d) *Homo sapiens*

(xii) In garden pea, violet colour flower is the dominant trait over white colour flower which is the recessive trait. When parent plant with violet coloured flowers (Vv) is crossed with a parent plant with white flowers, the possible percentage of occurrence of traits in the F_1 progeny would be:

(a) 100% violet
(b) 50% violet, 50% white
(c) 25% violet, 75% white
(d) 75% violet, 25% white

(xiii) **Assertion (A)**: Acid rain can damage buildings and monuments made of limestone and marble.
Reason (R): The acids in acid rain react with calcium carbonate in limestone and marble, leading to the erosion of the monuments.

(a) Both A and R are true
(b) Both A and R are false
(c) A is true, but R is false
(d) A is false, but R is true

(xiv) Arrange the following steps in the correct sequence as they occur during photosynthesis:

1. Photophosphorylation generates ATP
2. A photon excites chlorophyll molecules in the photosystem
3. Photolysis of water occurs, releasing hydrogen and hydroxyl ion
4. Glucose is synthesized during biosynthetic phase

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

(xv) Addition of salt to pickles is a practice of killing bacteria by:

(a) Endosmosis
(b) Exosmosis
(c) Imbibition
(d) Plasmolysis

Question 2

(i) Name the following: **[5]**

(a) Norms that aim to effectively cut down sulphur and nitrogen oxides from automobile exhausts.
(b) Lens used to correct Astigmatism.
(c) A plant with sunken stomata.
(d) A gap present in apes between incisors and canines on each side of the jaw.
(e) Arrangement of human chromosomes in pairs in order of their size and shape.

(ii) Given below is a diagram of inner ear. Read the information given below the diagram and fill in the blanks: **[5]**

The human ear is concerned with two functions, hearing and body balance. It has three main divisions – outer ear, middle ear and inner ear.

The inner ear, also called as (a) _____ has three parts. The (b) _____ is spiral-shaped and its median canal is filled with a fluid called (c) _____. The median canal also has a spiral organ called (d) _____ for hearing.
The other part of the inner ear is a set of three semi-circular canals, with one end of each canal swollen to form (e) _____ which carries out dynamic balance.

(iii) 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 <u>underlined</u>. **[5]**

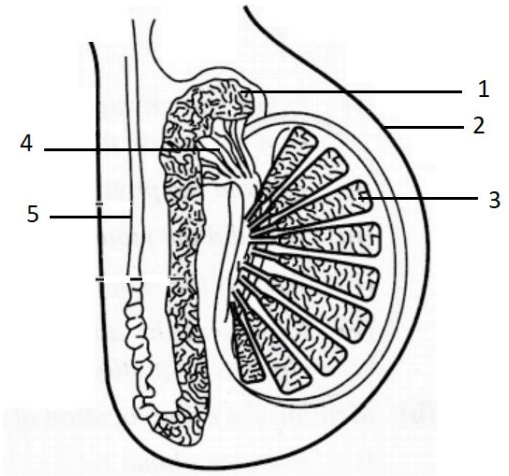
(a) Embryo, Morula, <u>Zygote</u>, Blastocyst.
(b) Interpretation by brain, focussing of image, <u>Entry of light rays</u>, transmission of nerve impulses from retina to brain.
(c) Posterior vena cava, renal artery, <u>aorta</u>, renal vein, kidney.
(d) CNS, Response, <u>Stimulus</u>, Effector, Receptor.
(e) Karyokinesis, <u>Synthesis phase</u>, Cytokinesis, Second growth phase.

(iv) Read the explanations given below and name the structure: **[5]**

Example: The largest gland in the human body that secretes bile.
Answer: Liver

(a) Allows diffusion of substances between the mother and the foetus.
(b) A lymphatic organ situated in the abdomen behind the stomach and above the left kidney.
(c) Point of attachment between non-sister chromatids of a pair of homologous chromosomes.
(d) Special pore-bearing structures present on the margins of the leaf.
(e) An enzyme that gives antiseptic property to tears.

(v) The diagram below represents a longitudinal section of a testis of man. Match the structures marked (1) to (5) with their correct functions: **[5]**

Longitudinal section of testis	Functions
	a. Produce sperms.
	b. Transports sperms from the testis to the urethra.
	c. Joins the tubular knot between testis and its upper pole.
	d. Stores sperms for some days during which they mature and become motile.
	e. Temperature regulation in testes.

SECTION B

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

Question 3

(i) Narayan planted some maize seeds in a mesh filled with moist sawdust and placed the the set-up at an angle as shown in the picture below: [5]

(a) What aspect is Narayan investigating?
(b) What changes does he observe in the radicles as they start germinating?
(c) What does Narayan conclude from the above observation?
(d) What changes does he observe in the plumule of the seeds?
(e) Define tropism.

(ii) Give the exact location of the following structures: [2]
(a) Macula lutea
(b) Arachnoid

(iii) Name the hormones responsible for the following: [2]
(a) Stimulates thyroxine secretion.
(b) Regulates carbohydrate, lipid and protein metabolism.
(c) Increases reabsorption of water from kidneys.
(d) Promotes glucose uptake by blood cells.

(iv) Expand DDT. [1]

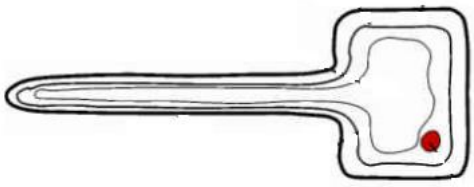
Question 4

(i) Richard bought a sea water fish and a freshwater fish from an aquarium shop and placed them together in his aquarium, which contained tap water. After some time, the seawater fish swelled up and died. [2]

(a) Which type of osmosis caused the death of the seawater fish?

(b) What type of solution is tap water?

(ii) The diagram below depicts the microscopic structure of a single root hair. [3]



Copy the diagram and label the following parts:

(a) Freely permeable membrane (b) Epidermal cell (c) Vacuole

(iii) Give two points of difference artery and vein with regards to: [2]

(a) Size of lumen (b) Type of blood they carry

(iv) Sonam faces difficulty while copying from the blackboard in the class. She told this to her parents, who then took her for an eye check-up. [3]

(a) What defect do you think is Sonam suffering from?
(b) What are the two possible reasons for the above defect?
(c) Draw a neat labelled diagram to show the correction using a suitable lens.

Question 5

(i) Ravi was walking in a forest when he suddenly encountered a wild animal. [2]
How did the activation of his sympathetic nervous system affect his urinary bladder and blood vessels in this high stress situation?

(ii) Give the phenotypic ratio in F_2 generation of a Monohybrid cross and a Dihybrid cross. [2]

(iii) Define – Active transport. [1]

(iv) The picture below depicts a man-made source of air pollution. [3]

(a) Identify this source of air pollution.
(b) Describe the process that happens in this type of pollution.
(c) List the products formed by this pollution.

(v) Give scientific reasons for the following: [2]
(a) A person feels blinded for a short period while coming out of a dark room.
(b) Wilted lettuce leaves become crisp when placed in cold water for a while.

Question 6

(i) The ability to roll your tongue is a dominant trait in humans. Non-rolling tongue is thus recessive. [3]

(a) Distinguish between dominant and recessive allele.
(b) Draw a Punnett square to show the inheritance of tongue rolling when both parents are heterozygous. State the ratio of tongue rollers to non-rollers in the offspring.

(ii) Rohan and his wife decide that they do not want any more children. The doctor advises Rohan to undergo a surgery. [3]
(a) Identify the surgery that the doctor suggests Rohan.
(b) Which part of the male reproductive system is affected by this procedure?
(c) Name the corresponding permanent method of birth control in females.

(iii) Mention any two limitations in the use of potometer. [2]

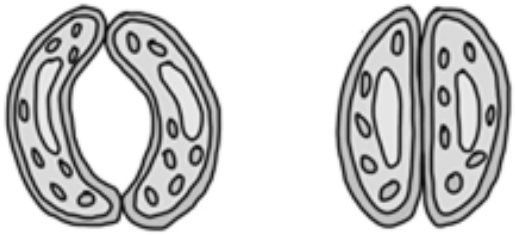
(iv) During a biology lab demonstration, a teacher shows a 3D model of DNA and explains that it carries genetic information from one generation to the next. [2]

(a) What is the basic structural unit of DNA?

(b) Draw a neat and labelled diagram of your above answer.

Question 7

(i) The diagram given below shows a pair of guard cells in two different conditions. [5]



A **B**

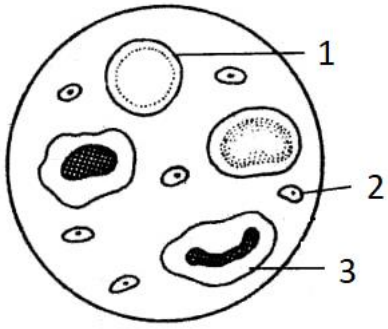
(a) Which condition (A or B) occurs during daylight?

(b) Name the ion which enters the guard cells during the above condition.

(c) What would happen to the stomatal pore if the above ion moves out?

(d) Explain the role of the ion in changing guard cell turgidity.

(ii) A student of class 10 prepared a slide of human blood and observed under a microscope. He noted three types of cells: [3]



(a) What is the structural difference between cells 1 and 3?

(b) If the number of cell '2' fall to an abnormal low count, it is an indication of which disease?

(c) What is the range of cell '3' per mm^3 in a normal human?

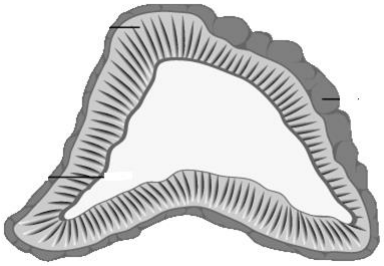
(iii) During an experiment Pavlov rang a bell each time he gave food to a dog. After some days, the dog began to salivate only on hearing the bell, even when no food was given. [2]

(a) What type of reflex was developed in the dog?

(b) How is this reflex different from the other one?

Question 8

(i) Given below is an endocrine gland found in humans: [5]



(a) Give the exact location of this gland.

(b) Redraw the diagram and label the region that controls:

1. Salt and water balance
2. Emergency response

(c) Explain the term – Virilism.

(d) State any two symptoms of Addison's disease.

(e) Mention the cause of Cushing's syndrome.

(ii) A student applied auxin paste to a plants stem tip. After a few days, the lateral buds remained dormant. [3]

(a) What is this phenomenon called?

(b) Name the main natural auxin found in plants.

(c) How does auxin induces parthenocarpy in tomatoes?

(iii) Draw a neat diagram of human sperm and label the following parts: [2]
Head, middle piece, acrosome, mitochondria.

******