

MARTHOMA RESIDENTIAL SCHOOL, THIRUVALLA
SECOND TERM EXAMINATION 2019-20
BIOLOGY

SCIENCE Paper -- 3
STD X

(Two hours)

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 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. Define the following. [5]
- (1) Photolysis
 - (2) Death rate
 - (3) Diapendesis
 - (4) Crossing over
 - (5) Homeostasis
- b. Give the exact location and function of each of the following. [5]
- (1) Acrosome
 - (2) Amnion
 - (3) Seminal vesicle
 - (4) Mitral valve
 - (5) Incus
- c. Given below are five sets of four terms each. In each set a term is odd one and cannot be grouped in the same category to which the other three belong. Identify the odd one in each set and name the category to which the remaining belongs. [5]
- (1) Sneezing, coughing, blinking, typing
 - (2) Haemophilia, colour blindness, albinism, night blindness
 - (3) Lumen, muscular tissue, connective tissue, pericardium
 - (4) Cretinism, myxoedema, simple goitre, acromegaly
 - (5) Oxytocin, Insulin, prolactin, progesterone

(d) Given below are five sets of terms. In each case, arrange and rewrite each set in a logical sequence.

- (1) Right auricle, pulmonary vein, post and pre-vena cava, lungs, right pulmonary artery, left auricle
- (2) Xylem, soil water, cortex, endodermis, root hair
- (3) Fibrin, platelets, thromboplastin, fibrinogen, thrombin
- (4) Intestine, liver, intestinal artery, hepatic vein, hepatic portal vein.
- (5) Vagina, sperm, uterus, oviduct, cervix

e. Differentiate between the following on the basis of what is given in brackets.

- (1) Karyokinesis and Cytokinesis. (Explain the term)
- (2) Demography and Population density. (Definition)
- (3) NADP and ATP (Expand the abbreviation)
- (4) Turgid cell and Plasmolysed cell (Tonicity of the surrounding solution)
- (5) Renal cortex and Renal medulla (Parts of nephron present)

f. Re-write and complete the sentences by inserting the key word in the blank.

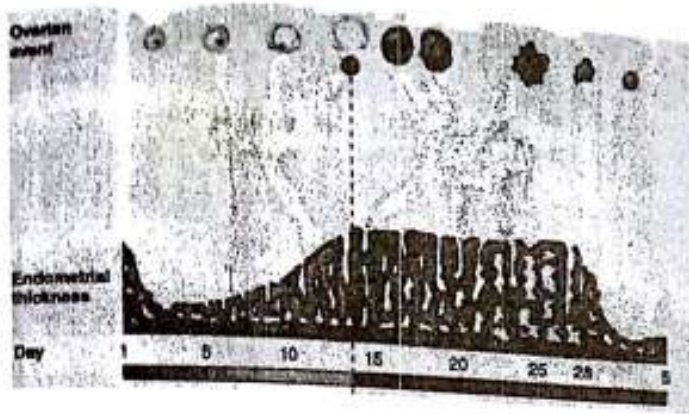
- (1) Birth rate is the number of -----birth per thousand of the population per year.
- (2) ----- is the period of complete development of foetus till birth.
- (3) The presence of -----makes the normal urine pale yellow in colour.
- (4) Oxygen combines with haemoglobin in RBC and forms -----
- (5) The blood vessel that begins and ends in capillary is -----

g. Match the items given in column A with the most appropriate ones in column B and rewrite the correct matching pair.

Column A	Column B
(1) DNA and Histone	-Transpiration
(2) Clotting of blood	-Light reaction
(3) Potometer	-Iron
(4) Stroma	-Nucleosome
(5) Exophthalmic goitre	-Calcium
	-Nucleotide
	-Photosynthesis
	-Dark reaction
	-Hypothyroidism
	-Hyperthyroidism

b) Given below is a diagrammatic representation of the changes in the uterus during menstrual cycle.

[5]



- (1) Name the different phases in menstrual cycle.
- (2) What are the hormones produced by the pituitary glands during the third phase of the cycle.
- (3) What are the changes in the uterus and ovary during the second phase of the cycle?
- (4) Name the phase in which ovulation occurs and name the tissue which produces hormones during the 4th phase.
- (5) What happens if,
 - (a) Fertilisation occurs?
 - (b) Fertilisation does not occur?

SECTION II (40 marks)

Attempt any four questions from this section

Question 2

Given below is a representation of a type of pollution. Study the picture and answer the questions that follow. [5]



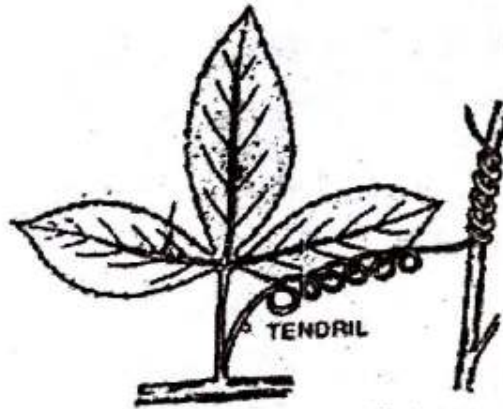
- (1) Name the kind of pollution shown in the picture
- (2) Mention any two sources of this pollution
- (3) Mention any two impacts of this pollution in human beings
- (4) Write any two measures to reduce this pollution
- (5) Define the term pollutant.
- (6) Give two examples of radiation pollutants.

b. Write brief notes on the following

- (1) Swachh Bharat Abhiyan
- (2) Photophosphorylation
- (3) Darwin's theory of natural selection
- (4) Greenhouse effect
- (5) Corneal opacities

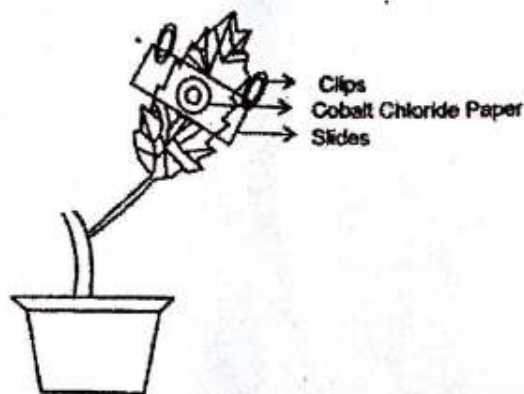
Question 3

a. Given below is a diagram showing a tropic movement in plants. Study it and answer the questions that follow



- (1) Identify the tropic movement
- (2) Give examples of two plants that show the above movement
- (3) What do you mean by positive and negative tropic movements?
- (4) Name an instrument to measure geotropism
- (5) Name the following
 - (i) Hormone that stimulates growth by cell division
 - (ii) Growth retarding hormone
 - (iii) The main auxin found in plants
 - (iv) Development of fruits without fertilisation

b. Given below is the diagram of an experimental set up to study the process of transpiration in plants. Study the same and answer the questions that follow



- (1) Explain transpiration
- (2) What is the aim of the above experiment?
- (3) What is the colour of cobalt chloride paper?
- (4) Why is glass slides placed above the cobalt chloride paper?

(5) After rain an hour later, what change would you expect to find in the cobalt chloride paper placed on the upper surface and lower surface of the leaf? Give a reason to support your answer.

(6) Draw a well labelled diagram of a stomatal apparatus.

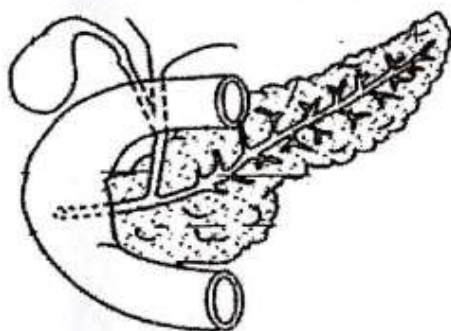
Question 4

- a. [5]
- (1) Draw a well labelled diagram showing the L.S. of testes.
 - (2) Name the hormone producing cells in the testes and mention the hormone it produces.
 - (3) What is the role of inguinal canal in male reproductive system?
 - (4) Give the functions of the following
 - (i) Prostate gland
 - (ii) Bulbo-urethral gland

- b. [5]
- Give biological reasons for the following.
- (1) We cannot distinguish colours in the moon light.
 - (2) Balsam plants wilt during the mid-day even if the soil is well watered.
 - (3) The hand automatically shows the direction to turn a cycle without looking
 - (4) Urine is slightly thicker in summer than in winter
 - (5) Salt and sugar are used in preserving food

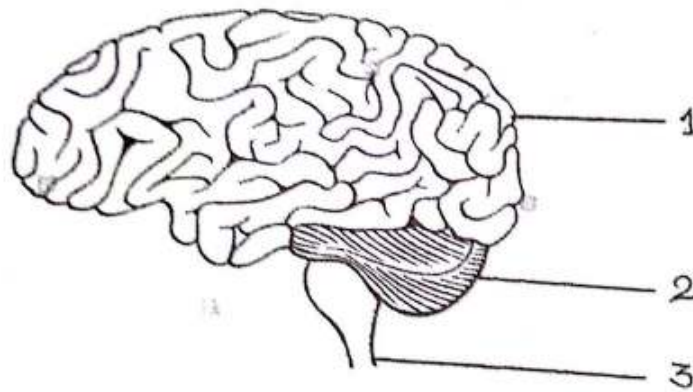
Question 5.

- a. [5]
- (1) Draw a neat labelled diagram of human blood smear
 - (2) Veins are provided with valves. Why?
 - (3) Why do we consider the blood group of the donor and the recipient during transfusion?
 - (4) State two important functions performed by lymph in our body.
- b. [5]
- Given below is the diagram of an endocrine gland in human beings. Study it carefully and answer the questions that follow.



- (1) Identify the gland and give its exact location
- (2) What is the biological term for the hormone secreting cells of this gland?
- (3) Name the hormones secreted by this gland
- (4) Explain the role played by the above hormones in regulating blood glucose level
- (5) Why do we say that the above gland is an exo-endocrine gland?

Given below is the external view of a human brain. Study the same and answer the questions that follow. [5]



- (1) Name the parts labelled 1, 2 and 3.
- (2) State the functions of parts labelled 1 and 2.
- (3) What are the structural and functions units of brain? How are these parts arranged in 1 and 3.
- (4) Mention the names of the three layers of the brain
- (5) Name the fluid that is present in between the above three layers and state its function