PRELIMINARY EXAMINATION 2024-2025
CLASS: X
SUBJECT: BIOLOGY

NAME OF STUDENT: ..... MAX MARKS: 80
DATE..... TIME: 2 HOURS

NOTE: 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.
Section A is compulsory. Attempt any four questions from Section B. The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A
Attempt all questions from this section

Question 1

Choose the correct answers to the questions from the given options. (Do not copy the questions, write the correct answers only.) **[15]**

(i) Meiosis is responsible for:
(a) Growth of shoot (b) Replacement of old leaves to new ones
(c) Formation of pollen grains (d) Repair of damaged and wounded tissue

(ii) Chromosomes are:
(a) Bearer of hereditary units (b) Hereditary units
(c) Structural units of DNA (d) Thread like structures inside the nucleolus

(iii) Assertion (A): Genes for colour blindness and haemophilia are located on X chromosomes.
Reason (R): X- linked disorders are more common in males than in females.
(a) A is True and R is False (b) A is False and R is True
(c) Both A and R are True (d) Both A and R are False

(iv) Shoots are(P) _____ hydrotropic and roots are(Q)_____ geotropic.
(a) P -positively, Q- negatively (b) P- positively ,Q- positively
(c) P- negatively, Q- positively (d) P- negatively, Q- negatively

(v) The common ancestor from which man and apes evolved:
(a) Australopithecus (b) Homo erectus
(c) Dryopithecus (d) Homo habilis

(vi) Structures through which most of the transpiration takes place:
(a) Stomata (b) lenticels
(c) root hair (d) cuticle

(vii) Assertion (A) Testes are located in scrotal sacs outside the abdomen in human males.
Reason (R) Temperature in the scrotum remains 2-3^{o}C higher than the body temperature which is suitable for the maturation of sperms.
(a) A is true and R is False (b) A is false and R is true
(c) Both A and R are true (d) Both A and R are false

(viii) Priya tried to match the blood cells with their functions. She tabulated the pairs as follows:

Blood cells	Functions
P	Produces antibodies
Q	Essential for blood clotting

(a) P- Eosinophils, Q- Erythrocytes (b) P- Thrombocytes, Q- Lymphocytes
(c) P- Neutrophils, Q- Monocytes (d) P- Lymphocytes, Q- Thrombocytes

(ix) Nephron is the structural and functional unit of:
(a) Lung (b) Liver
(c) Kidney (d) Brain

(x) The part of the brain which controls body temperature:
(a) Thalamus (b) Hypothalamus

(c) Pons Varoli (d) Corpus callosum

(xi) Assertion (A) During photochemical phase of photosynthesis, light energy is used to form ATP and NADPH and carbon dioxide is released.

Reason (R) ATP and NADPH are used during biosynthetic phase for the fixation of carbon dioxide.

(a) A is true and R is false (b) A is false and R is true

(c) Both A and R are true (d) Both A and R are false

(xii) Throat infections lead to ear infections as eustachian tube connects :

(a) Middle ear with outer ear (b) Middle ear with inner ear

(c) Inner ear with pharynx (d) Middle ear with pharynx

(xiii) Assertion (A) When a person enters a dark room from a brightly lit area he is unable to see objects for a short time, slowly his vision improves this is called dark adaptation.

Reason (R) On entering the dark room ,pigment rhodopsin degenerates and pupil constricts permitting more light to enter.

(a) A is True and R is False (b) A is False and R is True

(c) Both A and R are True (d) Both A and R are False

(xiv) A biology teacher asked her students to name two disorders caused due to hyposecretion of thyroxine.

Raj said: Diabetes mellitus and Cushing's syndrome

Sonu said: Myxoedema and Cretinism

Lata said: Simple goitre and Myxoedema

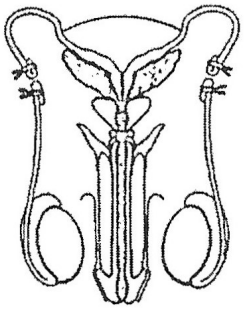
Abhay said: Cretinism and Addison's disease.

Who was correct?

(a) Abhay and Sonu (b) Sonu and Lata

(c) Raj and Lata (d) Abhay and Raj

(xv) The figure shows a surgical sterilization method in males. Name the method and mention the part that is ligated:



(a) Vasectomy; Fallopian tube (b) Vasectomy; sperm duct

(c)Tubectomy; sperm duct (d)Tubectomy; fallopian tube

Question 2

(i) Name the following: [5]

(a) The hormone which promotes growth of tendril around the support.

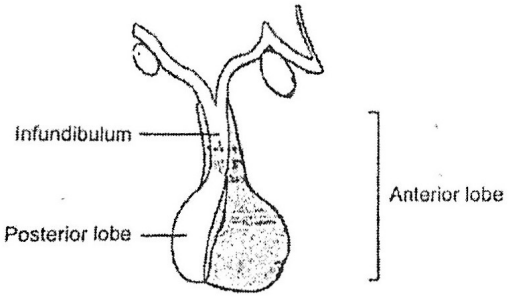
(b) The vitamin essential for clotting of blood.

(c) The bone of the middle ear which is attached to the margins of oval window.

(d) Statistical study of human population.

(e) Gas released from refrigerators and air conditioners.

(ii) Given below is a diagram of an endocrine gland. Read the information given below the diagram and fill in the blanks [5]



The Pituitary gland is a small rounded gland about the size of the pea seed. It is attached by a stalk to the hypothalamus. Pituitary gland is called the master gland because it regulates the functioning of almost all other endocrine glands.

The amount of urine output is under the regulation of a hormone called (i)_____ secreted by the (ii)_____ lobe of the pituitary gland. If this hormone is reduced then there is an increased production of urine. This disorder is called (iii)_____ . The pituitary gland secretes another hormone called (iv)_____which stimulates the (v)_____to secrete thyroxine.

(iii) Arrange and rewrite the items in each group in the correct order so as to be in a logical sequence beginning with the term that is underlined : [5]

(a) Organ of Corti, Auditory canal, Ear ossicles, Tympanum

(b) Implantation, Fertilisation, Ovulation, Gestation

(c) Receptor, Motor neuron, Effector, Spinal ~~chord~~ cord

(d) Lens, Cornea, Yellow spot, Pupil.

(e) Ureter, Urethra, Urinary bladder, Kidney

(iv) Read the explanation given below and name the structure: [5]

Example- The largest gland in the human body that secretes bile.

Answer- Liver

(a) A narrow duct which passes through the penis and serves as a common passage for the flow of urine and semen.

(b) The internal layer of the eye which prevents reflection of light.

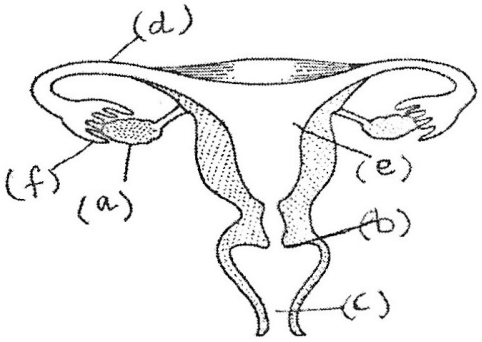
(c) The organ that acts as a blood reservoir and releases stored blood in emergency and under stress.

(d) The structure in the ear that converts vibrations into nerve impulses.

(e) A cord containing blood vessels which connects the placenta with the foetus.

(v) Given below is the figure of the female reproductive system. Match the structures marked (a) to (e) with their correct functions [5]

Example: f – 6 Picks up the ovum and conveys it to the uterus through the fallopian tube.

Female Reproductive System	Functions
	1. Sphincter muscle that closes the lower end of the uterus. 2. Acts as a birth canal during childbirth. 3. Muscular organ within which embryo develops. 4. Produces ovum. 5. Site of fertilization of ovum. 6. Picks up the ovum and conveys it to the uterus through the fallopian tube

Section B

Attempt any four questions from this section

Question 3

(i) Define Meiosis. [1]

(ii) Name the plant hormone which: [2]

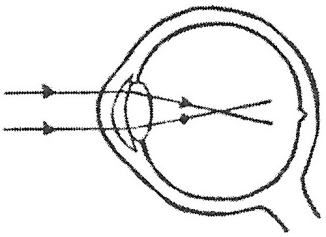
(a) inhibits growth

(b) suppresses apical dominance

(iii) Write down the overall chemical equation for photosynthesis. [2]

(iv) Give two harmful effects of ozone layer depletion. [2]

(v) Given below is a diagram depicting a defect of the human eye. Study the same and answer the questions: [3]



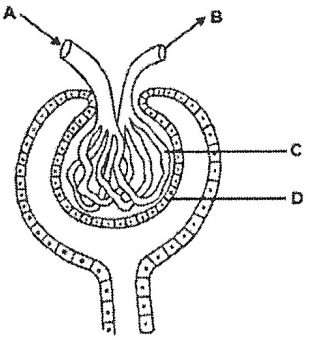
(a) Name the defect.
(b) Give one reason for this defect.
(c) Name the type of lens used to correct this defect.

Question 4

(i) What is the function of centromere? [1]
(ii) State Mendel's law of dominance. [2]
(iii) Explain how the following factors affect transpiration: [2]
(a) Atmospheric pressure
(b) Wind velocity
(iv) Give two structural differences between arteries and veins. [2]
(v) Draw a neat and labelled diagram of human sperm. [3]

Question 5

(i) Write the expanded form of ATP. [1]
(ii) Differentiate between cytokinesis in plant cell and animal cell. [2]
(iii) Give one function of: [2]
(a) Iris
(b) Vitreous Humour
(iv) Name any two vestigial organs. [2]
(v) Study the given figure and answer the questions that follow: [3]



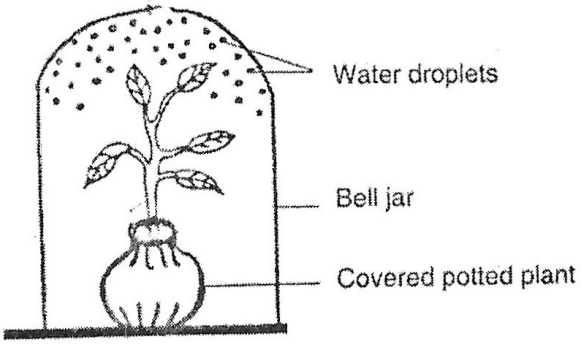
(a) Name the region in the kidney where the above structure is present.
(b) Why is the blood flowing in part B thicker than that flowing In part labelled A?
(c) What is the technical term given to the process occurring in C and D.

Question 6

(i) Which theory supports the evolution of long neck and long forelimbs in giraffe? [1]
(ii) What are nucleosomes? Where are they found? [2]
(iii) Give two important differences between Transpiration and Guttation. [2]
(iv) Give reason why Lubb-Dup sounds are produced during heart beat. [2]
(v) Draw a neat and labelled diagram of membranous labyrinth. [3]

Question 7

(i) Define the term 'Turgor Pressure'. [1]
(ii) Give the importance of: [2]
(a) Myelin sheath
(b) Cerebrospinal fluid
(iii) Name the hormone secreted by the thyroid gland. Mention the disorder caused due to excess secretion of the mentioned hormone. [2]
(iv) Give F_2 ratio of phenotype and genotype of a monohybrid cross. [2]
(v) An apparatus as shown was set-up to investigate a physiological process in plants.The set up was kept in sunlight for two hours .Droplets of water were then seen inside the bell jar. Answer the questions that follow: [3]



(a) Define the process being studied.

(b) Why was the pot covered with plastic sheet?

(c) Mention one way in which the process is beneficial to plants.

Question 8

(i) Why does deficiency of vitamin A cause night blindness? [1]

(ii) Given below are two statements which are incorrect. Rewrite the correct statements: [2]

(a) Photolysis is the splitting of water molecules in the presence of grana and temperature.

(b) The process of fusion of egg nucleus and sperm nucleus is called implantation.

(iii) What is the difference in the distribution of grey and white matter of brain and spinal cord ? [2]

(iv) Give two functions of placenta. [2]

(v) Draw a neat and labelled diagram of a myelinated neuron. [3]

END