Zagdu Singh Charitable Trust's (Regd.)
THAKUR PUBLIC SCHOOL
(Affiliated to the Council for the Indian School Certificate Examinations, New Delhi)
ISO 9001 : 2015 CERTIFIED
Near Thakur College Ground, Thakur Village, Western Express Highway,
Kandivali (E), Mumbai - 400 101. | Tel.: 022-66997711 / 66997722 | Telefax : 022-66997733
E-mail : tps@thakureducation.org | Website : www.thakureducation.org | www.tpsmumbai.in

FIRST TERM EXAMINATION: 2020– 2021

Paper: Biology

Std. : 10 Marks: 80

Date: 20/10/2020 Time: 2Hours

Answers to this paper must be written on the paper 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 A** and any **four** from **Section B.***
The intended marks for questions or parts of a question are given in the brackets [ ]

Section A [40 Marks]

(Attempt **all** questions from this Section.)

Question 1

(a) Name the following: - [5]

(i) Organelle which initiates the cell division in an animal cell.
(ii) Process in which several glucose molecules are transformed to produce 1 molecule of starch.
(iii) An instrument used to find the rate of transpiration.
(iv) The outer dark part of the kidney containing the Bowman's capsule.
(v) Process of loss of water from injured parts of plants.

(b) Choose the correct answer from the 4 options given below. [5]

(i) Marine fish when thrown under tap water bursts because of _____.
(a) Endosmosis b) Exosmosis
c) Diffusion d) Plasmolysis

(ii) The blood vessel which supplies blood to the walls of the heart_____.
(a) Pulmonary artery b) Carotid artery
c) Pulmonary vein d) Coronary artery

(iii) The chief function of the lymph nodes in mammals is to _____
a) destroy old R.B.C b) produce hormones
c) destroy pathogens d) produce W.B.C

(iv) Maximum amount of water from the glomerular filtrate is reabsorbed in _____.
(a) Proximal convoluted tubule b) Distal convoluted tubule
c) Descending limb of Henle's loop d) Ascending limb of Henle's loop

(v) Water will move into a cell in a/an _____ solution.
a) Hypertonic b) Hypotonic
c) Isotonic d) Gravy

(c) State the location of the following- [5]

(i) Loop of Henle (ii) Sino atrial node (iii) Chromatin fibres
(iv) Hydathodes (v) Bicuspid valve

(d) Give the full forms of the following: [5]

(i) AVN (ii) NADP (iii) ATP (iv) WBC (v) ADH

(e) Identify the ODD term in each set and name the CATEGORY to which the remaining 3 belong: - [5]

Example: Calyx, Corolla, Stamen, Midrib

Odd term: Midrib

Category: parts of a flower

(i) Basophils, Neutrophils, Monocytes, Eosinophils.
(ii) Bile, Urea, Uric acid, Ammonia
(iii) Phosphate, RNA, Sugar, Nitrogenous base.
(iv) Plastids, Centrosome, Cell membrane, Nucleus.
(v) Capillarity, Photosynthesis, Root pressure, Transpiration pull.

(f) The statements given below are incorrect. Rewrite the correct form of the statement by changing the underlined words. [5]

(i) The hydrogen ions are used in converting ADP into ATP.
(ii) Root hair are extensions of mesophyll cells.
(iii) Nephrons are the basic units of the kidney.
(iv) The chemical substance used to test the presence of starch in the cell of a leaf is Benedict's solution.
(v) Stomata is a waxy layer secreted by the epidermis on the 2 surfaces of the leaf.

(g) Given below are five groups of five terms each, arrange and rewrite the terms in each group in the correct order so as to be in a logical sequence: [5]

(i) Karyokinesis, S-phase, Cytokinesis, G_1-phase, G_2-phase.
(ii) Fibrin, Platelets, Thromboplastin, Fibrinogen, Thrombin.
(iii) Xylem, Root hair, Veins, Leaf, Hydathodes.
(iv) Renal artery, Urethra, Ureter, Kidney, Urinary bladder.
(v) Nuclear membrane, Cell wall, Cytoplasm, Nucleolus, Cell membrane.

(h) Complete the analogy: [5]

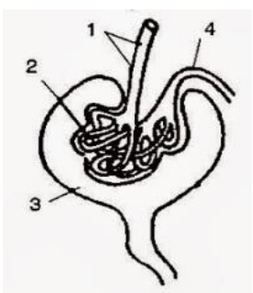
(i) Adenine: Thymine :: Cytosine: _____
(ii) Animal cell: Golgi apparatus :: Plant cell: _____
(iii) Light reaction: Thylakoids :: Dark reaction: _____
(iv) Blood passes with Urine: Haematuria :: Glucose passes with Urine : _____
(v) R.B.C: Erythrocytes :: W.B.C: _____

Section B [40 Marks]

(Attempt any **four** questions from this Section)

Question 2

(a) Given below is the diagram of a part of the basic unit of kidney. Study the same & answer the questions that follow: [5]



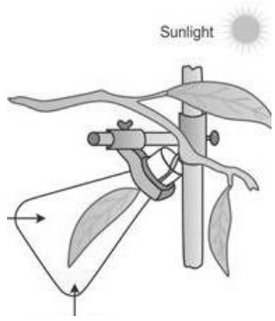
(i) Name the parts labelled numbered 1-4.
(ii) State the structural difference between part 1 & part 4.
(iii) Which stage of urine formation takes place in part 2?
(iv) Name any 2 constituents of the fluid that flows down the part labelled '3'.

(b) Draw a neat labelled diagram of a chloroplast & label its parts. [3]

(c) Give 1 characteristics & 1 function of the given cell organelle: Mitochondria [2]

Question 3

(a) Given below is the diagram of an experimental set-up. [5]
Study the diagram & answer the questions that follow:



(i) What is the objective of this experiment?

(ii) How is a plant leaf destarched?

(iii) Name the chemical present in the flask & its role in the experiment.

(iv) What is observed when the leaf is tested for starch?

(v) Write a balanced chemical equation to represent the process of photosynthesis.

(b) Differentiate between the following (on the basis of points given in the brackets) [5]

(i) Turgidity & Flaccidity (Definition)
(ii) Plant cell & Animal cell (size)
(iii) Neutrophils & Basophils (function)
(iv) Light reaction & Dark reaction (products formed)
(v) Mitosis & Meiosis (number of nuclear divisions)

Question 4

(a) The following diagram demonstrates a physiological process taking place in plants.
Study the diagram & answer the question that follow: [5]

(i) Name the physiological process shown above.

(ii) Explain the physiological process mentioned above in (i).

(iii) What change is observed in the paper present by the side of the plant?

(iv) Suggest a suitable control for this experiment.

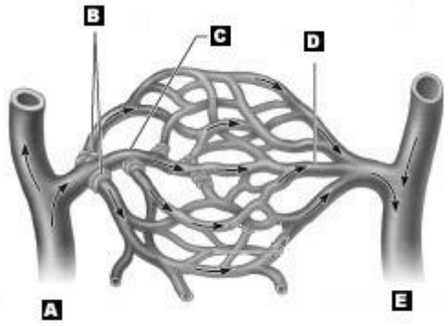
(v) List one adaptation in plants to reduce the above-mentioned process.

(b) Give Technical/ Biological terms for the following: - [5]

(i) Permanently open structure seen on bark of an old woody stem.
(ii) Phase of mitosis in which duplicate chromosomes arrange on the equatorial plane.
(iii) Valve located at the opening of right ventricle into the pulmonary artery.
(iv) Proteins that help in coiling & packaging of DNA into structural units.
(v) Specific parts of a chromosome, which determine the hereditary characteristics.
(vi) Phenomenon by which the living or dead plants cells absorb water by surface attraction.
(vii) The product which is excreted by the liver.
(viii) Branches of fibres running along the wall of the ventricle present in Bundle of HIS.
(ix) Point at which 2 sister chromatids are held together.
(x) Joint inflammation caused due to deposition of uric acid crystal in joint spaces.

Question 5

(a) The following diagram refers to certain types of blood vessels in human body. Study the diagram & answer the following questions: [5]

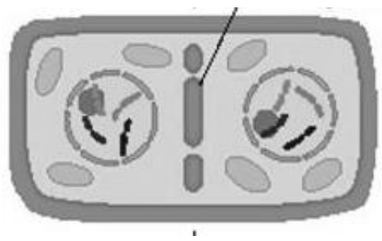


(i) Label the parts A, C, D, E.
(ii) What is the difference between part 'A' and 'E?
(iii) Explain the following terms: i) Blood pressure ii) Hypertension

(b) Explain the following terms: [5]
(i) Active transport (ii) Plasmolysis (iii) Photolysis (iv) Micturition (v) Pulse

Question 6

(a) The given diagram shows a stage during mitotic cell division. [5]
Study the diagram & answer the following questions.



(i) Identify the stage by giving a suitable reason.
(ii) Is it a plant cell or an animal cell? Give a reason to support your answer.
(iii) Draw a neat labelled diagram of the cell as it would appear in the next stage. Also name the stage.
(iv) How is mitotic division in an animal cell different from mitotic division in a plant cell? (any 1 point)

(b) Give scientific reasons for the following statements: [5]
(i) Erythrocytes are biconcave discs & lack mitochondria
(ii) Potato cubes when placed in water become firm & increase in size.
(iii) There is frequent urination in winter than in summer.
(iv) Balsam plants wilt during mid-day even if the soil is well watered.
(v) The walls of left ventricle are thicker than the walls of all other chambers.

Question 7

(a) Answer the following questions:
(i) How is the following part / condition useful to plants (write only 1 point) [2]
1) Root Hair 2) Turgidity
(ii) Name 1 Internal & 1 External factor that affect the rate of the following processes: [2]
1) Transpiration 2) Photosynthesis
(iii) What is Blood Transfusion? [1]

(b) State the functions of the following: [5]
(i) Spleen (ii) Lysosomes (iii) Stomata (iv) Lymph (v) Blood