

Biology:

General Instructions

1. Attempt all questions from Section I and any four questions from Section II.
2. 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) Name the following: [8]

- i. A pollutant which reduces the oxygen carrying capacity of blood.
- ii. The male reproductive cells of mammals.
- iii. Sheet of muscle between the thorax and abdomen of mammals.
- iv. The element required for clotting blood in man.
- v. The tube that leads from the ovary of the uterus.
- vi. Openings found on the under surface of dorsiventral leaves.
- vii. Tissue concerned with upward conduction of water in plants.
- viii. Condition of cell in which the cell contents are shrunken.

(b) Complete the following sentences (i) to (vi) given belows by filling in the appropriate word or terms from the given below:

Osmosis, Ciliary muscle, Aorta, Stapes, Alveoli, W.H. O, Malleus, Diffusion, Dorsal Aorta, Bronchioles, Iris, Red cross. [6]

- i. The part of eye responsible for change in the size of the pupil is the
- ii. The process by which molecules distribute themselves evenly within the space they occupy is termed
- iii. The ultimate end parts of the respiratory system in man are the
- iv. The organisation which provides relief to victims of any national calamity is the
- v. The blood vessel leaving the left ventricle of the mammalian heart is the
- vi. The ear ossicle in contact with the oval window of the inner ear is the

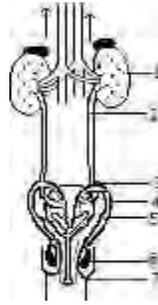
(c) (i) Mention if the following statements are true or false: [8]

- a. The pregnancy of the women can be prevented by the method of Vasectomy.
- b. Cones are the receptors cells in the retina of the eye sensitive to dim light

- c. The unit of light absorbed by the chlorophyll during photosynthesis is the proton.
- d. D.D.T is a disinfectant.
- e. Lungs of man are protected by the pericardium.
- f. The part of the ear associated with balance is the cochlea.

(ii) Rewrite the wrong statements from 1 to 6 above in the correct form by changing only the first or last word.

(d) The diagram along side represent certain organs in the abdominal region of man. [6]



- i. Label the parts numbered 1 to 7.
- ii. Name the organ systems shown in the diagram.
- iii. Name three parts other than those marked which are clearly seen in the diagram.

(e) Given alongside is the diagram of a bean root: [6]



- i. What term is given to the part marked 'X'?
- ii. What does it contain?
- iii. What significant role is played by the structure named in Q. (ii) above in the soil? Briefly discuss how the structure plays this role.
- iv. What happens to the above mentioned structure when the plants dies?

(f) Give one point of difference between any three of the following pairs on the basis of what is indicated in the brackets. [6]

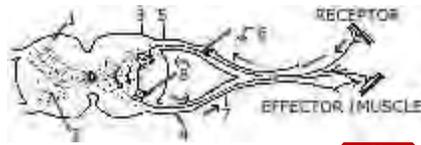
- i. Sensory and motor neuron. (function)

- ii. Blood and lymph. (composition)
- iii. Dicot and monocot stem (arrangements of vascular bundles)
- iv. Inspired and expired air (percentage of Oxygen and carbon dioxide)
- v. Ureter and Urethra (function)

SECTION II (40 Marks)
Answer any four questions from this section.

Question 2

(a) The diagram given below represents the spinal cord of mammal seen in a transverse section together with the nerves . Study the same and then answer the questions that follow: [5]



- i. Label the parts 1-8 indicated by guide-lines.
- ii. What do the arrows indicate ? What is the pathway indicated termed?
- iii. What type of nerve is shown in the diagram?

(b) Complete the following table by filling in the correct location of the following structures in the human body and mention one main function of each: [5]

Structure	Location	Function
(i) Epiglottis		
(ii) Eustachian tube		
(iii) Chordae tendinae		
(iv) Nephron		
(v) Organ of Corti		

Question 3

(a) [5]

- i. Draw a neat labeled diagram of the apparatus you would set up to show that oxygen is given out during photosynthesis.
- ii. Give the overall equation to represent the process of photosynthesis.

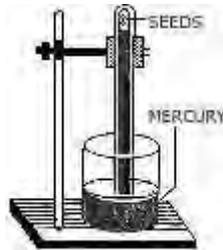
(b) Write briefly as indicated in the brackets on the following: [5]

- i. Myopia (Symptom and Cause)

- ii. Penicillin (Source and Function)
- iii. Red Blood Corpuscles (Origin and Function)
- iv. Tympanum (Location and Function)
- v. Mitochondria (Structure and Function)

Question 4

(a) The figure alongside shows an experiment performed on germinating seeds. Study the same and then answer the question that follow: [5]



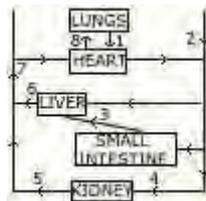
- i. What is the aim of the experiment?
- ii. Write the chemical equation for the process mentioned in Q (i) above.
- iii. Draw a neat labeled diagram of the apparatus as it would appear after 24 hours.
- iv. The soaked seeds used in the experiment their seed coats removed. Give a reason for the same.

(b) Answer briefly the following question: [5]

- i. Why are capillaries thin walled?
- ii. Mention two functions of the choroid coat in the eye.
- iii. What is meant by gestation period?
- iv. What is the effect of shivering?
- v. What is meant by photolysis of water?

Question 5

(a) Given below is the simplified pathway of the circulatory system of man: [6]



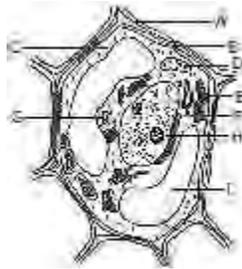
- a. Name the blood vessels marked 1 to 8.
- b. Name the chamber of the heart which:
 - 1. receives blood from '1', 2. pumps blood into blood vessel '8'.
- c. Mention two structural differences between blood vessels '7' and '2'.

(b) [4]

- i. Define transpiration.
- ii. Describe an experiment to prove that transpiration occurs more from the under surface of dorsiventral leaves.

Question 6

(a) The figure alongside is the structure of a cell: [6]



- i. Label the parts A to I as indicated by guidelines.
- ii. Is it a plant cell or an animal cell? Give one reason to support your answer.
- iii. Is the cell shown, turgid or flaccid?

(b) Give appropriate terms for the following: [4]

- i. A membrane that surrounds the foetus and secretes a protective fluid.
- ii. Protective coverings of the brain and spinal cord.
- iii. A statistical study of human population.

(iv) Substances that are applied to the surroundings where germs thrive and multiply.

(v) The inward movements of solvent molecules through the plasma membrane of a cell.

(vi) Loss of water in the form of droplets from the margin of a leaf.

(vii) Adjustment of the eyes in the order to obtain a clear vision of object at different distances.

(viii) The small amount of inhaled air in the respiratory tract that does not take part in gaseous exchange.

Question 7

Explain briefly the idea contents in any five of the following statements: [10]

- i. Oxygen given out during photosynthesis comes from water.

- ii. The need to limit the size of family is more vital today than ever before. Give two reasons.
- iii. Root hairs becomes flaccid , when fertilizer are added to the moist soil around it.
- iv. Transplanting of seedlings to a flower bed in the evening is better than doing so in the morning.
- v. In summer urine is slightly thicker than in winter.
- vi. The man can live without food for a number of days but he can not survive without Oxygen for more than a few minutes.
- vii. Environmental pollution is a recent problem . Do you agree ? Give two reasons to support your answer.

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