

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]
- The protective membranes around the brain.
 - The number of chromosomes present in the human gametes.
 - The paper which is used to show loss of water through stoma of leaf.
 - The foreign body that induces the formation of antibodies in the body.
 - A non-biodegradable pesticide.
- (b) Choose the correct answers from each of the four options given below :— [5]
- The prime source of chlorofluorocarbons is
 - Vehicular emissions.
 - Industrial effluents.
 - Domestic Sewage.
 - Refrigeration Equipments.
 - Marine fish when placed in tap water burst because of
 - Endosmosis.
 - Diffusion
 - Exosomosis
 - Plasmolysis.
 - Synthesis phase in the cell cycle is called so, because of the synthesis of more.
 - DNA
 - RNA and proteins
 - RNA
 - Glucose
 - Which of the following is a viral disease ?
 - Malaria
 - Poliomyelitis
 - Cholera
 - Tuberculosis
 - The individual flattened stacks of membranous structure inside the chloroplast are known as :—
 - Grana
 - Stroma
 - Thylakoids
 - 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 of 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 red 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]