

GREENLAWNS SCHOOL, WORLI

TERMINAL EXAMINATION: 2024-25

BIOLOGY

Std: X

Marks: 80

Date: 27/09/2024

Time: 2 hrs

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.

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) Rohit played cricket on a hot summer afternoon. His urine output was much less, though he drank plenty of water. What could be the possible cause?



P – Kidneys reabsorb a lot of water

Q – Sweat glands are active

R – Kidneys absorb less water

S – Sweat glands are inactive

- (a) R and Q
(b) P and Q
(c) P and S
(d) R and S
- (ii) The chromatin material is made up of:
(a) Histone only
(b) Nucleotide
(c) DNA only
(d) DNA and Histones
- (iii) The blood vessel carrying blood from aorta to liver is:
(a) Hepatic vein
(b) Hepatic portal vein
(c) Hepatic artery
(d) Renal artery
- (iv) The gland whose secretion neutralize the acidity of the urethra and vagina:
(a) Seminal vesicle
(b) Cowper's gland
(c) Prostate gland
(d) Seminiferous tubules

- (v) A cell shrinks in a _____ solution:
- (a) Hypertonic (c) Isotonic
(b) hypotonic (d) None of these
- (vi) Transpiration will be fastest when the day is:
- (a) Cool, humid and windy (c) Hot, humid and windy
(b) Hot, humid and still (d) Hot, dry and windy
- (vii) **Assertion:** The nerve impulse travels from the axon of a neuron to the axon of another neuron.
Reason: The end portion of the axon has swollen ends, which store neurotransmitters.
- (a) A is True, and R is false (c) Both A and R are true
(b) A is False, and R is true (d) Both A and R are false
- (viii) In seeds, cytokinins cause expansion of:
- (a) Cotyledons (c) Tegmen
(b) Testa (d) Hilum
- (ix) An exo-endocrine gland in the human body is:
- (a) Pituitary gland (c) Salivary gland
(b) Pancreas (d) Adrenal gland
- (x) An observable fact which is **not** a part of 'Theory of natural selection' is:
- (a) Overproduction (c) Use and disuse of organs
(b) Struggle of existence (d) Survival of the fittest
- (xi) Mortality is the number of deaths:
- (a) Per 1000 people per year (c) Per 1000 people per decade
(b) Per 100 people per decade (d) Per 100 people per year
- (xii) The cerebral hemispheres in mammals are connected by:
- (a) Corpus luteum (c) Hypothalamus
(b) Pons varoli (d) Corpus callosum
- (xiii) **Assertion (A):** The main pulmonary artery pumps oxygenated blood from the right ventricle into the lungs.
Reason (R): Inside the lungs, the artery divides and divides several times to form capillaries around the air sacs.
- (a) A is True, and R is false (c) Both A and R are true
(b) A is False, and R is true (d) Both A and R are false
- (xiv) The process of liberation of ovum from ovary is called:
- (a) Ovulation (c) Oogenesis
(b) Fertilisation (d) Micturition

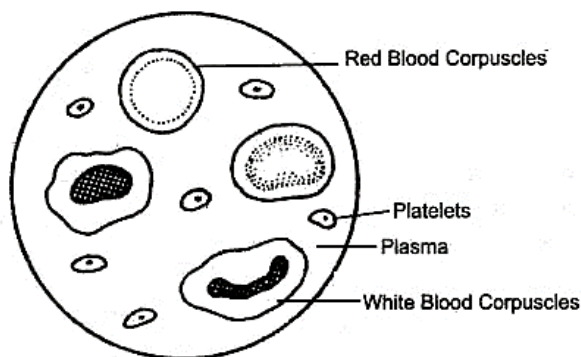
- (xv) The hormone that affects urination is:
- | | |
|----------------|-----------------|
| (a) Adrenaline | (c) Thyroxine |
| (b) Oestrogen | (d) Vasopressin |

Question 2

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

- (a) The hormone that regulates the mineral metabolism of the body.
- (b) The bonds by which nitrogenous bases of two polynucleotide chains of DNA are joined together.
- (c) The site of production of RBCs in adult humans.
- (d) The process by which raisins swell when placed in water.
- (e) The half-moon shaped valves which prevent the backflow of blood into the ventricles.

(ii) Given below is the diagram of a smear of human blood. Read the information below the diagram and fill in the blanks: **[5]**



Blood is contained in the heart and in the blood vessels of the circulatory system. The main function of blood in our body is transport and protection. The blood consists of the fluid part called plasma and the cellular elements.

The plasma contains 90-92% of (a) _____. The average life of an RBC is (b) _____. The abnormal decrease in the number of WBCs causes (c) _____. The WBCs, specially the (d) _____ produce antibodies. The injured tissue cells and platelets release a substance (e) _____ at the site of the wound.

(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 underlined. **[5]**

- (a) Stimulus, Response, Receptor, Effector, Spinal cord.
- (b) Root hair, Endodermis, Epidermis, Xylem, Cortex.
- (c) Australopithecus, Cro-Magnon man, Homo erectus, Neanderthal man, Homo sapiens.
- (d) Artery, Vein, Capillaries, Venule, Arteriole.
- (e) Auxins, positive phototropism, cell elongation, apical meristem.

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

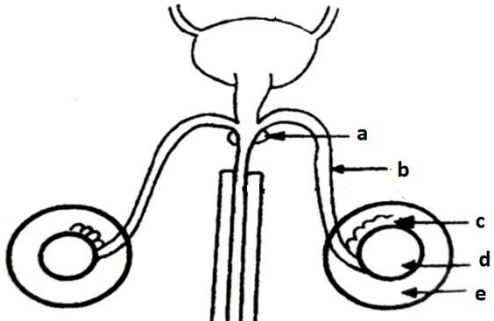
Example: The largest gland in the human body that secretes bile.

Answer: Liver

- (a) Packing tissues between the coils of the seminiferous tubules.

- (b) The cords that arise from the ventricular muscles of the heart hold the flaps of the bicuspid and tricuspid valves in position.
- (c) Minute openings between the epidermal cells of the leaf.
- (d) It surrounds the urethra close to its origin from the urinary bladder.
- (e) Special pore-bearing structures on the margins of the leaf through which guttation takes place.

(v) Given below is the outline of the male reproductive system. Match the structures marked (a) to (e) with their correct functions: [5]

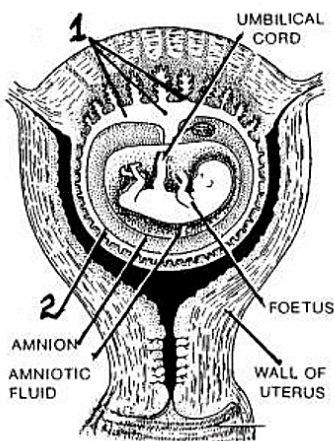
Male Reproductive System	Functions
	1. Stores sperms for some days during which they mature and become motile.
	2. Protects the testes, acts as a climate control system for the testes.
	3. To produce sperms by spermatogenesis.
	4. Transports sperms from the testis to the urethra.
	5. Produces a secretion that serves as a medium for transportation of the sperms.
	6. Secretion serves as a lubricant.

SECTION B

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

Question 3

(i) Study the diagram given below and then answer the questions that follow: [5]



- (a) State the functions the parts labelled 1 and 2.
- (b) State any two functions of the amniotic fluid.
- (c) What is the role of the umbilical cord in the development of the foetus?
- (d) Name the part in the diagram which is endocrine in nature.

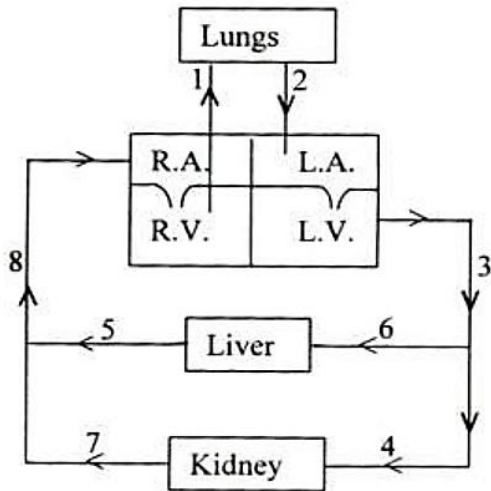
(ii) Give reasons for the following:- [3]

- (a) Plants begin to die when excess of soluble fertilizers are added to the soil.
- (b) Injury to the medulla oblongata results in death.
- (c) Gametes have a haploid number of chromosomes.

(iii) Draw a neat diagram of a single Malpighian corpuscle and label the following parts: Glomerulus, Bowman's capsule, Afferent arteriole, and Efferent arteriole. [2]

Question 4

(i) Given below is a diagrammatic representation of a certain part of the process of circulation of blood in man. Study the same and then answer the questions that follow: [5]



- Name the parts labelled 1, 2, 4 and 6.
- Give the number and name of the vessel which contains the maximum amount of urea a few hours after a protein rich meal.
- Draw a neat, labelled diagram of the cross sectional view of the blood vessel numbered 3.
- Mention two structural differences between blood vessels '3' and '8'.

(ii) Given below are false statements. Correct and rewrite the complete statements: [3]

- Fruit ripening is induced by Abscisic acid.
- Roots show negative Hydrotropism.
- Thigmotropism can be demonstrated by using a Clinostat.

(iii) During Mitosis what is the position of chromatids in: [2]

- Anaphase
- Metaphase

Question 5

(i) Ram's father has increased thirst and hunger with frequent urination. He also gets fatigued very often. His doctor advised him to get a blood sugar profile test done. [3]



- Name the disease based on the symptoms given above.
- Which is the hormone whose deficiency causes this disorder?
- What is the technical term for high blood sugar level?

(ii) Give any two examples of Chemotropism. [2]

(iii) Give two points of difference between Lamarck's and Darwin's theory. [2]

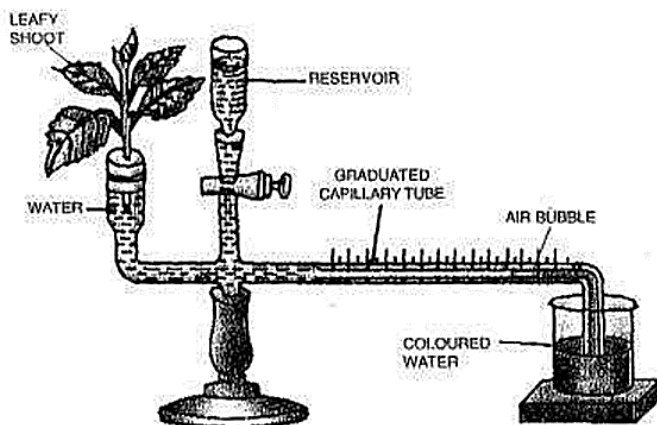
(iv) Give the exact location and function of: [2]

- PCT
- Loop of Henle

(v) Explain the term – Chiasmata. [1]

Question 6

(i) Given below is an apparatus used to study a particular process in plants. [5]
 Study the same and answer the questions that follow:



- (a) What is the use of this apparatus?
- (b) What is the role of the air bubble in the experiment?
- (c) What is the function of the part marked *reservoir*?
- (d) Mention one limitation of this apparatus.
- (e) What precaution needs to be followed to set up this apparatus?

(ii) Briefly explain the following: [3]
 (a) Plasmolysis (b) Synapse (c) Menarche

(iii) Mention the major characteristics of the Cro-Magnon stage of human evolution [2]
 with regards to:
 (a) Height and posture (b) Bipedalism

Question 7

(i) Complete the following table by filling in the numbered blanks with an appropriate [5]
 term/answer:

Gland	Hormone produced	Function
Thyroid	1	2
3	4	Dilates pupil of the eye
5	Glucagon	6
7	Oxytocin	8
9	10	Growth of Graafian follicles in females and spermatogenesis in males.

- (ii) Draw a neat and labelled diagram of the human sperm as seen under high magnification. [2]
- (iii) Mention two reasons for the increase in population in India. [2]
- (iv) Mention the significance of the Testes being located inside the scrotum. [1]
