Mob. 9821263050

HIRANANDANI FOUNDATION SCHOOL, THANE

Second Preliminary Assessment – January, 2019

Subject - Biology

Std: X **Time: 2 hrs.**

Date: 17/01/2019 **M. Marks: 80**

Note: Answers to this paper must be written on a separate answer sheet. The time given at the head of this paper is the time allotted for writing the answers. This paper is divided into two Sections I and II. Section I contains 1 question having eight parts (a) to (h) which is compulsory. Section II contains 6 questions numbered 2 to 7. Answer any 4 questions from Section II. This paper consists of 6 printed pages.

SECTION I (40 Marks)

Attempt all questions from this Section

Question 1

a) **Name the following:** **[5]**

i) The part of the brain associated with memory.

ii) The hormone-secreting cells of pancreas.

iii) The part of the chloroplast where the light reaction of photosynthesis takes place.

iv) The gaseous plant hormone.

v) The cells of the testes that produce male hormones.

b) **State whether the following statements are true or false. If false rewrite the correct form of the statement by changing the first or last word only.** **[5]**

i) Cretinism is caused due to undersecretion of adrenaline.

ii) Urethra from each testis travels upward into the abdomen passing through an inguinal canal.

iii) *Homo erectus* were the first ancestors to hunt animals and use fire.

iv) CNG is mainly responsible for ozone layer depletion.

v) Beta cells of pancreas secrete Glucagon.

c) **Complete the following paragraph by filling in the blanks 1 to 5 with appropriate words:** **[5]**

The human female gamete is called an egg or an ovum. Only one egg matures in each _____ (1) every alternate month. A mature egg contained in a follicular sac is called the _____(2). As the egg grows larger, the follicle also enlarges and gets filled with a fluid and is now called the _____(3). The process in which the follicle ruptures to release the egg is called _____(4). The ovum is picked up by the oviducal funnel and fertilization takes place in the _____(5).

d) **Draw large, neat and well labelled diagrams of each of the following.** **[5]**

i) Human inner ear.

ii) T.S. of an artery.

e) **Match the column A with the appropriate term from column B.** **[5]**

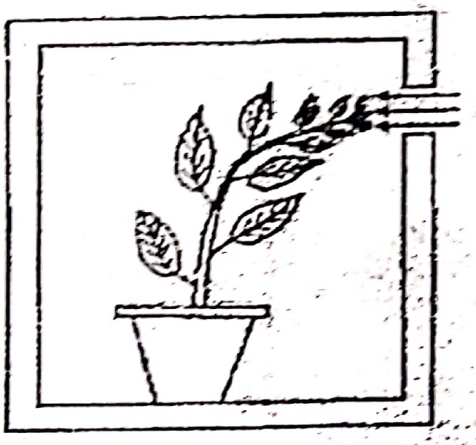
Column A	Column B
i) Gibberellin	a) Thyroid gland
ii) Insulin	b) Pituitary gland
iii) Pons	c) Transpiration
iv) Hypothalamus	d) Photosynthesis
v) Potometer	e) Midbrain
	f) Hindbrain
	g) Cell elongation
	h) Cell division
	i) Diabetes insipidus
	j) Diabetes mellitus

22

f) In each set of four terms given below, there is an odd term and cannot be grouped in the same category to which the other three terms belong. Identify the odd term in each set and name the category to which the remaining terms belong. [5]

i) Transpiration, Guttation, Phagocytosis, Photosynthesis.
ii) Rhodopsin, Iodopsin, Iodine, Haemoglobin.
iii) Gestation, Menstruation, Micturition, Parturition.
iv) Ureter, Uterus, Urethra, Urinary bladder.
v) Dendron, Perikaryon, Photon, Axon.

g) The following diagram represents a plant kept in a dark room by the side of an open window. Study the diagram and answer the questions that follow: [5]



i) What is the aim of the above shown activity?
ii) Name the tropic movements shown by the shoot and roots.
iii) Explain the role of auxins in bending the shoot towards the window.
iv) What do you understand by – *Apical dominance*?

h) Explain each of the following terms: [5]
i) Greenhouse effect.
ii) Natality.
iii) Parthenocarpy.
iv) Diffusion.
v) Tropism.

SECTION II (40 Marks)

Attempt any four questions from this Section

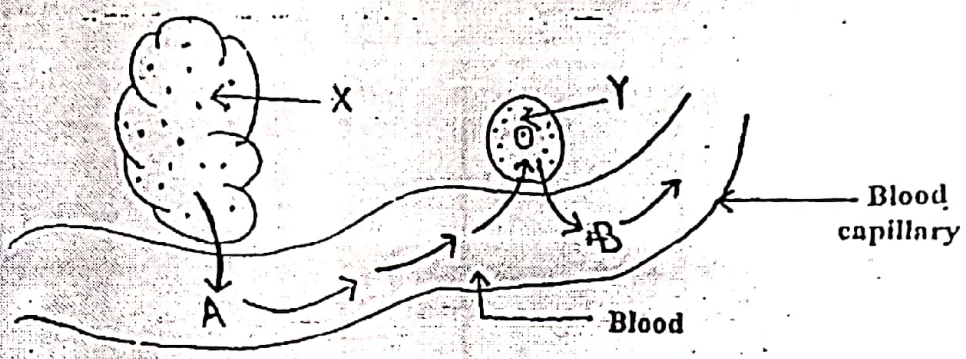
Question 2

a) A homozygous garden pea plant bearing Purple coloured (P) flower and Yellow coloured (Y) seed is crossed with a homozygous plant bearing white coloured (p) flower and green coloured (y) seed: [5]

i) Give the genotype and phenotype of the F_1 generation.
ii) List the possible combinations of the gametes that can be obtained from the F_1 hybrid.
iii) Obtain a Punnett square for F_2 generation when two plants of the F_1 generation are crossed.
iv) State the dihybrid ratio and the phenotype of the offsprings of the F_2 generation obtained in (iii).

23

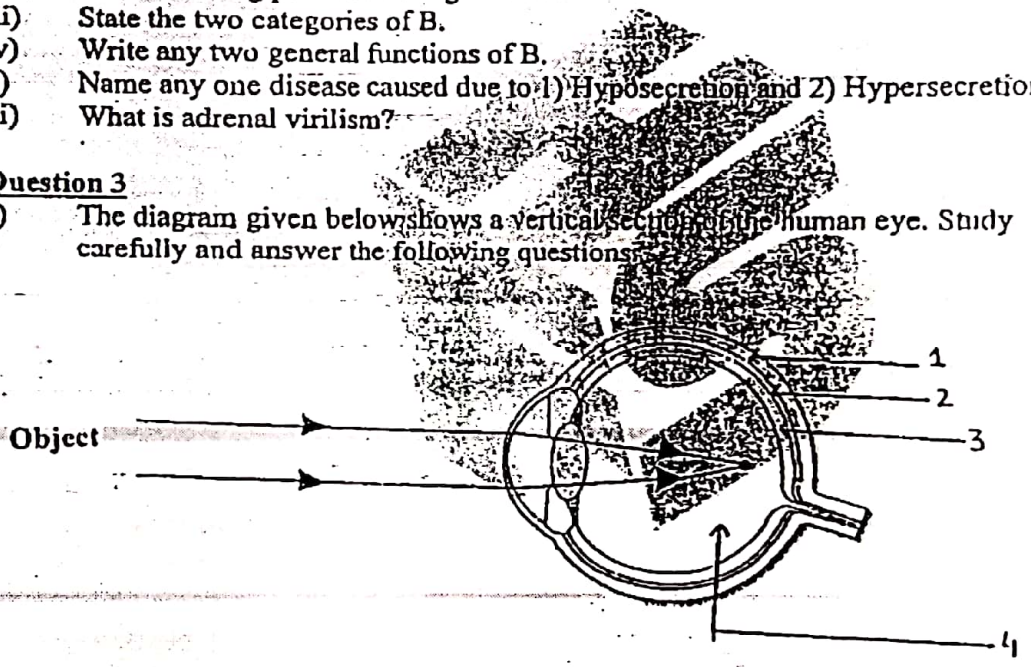
b) Given alongside is a schematic representation of secretion of gland X and a blood capillary in its close proximity. Study the same and then answer the questions that follow: [5]



i) Choose the name of the gland X from the following: Salivary, Tear, Pituitary
ii) If Y is one of the target cell in the cortical region of the adrenal gland, name secretion A which is being poured out of gland X.
iii) State the two categories of B.
iv) Write any two general functions of B.
v) Name any one disease caused due to 1) Hyposecretion and 2) Hypersecretion of gland Y.
vi) What is adrenal virilism?

Question 3

a) The diagram given below shows a vertical section of the human eye. Study carefully and answer the following questions: [5]



i) Name the eye defect illustrated in the diagram.
ii) Label the parts marked 1 to 4.
iii) Give a possible reason for this defect.
iv) Name the type of lens used to correct this eye defect.
v) Draw a labelled diagram to show how the above mentioned defect is rectified using the lens named in (iv).

b) i) What are vestigial organs? [5]

ii) Expand the following abbreviations:
1) IAA
2) TSH
3) DNA
4) ABA

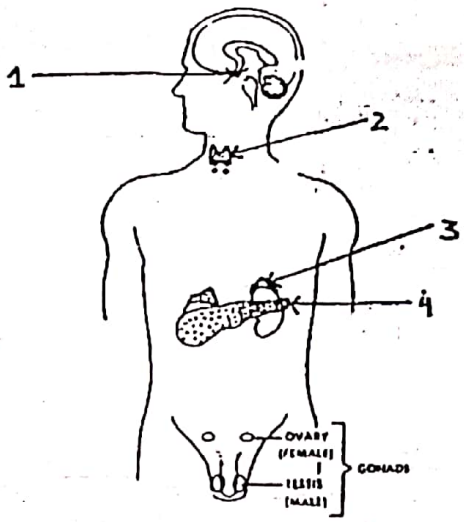
iii) State Mendel's law of dominance.

iv) Write any three main characteristic features of *Australopithecus*.

24

Question 4

a) Given below is the outline of the human body showing the important glands: [5]



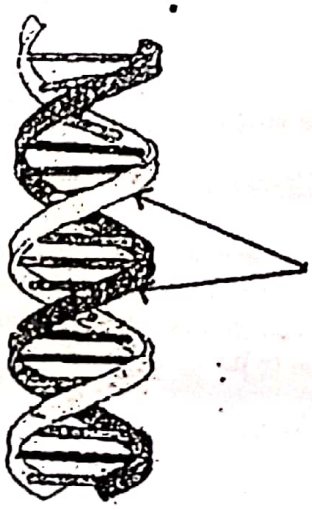
i) Label 1 to 4.
ii) Name the category to which all these parts belong.
iii) State the location of 1.
iv) Name any two hormones secreted by the posterior lobe of 1. Also state any one function of each hormone.

b) i) Give biological reasons for the following statements: [5]
1) Wooden frames of doors get jammed during monsoon season.
2) Geotropism is good for the normal growth of the seedling.
3) Throat infection can lead to ear infection.

ii) Draw a well labelled diagram of a malpighian capsule.

Question 5

a) Given below is a diagram of a double helical structure of DNA. [5]



i) Name the repeating units of DNA.
ii) Which two components of this unit mentioned in (i) are arranged lengthwise?
iii) List the four nitrogenous bases that form a DNA molecule.
iv) Name the unit of heredity.
v) Mention two points of difference between Mitosis and Meiosis.

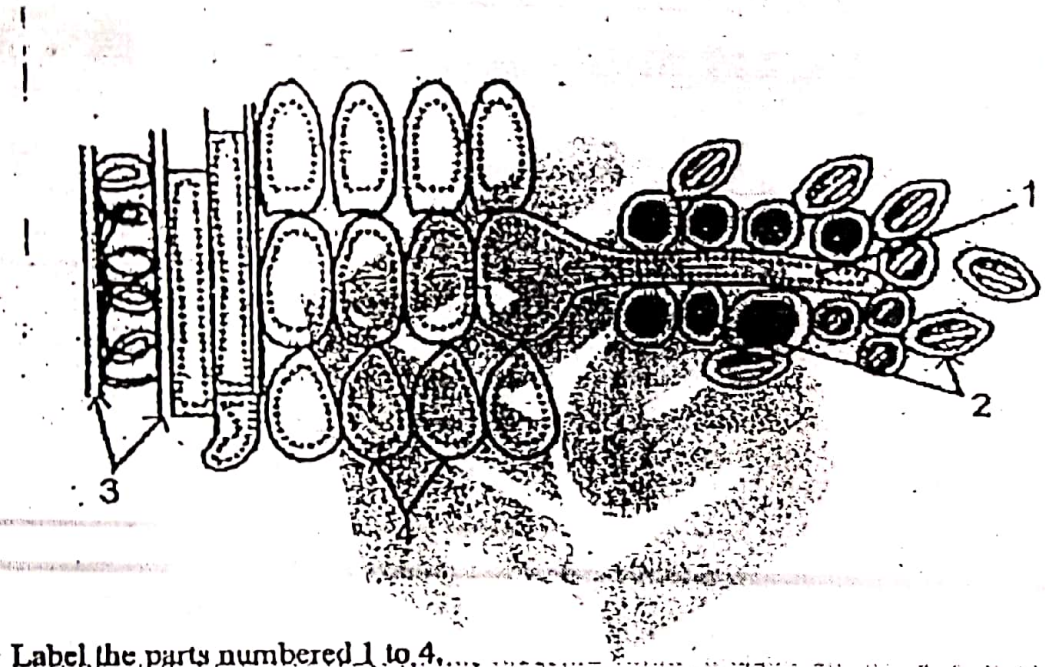
25

b) Give appropriate biological / technical terms for each of the following: [5]

i) Outermost tough fibrous membrane of the meninges.
ii) A method of contraception in which the oviduct is cut and ligated.
iii) The product of fusion of a sperm and an ovum.
iv) The plant hormone used to speed up the malting process in brewing industry.
v) Movement of leucocytes out of the capillary walls at the site of injury.
vi) The sensory nerve attached to membranous labyrinth.
vii) Fibres which hold the lens of the eye in position.
viii) The growth retarding plant hormone.
ix) The condition caused due to hyperthyroidism.
x) The type of cell division which takes place in the anthers of flowering plants to produce pollen grains.

Question6

a) The figure given below is the diagrammatic representation of a part of the cross-section of the root. Study the same and then answer the questions that follow: [5]



i) Label the parts numbered 1 to 4.
ii) State the name of the process that enables the passage of water from the soil into the root hair?
iii) Name the pressure that is responsible for the movement of water upward in the plants body.
iv) In some plants due to excess of this pressure, drops of water are found along the leaf margins, especially in the early mornings. Name this phenomenon.
v) Draw a well labelled diagram of the root hair cell as it would appear if an excess of fertilizer is added to the soil close to it.

b) State the difference between the following pairs on the basis of what is given in brackets: [5]

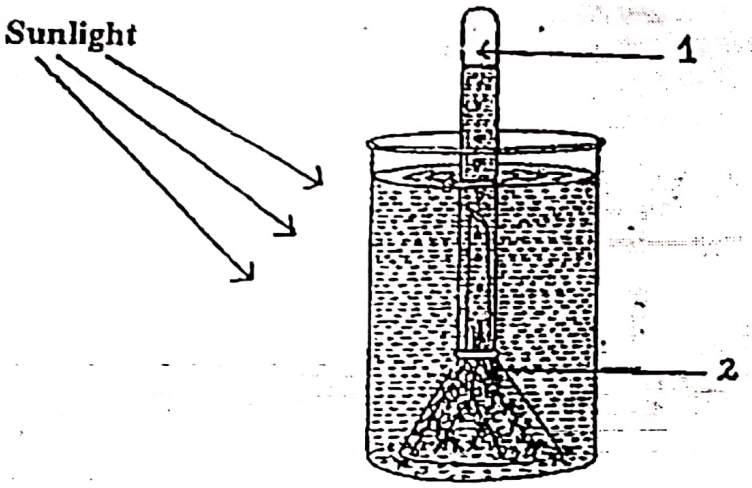
i) Hydrotropism and Chemotropism (Stimulus).
ii) Bicuspid valve and Tricuspid valve (Function).
iii) Cobalt chloride paper and Goat's bladder (Process where it is used).
iv) *Homo habilis* and Neanderthal man (Cranial capacity).
v) Exocrine and Endocrine gland (secretion transported by).

Question 7

a) Answer the following questions briefly: [5]

i) Find out the progeny of a marriage between a colour blind man and a normal woman.
ii) State any two harmful effects of acid rain.
iii) Draw a well labelled diagram of a myelinated neuron.
iv) State the exact location of uterus in a female.

b) The following diagram demonstrates a physiological process taking place in green plants. The whole set up was placed in bright sunlight for several hours. Study the diagram and answer the questions that follow: [5]



i) Name the physiological process being studied in the given set up.
ii) What is the aim of the experiment?
iii) Explain the physiological process mentioned in (i).
iv) Label the part numbered 1 and 2 in the diagram.
v) What would happen to the rate of bubbling of the gas if a pinch of sodium bicarbonate is added to the water in the beaker? Explain.
vi) Write a well-balanced chemical equation for the physiological process explained in (iii).