

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. The cavity in the body in which the human lungs are located.
- ii. The soluble protein present in blood plasma responsible for clotting.
- iii. The part of the female reproductive system where fertilization takes place.
- iv. The organisation that provides help and relief to victims of flood.
- v. The process by which leucocytes engulf and destroy bacteria.
- vi. Respiratory openings found on stems of woody plants.
- vii. The process by which intact plants lose water in the form of droplets.
- viii. Plants that prepare their own food from basic raw materials.

(b) Complete the following statements (i) to (vi) by choosing the correct alternative from those given in the brackets: [6]

- i. The protective covering of lungs is the (pericardium, pleura, diaphragm).
- ii. Bacteria found in the nodules of leguminous plants are (saprophytic, parasitic, symbiotic) in nature
- iii. The gaseous pollutant which causes acid rain is (carbon monoxide, carbon dioxide, nitrogen dioxide).
- iv. The valve present between the left atrium and the left ventricle is the (tricuspid valve, bicuspid valve, semi-lunar valve).
- v. The blood vessel supplying blood to the kidney is the (renal vein, renal artery, dorsal aorta).
- vi. Which of the following is an insecticide? (Phenol, DDT, carbolic acid)

(c) (a) State whether the following statements are True or False: [6]

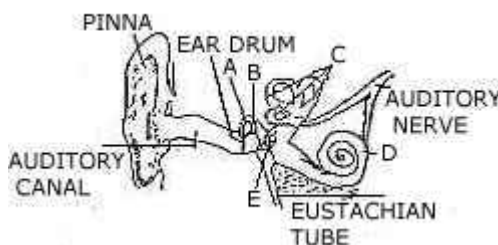
- i. Deafness is caused due to the rupturing of the pinna.
- ii. Penicillin obtained from *Penicillium notatum* is an antibody.
- iii. The percentage of oxygen in inspired air is 16.4.
- iv. Cells that have lost their water content are said to be deplasmolysed.
- v. Photosynthesis results in loss of the dry weight of the plant.
- vi. Xylem is the water conducting tissue in plants.

(b) Rewrite the false statement from 1 to 6 above in their correct form by changing the first or the last word only.

(d) Complete the following table by filling in the blank spaces numbered 1 to 6:
STRUCTURE FUNCTION [6]

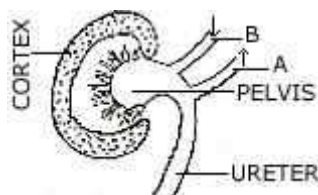
STRUCTURE	FUNCTION
Yellow spot	1
2	Filled with cell sap mostly in plants.
3	Produces male gametes in man.
Erythrocytes	4
Grana of chlorophyll	5
6	Transfers urine outside the body.

(e) Given below is the diagram of the Human Ear. Study the same and then answer the question that follow: [6]



- What role does the ear drum play in hearing?
- What common term is given to the parts labeled A, B and E?
- Would there be any difference if these three parts mentioned in (ii) above were replaced by one big one? Why?
- Give the biological term for the parts labelled C and D.
- Name the fluid which fills the parts mentioned in (iv) above.
- State the functions of the ear.

(f) Given below is a simple diagram of the human kidney cut open longitudinally. Answer the following questions: [6]



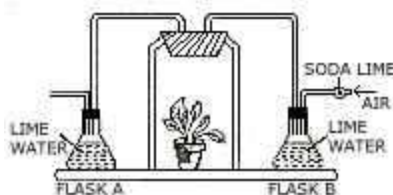
- Give the definition of excretion.
- Name the units of kidney.
- Why does the cortex of the kidney show a 'dotted' appearance?
- Mention two functions of the kidney.
- Write two differences in the composition of the blood flowing through blood vessels A and B.

SECTION II (40 marks)

Attempt any four questions in this Section.

Question 2

(a) The apparatus given below was set up to demonstrate a particular process occurring in plants. Study the same and then answer the questions that follow: [6]



- Name the process.
- What is the object of the experiment?
- Why is soda lime placed in the tube?
- What change, if any, would you observe in the lime water in Flask A and in Flask B? In each case give a reason for your answer.
- Mention one precaution that should be taken to ensure more accurate results.
- Give an overall balanced chemical equation to represent the process.

(b) Briefly describe the functions of the following: [4]

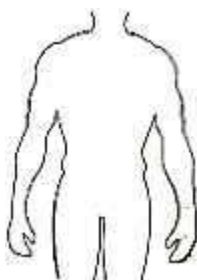
- Epiglottis
- Scrotum
- Alveoli
- Placenta

Question 3 [6]

(a) (i) Given alongside is the outline of the human body. Redraw the same and then place the following organs in their correct position.

- Thyroid glands.
- Windpipe.

- iii. Diaphragm.
- iv. Right and left lung.
- v. Right and left kidney.
- vi. Adrenal glands.



(ii) Name the hormone produced by the thyroid gland and state its function in the body.

(iii) What would a child suffer from if there was hyposecretion of this gland?

(iii) What role does the diaphragm play in inspiration of air? Explain briefly.

(b) Mention one point of difference between the following on the basis of what is given in brackets. [4]

- i. Respiration and Photosynthesis (Gas released)
- ii. Cerebrum and Cerebellum (Function)
- iii. Antibody and Antibiotic (Source)
- iv. Red blood corpuscle and White blood corpuscle (Structure)

Question 4

(a) The diagram given alongside represents an experimental set up to demonstrate a vital process. Study the same and then answer the questions that follow: [6]



- i. Name the process.
- ii. Define the above named process.
- iii. What would you observe in the experiment can be set up after an hour or so?
- iv. What control experiment can be set up for the above experiment?

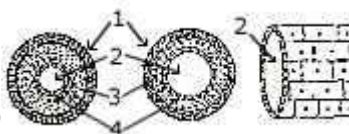
- v. Keeping in mind the root hair cell and its surrounding , name the part that corresponds to (1) Concentrated sugar solution (2)Parchment paper and (3) Water in the beaker.
- vi. Name any other substance that can be used instead of parchment paper in above experiment.
- vii. Mention two advantages of this process to the plant.

(b) [4]

1. What is meant by 'reflex action'?
2. State whether the following are simple reflexes, conditioned reflexes, or neither of the two:
 - a. Sneezing
 - b. Blushing
 - c. Contraction of pupil
 - d. Lifting up a book
 - e. Knitting without looking
 - f. Sudden application of brakes without thinking.

Question 5

(a) The figures given below are cross sections of blood vessels. [6]



- i. Identify the blood vessels A, B and C.
- ii. Name the parts labeled 1-4
- iii. Mention two structural differences between A and B.
- iv. Name the type of blood that flows (a) through A , (b) through B.
- v. In which of the above vessels referred to in (iv) above does exchange of gases actually take place?

(b) Match Column A with the most appropriate term in Column B . Rewrite the correct matching pair. [4]

Column A	Column B
1. Liquid part of blood without corpuscles.	Diffusion
2. The clear front part of the eye.	Abscess

3. Place where carbon dioxide leaves the blood.	Bronchiole
4. The liquid squeezed out of blood during clotting.	Cornea
5. The spreading of particles by mixing.	Alveolus
6. Contain pus.	Iris Plasma Serum.
7. Small air tube.	
8. The pigmented circular area seen in the eye.	

Question 6

(a) The alongside diagram represents a defect of vision of the human eye: [6]



- Name the defect.
- What is the effect of this defect on man?
- Mention two causes for this defect.
- How can this defect be rectified?
- Draw a neat labeled diagram to show that how this defect can be rectified.
- What is the nature of the image that falls on the retina of a normal eye?

(b) A candidate in order to study the importance of certain factors in photosynthesis took a potted plant and kept it in the dark for over 24 hours . Then in the early hours of the morning she covered one of the leaves with black paper in the centre only. She placed the potted plant in the sunlight for a few hours , and then tested the leaf which was covered with black paper for starch. [4]

- What aspect of photosynthesis was being investigated?
- Is there any control in this experiment? If so, state the same.
- Why was the plant kept in the dark before the experiment?
- Describe step by step how the candidate proceeded to test the leaf for the presence of starch.

Question 7

(a) Give suitable explanations for any three of the following: [[6]

- Grapes shrink when immersed in a very strong sugar solution.

- ii. Breathing through the nose is said to be healthier than breathing through the mouth.
- iii. A higher rate of transpiration is recorded on a windy day rather than on a calm day.
- iv. Leguminous crops act as natural fertilizers.

(b) Define the following terms: [4]

- i. Hormone
- ii. Ultrafiltration
- iii. Antiseptic
- iv. Transpiration.

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