LORETO HOUSE

HALF YEARLY ASSESSMENT 2021-2022

CLASS X **BIOLOGY** **FULL MARKS: 30**

SECTION 1 (10 MARKS)

1) Name the following questions by choosing the correct options: (1X5)

i) When an RBC is kept in a hypotonic solution, the process that is observed is:

a) No osmosis b) Exosmosis c) Endosmosis d) None of the above

ii) The process of transpiration in a leaf involves the following phenomena:

a) Imbibition b) Diffusion c) Osmosis d) All of the above.

iii) The rungs of a "DNA ladder" is made of:

a) Ribose sugar b) Nucleosomes c) Hydrogen bonds d) Nitrogenous bases

iv) The biosynthetic phase of photosynthesis takes place in:

a) Stroma ii) Stoma iii) Grana iv) Thylakoid

v) In a cross section of the root, the tissue that lies between the epidermis and endodermis is the:

a) Pericycle b) Xylem c) Cortex d) Pith

2)Complete the following statements by choosing the appropriate option for each blank: **(1X5)**

i) _____ cells once formed in the embryo do not divide, neither are they replaced once dead.

a)skin b) liver c) germinal d)nerve

ii) The bending movement of certain flowers towards the sun is due to _____

a) Hydrostatic pressure b) Osmotic pressure c) Root pressure d) Turgor pressure

iii) The H^+ ion acceptor in photosynthesis is _____

a) ATP b) Water c) Oxygen d) NADP

iv) The number of different types of chlorophyll molecule are _____:

a) 9 b) 10 c) 2 d) 5

v) Crossing over in Meiosis involves exchange of genetic material between _____

a) non-sister chromatids b) maternal chromosomes
c) sister chromosomes d) sister chromatids

SECTION 2 (10 MARKS)

3) State the function of the following: (1X3)

i) Palisade cells

a) Helps in transpiration b) Performs photosynthesis

c) Helps in guttation d) Helps in respiration

ii) Spindle fibres:

a) Form the nucleolous b) Pulls the sister chromatids apart

c) Helps in the formation of cell plate d) Helps in the doubling of DNA

iii) Photon:

a) Causes polymerization of glucose b) Helps in fixation of carbon dioxide

c) Helps in destarching the leaves of plant d) Activates the chlorophyll molecule

4) State the exact location of the following: (1X5)

i) Pulvinus:

a) Base of stem of sensitive plant b) Base of petiole of sensitive plant

c) Base of pedicel of sensitive plant d)Base of adventitious buds of sensitive plant

ii) Stoma:

a) Ground substance in chloroplast b) In between palisade and spongy cells

c) Epidermis of leaves d) Leaf margins

iii) Cell plate:

a) Between two poles of a dividing cell b) Near the cell membrane

c) Between two daughter cells in animal d) In the cytoplasm separating the two newly formed cells in plant

iv) Astral rays:

a) Surrounding the centromere in dividing cells

b) Surrounding the centriole in dividing cells

c) Along the equatorial plate during metaphase

d) Inside the chromosomes associated with the DNA

v) Hydathode:

a) Margin of leaves b) End of stems

c) Older barks and trees d) Epiblema of roots

5) Explain the following terms: **(1X2)**

i) Photophosphorylation:

a) Addition of phosphate molecule to glucose molecule in presence of light

b) Addition of phosphate molecule to ADP in presence of light

c) Addition of phosphate molecule to a nucleotide in presence of light

d) Breaking of phosphate bonds with the help of light

ii) Destarching :

a) Removal of starch from leaves by keeping a plant in darkness

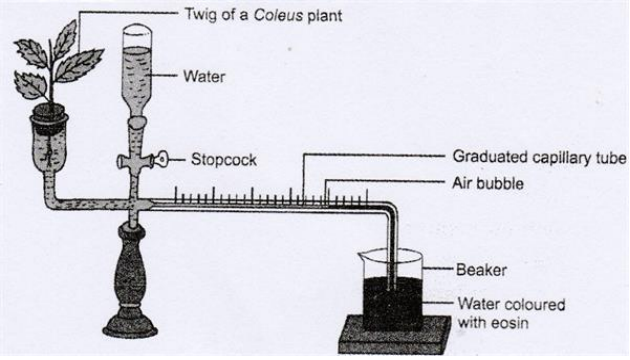
b) Removing starch from leaf by addition of iodine

c) Removal of starch from a plant

d) Removal of glucose by converting into starch in leaves

SECTION 3 (10 MARKS)

6) Given below is a diagram of the Ganong's potometer kept in sunlight after being set up as shown. Answer the following with reference to this apparatus: (5)



a) An air bubble is introduced into the apparatus by:

i) bending the capillary tube into the beaker ii) opening the stop cock

iii) lifting the capillary tube above the coloured water iv) pouring water into the reservoir.

b) The force responsible for movement of the bubble is:

i) turgor pressure ii) cohesion iii) suction force iv) root pressure

c) The readings on the capillary tube indicates:

i) amount of water lost ii) volume of water lost in a given time iii) transpired water iv) volume of water absorbed

d) The twig used should be cut under water to:

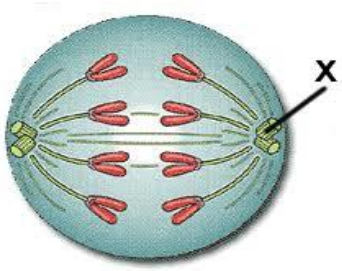
i) ensure water in pulled up efficiently ii) to ensure that the twig remains alive

iii) to ensure no air bubble enters the twig iv) All the above reasons.

e) The Coleus twig is replaced with a Nerium twig and the apparatus is kept in sunlight. The position of the air bubble will now:

i) move faster towards the twig ii) remain in the same position iii) move very slowly iv) None of the above.

7) The diagram given below depicts a stage in Mitosis. (5)



i) Name the stage:

a) Telophase b) Prophase c) Anaphase d) Metaphase.

ii) 'X' represents:

a) Chromatid b) centromere c) centriole d) spindle fibre

iii) The daughter cells resulting from this division will have ____ chromosomes:

a) 2 b) 4 c) 8 d) 16.

iv) The stage that precedes the one shown above is characterized by:

a) no nuclear membrane b) presence of spindle fibres c) chromosomes aligned along the equatorial plane d) all of the above

v) The cell in the diagram belongs to

a) Plant cell b) Animal cell

c) Can be plant or animal cell d) Cell of pollen grain