

GOKULDHAM HIGH SCHOOL & JR. COLLEGE
SECOND PRELIMINARY EXAMINATION [2015-16]

STD : X
DATE : 13.01.2016

MAX. MARKS : 80
TIME : 2 Hours

BIOLOGY

SCIENCE Paper – 3

(Two hours)

Answers to this Paper must be written on 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.

Attempt all questions from Section I and any four questions from Section II.

The intended marks for questions or parts of questions are given in brackets [].

SECTION I (40 Marks)

Attempt all questions from this Section

Question I

(a) Name the following :

- (i) The part of the chloroplast where the light reaction of photosynthesis takes place.
 - (ii) Blood plasma devoid of protein fibrinogen.
 - (iii) Alternative form of a gene on a pair of homologous chromosome.
 - (iv) Outermost tough fibrous membrane of the meninges.
 - (v) Movement of leucocytes out of capillary walls at the site of injury. [5]
-

This paper consist of 11 printed pages.

(b) Choose the correct answer from the four options given below :

(i) The space between the cell wall and the plasma membrane in a plasmolysed cell is filled with

- A. Hypotonic solution
- B. Hypertonic solution
- C. Isotonic solution
- D. Water

(ii) Synthesis Phase in the cell cycle is called so, for the synthesis of :

- A. RNA
- B. RNA and Protein
- C. DNA
- D. Glucose

(iii) After mitotic cell division, a female human cell will have :

- A. 44 + xx chromosomes
- B. 44 + xy chromosomes
- C. 22 + x chromosomes
- D. 22 + y chromosomes

(iv) The antibiotic penicillin is obtained from :

- A. Protozoa
- B. Bacteria
- C. Virus
- D. Fungus

(v) The cell component visible only during cell division :

A. Mitochondria

B. Chloroplast

C. Chromosome

D. Chromatin

[5]

(c) Given below are sets of five terms each. In each case rewrite the terms in logical sequence as directed at the end of each statement :

(i) Cortical cells, Root hair, xylem, soil water, Endodermis (absorption of water by the plants)

(ii) ⁽¹⁾Oval window, ⁽²⁾Tympanum, ⁽³⁾Cochlea, ⁽⁴⁾Auditory canal, ⁽⁵⁾Ear ossicles (path through which a vibration of sound is transferred in the human ear)

(iii) Implantation, Parturition, Ovulation, Gestation, Fertilization (stages leading to formation of foetus and birth)

(iv) Cyton, Axon, Dendrites, Synaptic cleft, Axon endings (path of impulse in neuron)

(v) Fibrin, clot, Thromboplastin, Thrombin, Injured cells (blood clotting). [5]

(d) Given below is an example of a certain structure and its special functional activity. On a similar pattern fill in the blanks with suitable functions :

Example : Ribosomes and Protein Synthesis

(i) Cochlea and _____

(ii) Hydathodes and _____

(iii) Neutrophils and _____

(iv) Prostate gland and _____

(v) Glomerulus and _____

[5]

(e) Briefly explain the following terms :

- (i) Antiseptic
- (ii) Pollution
- (iii) Natality
- (iv) Root pressure
- (v) Synapse

[5]

(f) Rewrite and complete the following sentences by inserting the correct word in the space indicated :

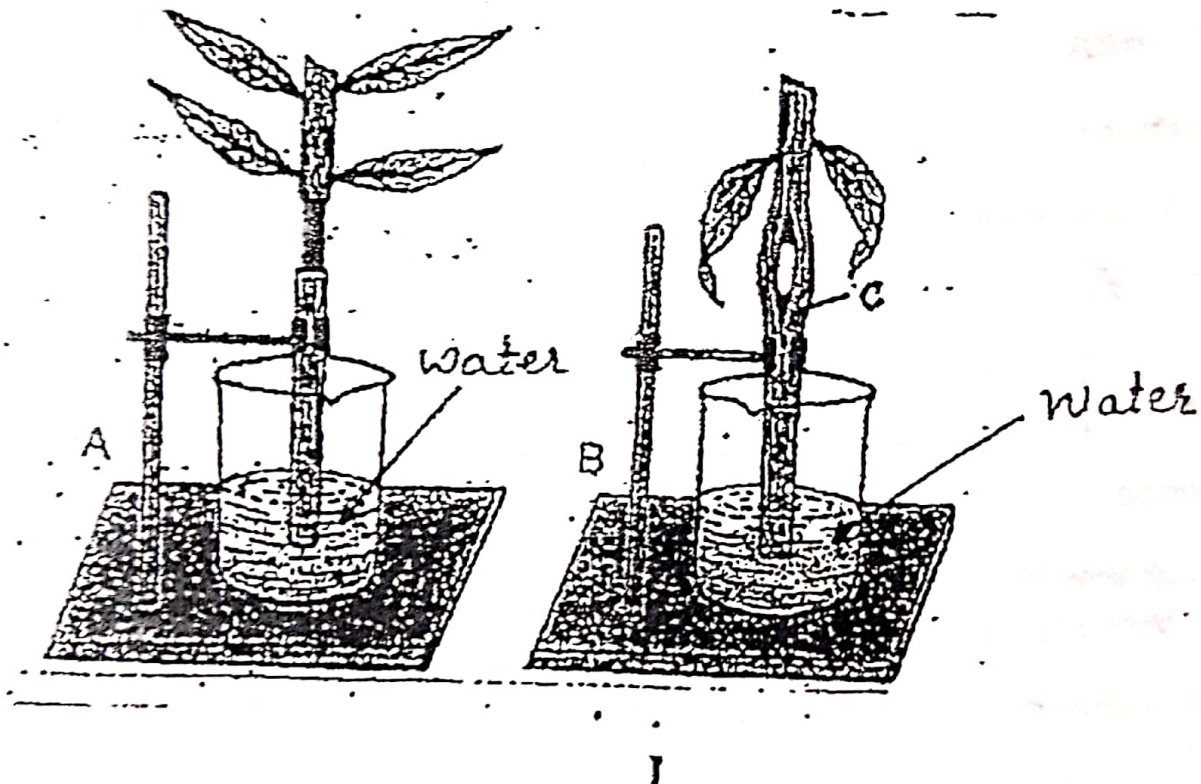
- (i) The phenomenon of loss of water through a cut stem or injured part of plant is called _____.
- (ii) _____ is the scientific name of garden pea, which Mendel used for his experiments.
- (iii) The cord connecting foetus with the placenta is called _____.
- (iv) The chemical substance used to test the presence of starch in the cell of a leaf is _____.
- (v) _____ causes corrosion of the marble or brick surface. [5]

(g) State the exact location of the following structures :

- (i) Loop of Henle
- (ii) Mitral valve
- (iii) Lacrymal glands
- (iv) Organ of corti
- (v) Acrosome

[5]

(h) Given below is the result of an experiment on a physiological process in plants.



- (i) What is the aim of the experiment?
- (ii) Name the part labelled 'C' in the set up B.
- (iii) What is the function of conducting tissue labelled 'C'?
- (iv) Write your observation.
- (v) Define: Active transport

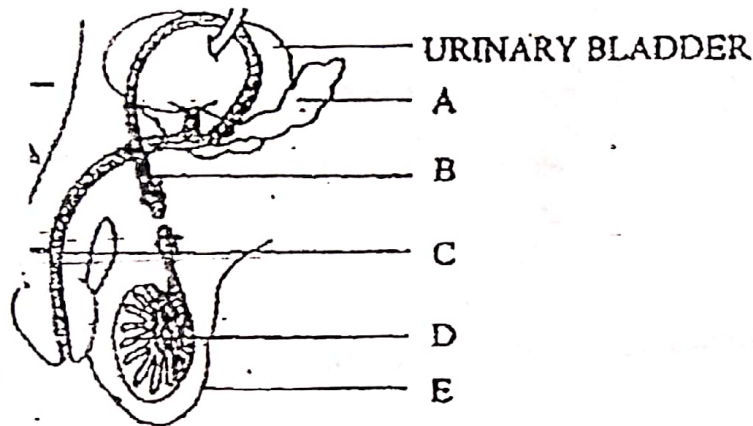
[5]

SECTION II [40 Marks]

Attempt any four questions from this section. .

Question 2

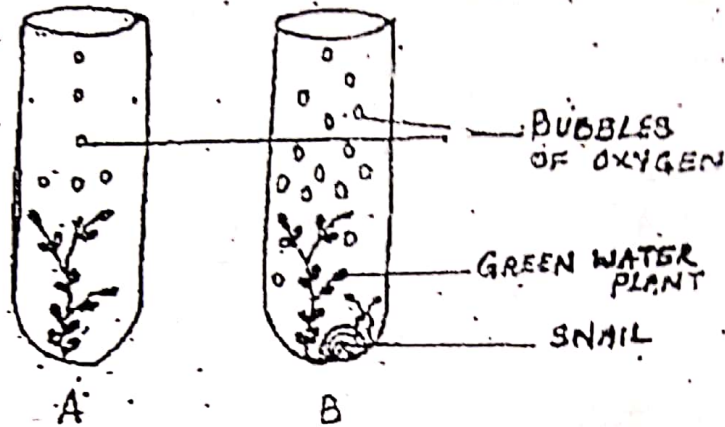
- (a) The diagram below represents a surgical sterilization method in males. Study the same and answer the questions that follow:



- (i) Name the parts marked A, B, C, D and E.
- (ii) Give the name of the surgical method represented in the diagram.
- (iii) Which part is ligated or cut ?
- (iv) Name the corresponding surgical method conducted in females.
- (v) Name the part which is ligated in females and why ? [5]
- (b) Give scientific reasons for the following statements :
- (i) Injury to medulla oblongata results in death.
- (ii) A person from bright sunlight outside enters a poorly lit room and feels blinded for a short while.
- (iii) Excessive uric acid can cause gout.
- (iv) Foetal blood and maternal blood are not in direct contact in the placenta.
- (v) Green leaves are thin and broad. [5]

Question 3

- (a) The diagram below shows two test tubes A and B. Test tube A contains a green water plant. Test tube B contains both a green water plant and a snail. Both test tubes are kept in sunlight. Answer the questions that follow :



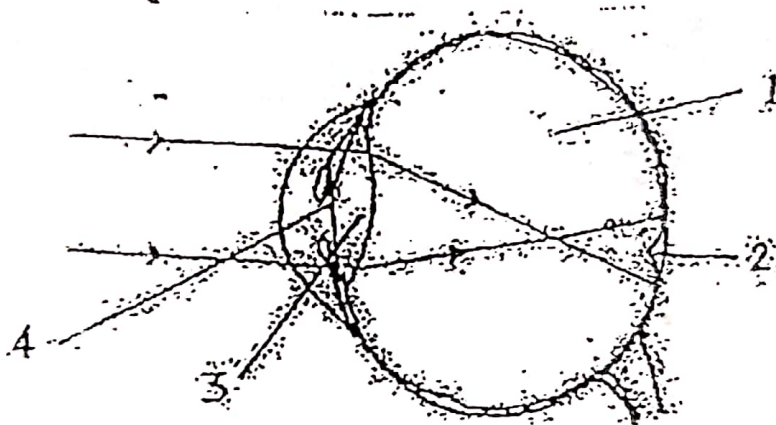
- (i) Name the physiological process that releases the bubbles of oxygen.
- (ii) Explain the physiological process mentioned above.
- (iii) What is the purpose of keeping a snail in test tube 'B'?
- (iv) Why does test tube 'B' have more bubbles of oxygen ?
- (v) Give an example of a water plant that can be used in the above experiment.
- (vi) Write the overall chemical equation for the above process. [5]

- (b) Complete the following table by filling in the blanks from 1 to 10 with appropriate terms :

Sr.No.	Gland	Secretion	Function / Effect on body
1.	Thyroid	1	2
2.	3	Vasopressin	4
3.	5	6	Promotes glucose utilization by the body cells.
4.	7	Growth hormone	8
5.	Adrenal medulla	9	10

Question 4

- (a) Given below is a diagram depicting a defect of the human eye. Study the same and then answer the questions that follow :



- (i) Name the defect shown in the diagram.
- (ii) Name two possible reasons for this defect of the eye in human beings.
- (iii) Name the parts labelled 1 to 4.
- (iv) Draw a labelled diagram to show how the above mentioned defect is rectified using an appropriate lens. [5]

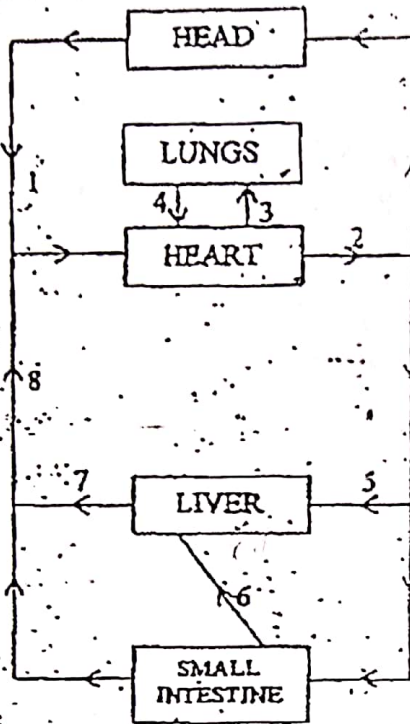
- (b) The following are the genotypes of parents where one of them is haemophiliac. Study the genotype and answer the following questions :

Genotype of parents : $X^h Y$ and $X X^h$.

- (i) Write the phenotypes of father and mother represented in the cross.
- (ii) With the help of punnett square find the genotypes and phenotypes of offsprings born to these parents.
- (iii) What is sex linked inheritance ? What type of inheritance is shown in the above cross ? [5]

Question 5

- (a) The diagram below represents the simplified pathway of the circulation of blood. Study the same and answer the questions that follow:



- (i) Name the blood vessels labelled 1 to 8.
- (ii) Which blood vessel will contain a high amount of glucose and amino acids after a meal?
- (iii) Several hours after a meal containing a lot of protein, which vessel will contain the highest concentration of urea? [5]

- (b) (i) During a street fight between two individuals, mention the effects on the following organs by the autonomous nervous system, in the table given below:

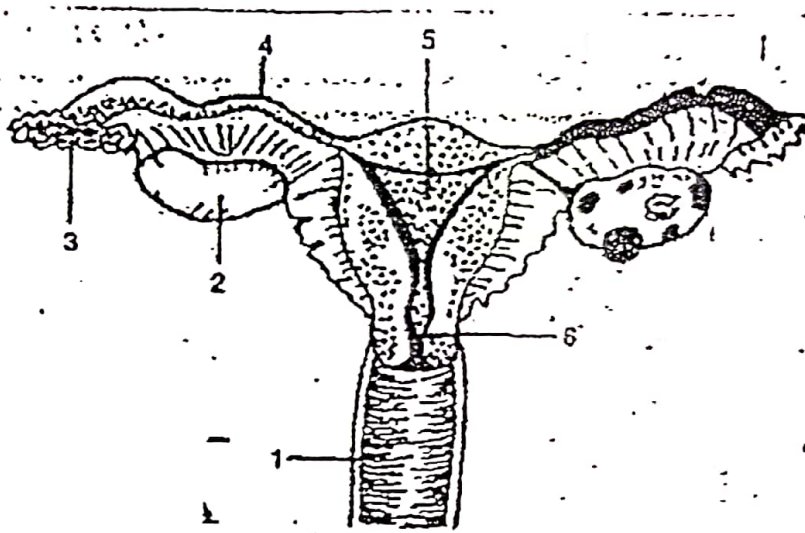
Organ	Sympathetic System	Parasympathetic System
Heart	1	2
Pupil of eye	3	4
Salivary gland	5	6

- (ii) List four major activities of the Red Cross. [5]

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Question 6

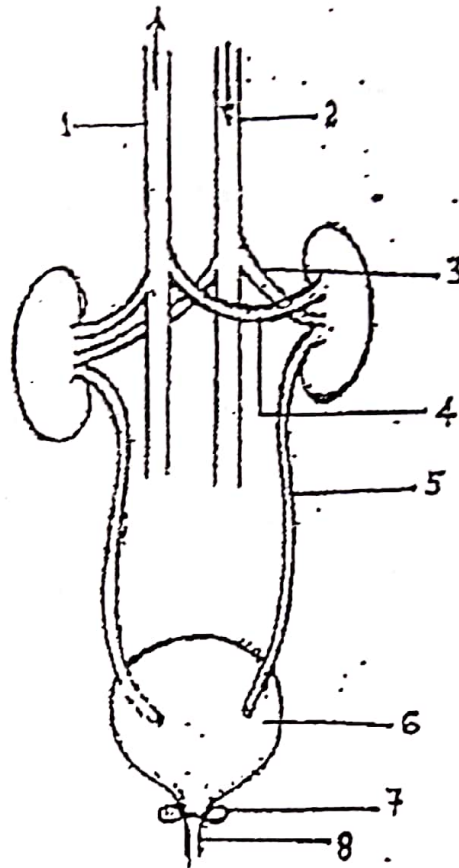
- (a) Given below is a diagram of the female reproductive system of a human being.



- (i) Name the parts labelled 1 to 6.
- (ii) Where are the sperms released during coitus ?
- (iii) Where does fertilization occur ?
- (iv) What is the function of the organ labelled 5 ?
- (v) How many days do it normally take from the fertilization of the egg up to the birth of the baby ? [5]
- (b) (i) Draw a neat labelled diagram of the stomatal apparatus found in the epidermis of leaves.
- (ii) Write any two major reasons for the population explosion in India.
- (iii) State any two harmful effects of noise pollution on human health. [5]

Question 7

- (a) The diagram below shows the excretory system of a Human being. Study the same and answer the questions that follow :



- (i) Name the parts labelled 1,2,3 and 4.
- (ii) Give the main functions of the parts labelled 5,6,7 and 8.
- (iii) Name the endocrine gland which could be added in the diagram and state its location / position. [5]
- (b) (i) Draw a neat labelled diagram to show the anaphase stage of mitosis in a plant cell having four chromosomes.
- (ii) Write any two merits of the local defence-system.
- (iii) Write any two uses of antibiotics. [5]
