

Half Yearly Examination 2017-2018

Std. : X
Subject : Biology

Full Marks : 80
Time : 2 Hrs.+15mins.

Section A [40 marks] (Attempt all the questions from this section)

- Q1. (a) Name the following :— [5]
- (i) The protective membranes around the brain.
 - (ii) The number of chromosomes present in the human gametes.
 - (iii) The paper which is used to show loss of water through stoma of leaf.
 - (iv) The foreign body that induces the formation of antibodies in the body.
 - (v) A non-biodegradable pesticide.
- (b) Choose the correct answers from each of the four options given below :— [5]
- (i) The prime source of chlorofluorocarbons is
 - A) Vehicular emissions.
 - B) Industrial effluents.
 - C) Domestic Sewage.
 - D) Refrigeration Equipments.
 - (ii) Marine fish when placed in tap water burst because of
 - A) Endosmosis.
 - B) Diffusion
 - C) Exosomosis
 - D) Plasmolysis.
 - (iii) Synthesis phase in the cell cycle is called so, because of the synthesis of more.
 - A) DNA
 - B) RNA and proteins
 - C) RNA
 - D) Glucose
 - (iv) Which of the following is a viral disease ?
 - A) Malaria
 - B) Poliomyelitis
 - C) Cholera
 - D) Tuberculosis
 - (v) The individual flattened stacks of membranous structure inside the chloroplast are known as :—
 - A) Grana
 - B) Stroma
 - C) Thylakoids
 - D) Cristae
- C) Match the following and rewrite in correct pairs only :— [5]
- | A | B |
|--------------------|--|
| i) Census | A) Low rate of transpiration |
| ii) Guttation | B) Xylem |
| iii) Prophase | C) Hydathodes |
| iv) Cacti | D) Counting of population |
| v) DNA duplication | E) Chromosomes, becomes visible as fine, long threads. |
| | F) Synthesis phase. |
| | G) High rate of transpiration. |

- (d) Mention the exact location of the following structures/pigment. [5]
- (i) chlorophyll. (ii) Hepatic portal vein.
 (iii) lenticles. (iv) corpus callosum.
 (v) Bisuspid valve.
- (e) Differentiate between the following pairs on the basis of what is mentioned within brackets. [5]
- i) Spinal and cranial nerves. (number of nerves)
 ii) Red Cross and WHO (one activity).
 iii) LUBB and DUP (names of valves whose closure produce the sound)
 iv) Transpiration and Guttation (state of water)
 v) Light Reaction and Dark Reaction (site of occurrence)
- f) Fill in the blanks : [5]
- i) Raisin swell up when kept in a _____ solution.
 ii) _____ is the father of genetics.
 iii) The sign of family planning in India is _____.
 iv) Dettol is an _____.
 v) The _____ is the layer of the atmosphere that contains the protective ozone layer.
- (g) Draw a neat diagram of the stomatal apparatus found in the epidermis of leaves and label stoma, guard cell chloroplast, epidermal cells, cell wall and nucleus. [5]
- (h) State true or false, if false then Correct the false statements by changing the underlined word of words only. [5]
- i) Dark reaction is independent of light.
 ii) Root hairs are thin, delicate, unicellular prolongations.
 iii) Benzene, chloroform and vinyl chloride are so called inorganic pollutants.
 iv) Penicillin obtained from Penicillium notatum is an antibody.
 v) DPT is a vaccine for diphtheria, whooping cough and typhoid.

Section (B)

(Answer any 4 questions ONLY)

- Q2. a) A homozygous tall plant (T) bearing red coloured (R) flowers is crossed with a homozygous dwarf (t) plant bearing white (r) flowers. [5]
- i) Give the genotype and phenotype of the plants of F₁-generation.
 ii) Mention the possible combinations of the gametes that can be obtained from the F₁ hybrid plant.

- iii) State the law of Independent Assortment.
 - iv) What is the phenotypic ratio in F₂ generation.
- b) Given below is an apparatus used to study a particular process in plants. Study the same and answer the questions that follow :— [5]

- i) Name the apparatus ?
- ii) Mention one limitation of this apparatus.
- iii) Which phenomenon is studied with the help of this apparatus ?
- iv) What is the function of the part marked 'reservoir' ?
- v) What is the role of air bubble in the experiment ?

Q3. a) The given diagram represents the human brain as seen in an external view. Study the same and answer the questions that follows. [5]

- i) Name the parts labelled A,B,C and D.
- ii) Mention the difference in the arrangement of the nerve cells in the parts marked 'A' and 'D'.
- iii) What is the main function of the parts marked 'C' and 'D' ?
- iv) Name the sheet of nerve fibres that connects the two halves of the part labelled 'A'.

b) The given diagram represents an experiment conducted to prove the importance of a factor in photosynthesis : [5]

- i) Name the factor being studied in this experiment.
- ii) Why was the plant kept in the dark room before conducting the experiment ?
- iii) Why was the experimental leaf then kept in —
(1) Boiling water (2) Methylated spirit ?
- iv) Name the solution used to test for the presence of starch in the leaf.

- v) What will be observe in the experimental leaf at the end of the starch test ?
- Q4. a) i) List two effects of acid rain. [2]
ii) Which factors governs the growth of population. [1½]
iii) What is meant by reflex action. [1]
iv) What does NADP stand for ? [½]
- b) The figures given is a diagrammatic representation of a part of the cross section of the root in the root hair zone study the same and answer the questions that follows :— [5]

- i) Name the part indicated by guidelines '1' to '5'.
ii) Is the root hair cell unicellular or multicellular ?
iii) Name the process responsible for the entry of water molecules from the soil into A_1 to than A_2 .
iv) What pressure is responsible for the movement of water in the direction indicated by arrows ?
v) How is the pressure set up.

- Q5. a) Give reasons :— [5]
i) Use of pressure horns is prohibited in certain places.
ii) Veins have valves at intervals in their inner lining but arteries do not have valves.
iii) Photosynthesis is considered as a process supporting all life on earth.
iv) Balsam plant withers during midday even if the soil is well water.
v) Mitosis is called as an equational division
- b) The diagram given below represents the human heart in one phase of its functional activity. Study the same and answer the questions that follows : [5]
i) Name the phase.
ii) Label the parts 1, 2 & 3.
iii) Which part of the heart is contracting in this phase. Give a reason to support your answer.

iv) State the function of heart as an entire organ.

Q6. a) The following diagram shows an experimental set up to demonstrate a physiological process going on in plants. Observe and answer the following questions. [5]

i) Which physiological process has been shown in the above set up.

ii) Name the tissue responsible for the upward movement of water and mineral salts.

iii) Explain the reason for the observation made.

iv) Name the tissue which transports manufactured food from leaves to other parts of the plants.

b) A woman with normal (carrier) vision marries a man with normal vision. They have a colour blind son. Her husband dies and she marries a colour blind man. Show the type of children that might be expected from this marriage and proportion of each. [5]