



ST. JOSEPH'S COLLEGE, PRAYAGRAJ
PRE-BOARD EXAMINATION 2024

BIOLOGY
CLASS – X

TIME: 2 Hours

MM: 80

First 15 minutes is to be spent in reading this question paper, do not write during this period. Attempt all the questions from section A and any four from section B.

Do not change the numbering of the questions and maintain a proper sequence of it.
The intended marks are given alongside of each question or its sub parts []

SECTION – A

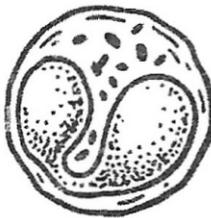
(Attempt all the questions from this section)

Q 1) Choose the correct answers to the questions from the given options.

[15]

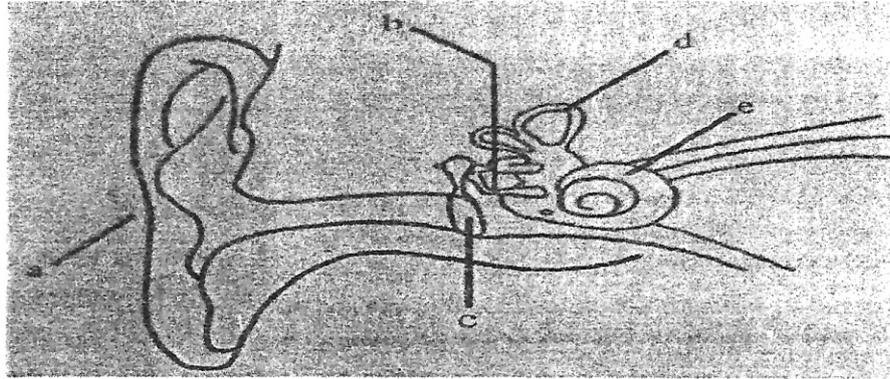
- 1) During ventricular systole, the atrioventricular valves (X)___ and semilunar valves (Y)
 - a) X- close, Y- open
 - b) X- Close, Y- close
 - c) X-open, Y- close
 - d) X- open, Y- open
- 2) The site for maturation of human sperm is
 - a) Leydig cells
 - b) Epididymis
 - c) Seminiferous tubule
 - d) Prostate gland
- 3) Deafness is caused due to rupture of
 - a) Malleus
 - b) Pinna
 - c) Tympanum
 - d) Cochlea
- 4) The protein used for clotting of blood is
 - a) Heparin
 - b) Albumin
 - c) Prothrombin
 - d) Fibrinogen
- 5) The first ancestors to hunt animals and use fire.
 - a) Homo erectus
 - b) Homo habilis
 - c) Neanderthal man
 - d) Cro-Magnon man
- 6) Raj tried to match the hormone with their effect on the human body. He tabulated the pairs as follows:
Hormone --> Effect on the body
P ---> Promotes glucose uptake by body cells
Q ----> More glucose is released into blood by liver
Identify the correct pair of hormones.
 - a) P- Insulin, Q- Adrenaline
 - b) P- Thyroxine, Q- Insulin
 - c) P- Oxytocin, Q- Vasopressin
 - d) P- Vasopressin, Q- Adrenaline
- 7) ASSERTION (A): Kidneys excrete nitrogenous wastes from the body.
REASON(R): Liver plays an important role in osmoregulation.
 - 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.
- 8) Mrs. Sharma asked her students that Richa suffers from Myopia. Which lens is needed to correct this defect?
Ria said : Biconcave lens
Peter said : Concave lens
Zia said : Convex lens
Jasvinder said : Biconvex lens

- Who gave the correct answer?
- Ria
 - Peter
 - Zia
 - Jasvinder
- 9) Assertion(A): Sympathetic system retards the heartbeat.
Reason(R): Parasympathetic system increases peristalsis.
- A is True and R is False.
 - A is False and R is True.
 - Both A and R are True.
 - Both A and R are False.
- 10) Raj was interested in fishing. Once he caught a marine fish and placed it in tap water. To his surprise the fish burst due to:
- Exosmosis
 - Endosmosis
 - Diffusion
 - Active Transport
- 11) After mitotic cell division, a female human cell will have:
- 44 + XX
 - 44 + X Y
 - 22 + X
 - 22 + Y
- 12) The response by parts of plant towards the stimulus is called:
- Tropism
 - Nastic movement
 - Tactic movement
 - Senescence
- 13) The genotype of a person who cannot roll his tongue is
- Rr
 - RR
 - RRr
 - rr
- 14) Two adaptations to reduce transpiration are
- Narrow leaves, thin cuticle
 - Few stomata, Broad lamina of leaves
 - Thin cuticle, Sunken stomata
 - Narrow leaves, Few stomata
- 15) Identify the granular WBC given below:



- Eosinophil
 - Basophil
 - Monocyte
 - Leucocyte
- Q 2) 1) Name the following:
- The scientific name of pea plant.
 - An apparatus in which if plant is rotated neutralizes the effect of gravity.
 - The pigment that provides colour to urine.
 - Membrane that protects the foetus and secretes protective fluid.
 - The origin of species by gradual modification.

2) Observe the diagram of human ear. Match the structures marked as parts of ear (a) to (e) with their correct characteristics(1 to 5). [5]



Function/Characteristics:

- 1) Transmit sound waves to inner ear.
- 2) Play role in sense of hearing.
- 3) Help to keep balance and equilibrium.
- 4) Collect sound waves from surroundings.
- 5) Separates outer ear from middle ear.

3) Arrange and rewrite the terms in each group in the correct order so as to be in logical sequence beginning with the term that is underlined. [5]

- a) Luteal phase, ovulatory phase, menstrual phase, follicular phase.
- b) Endodermis, cortex, soil water, Xylem, root hair.
- c) Bowman's capsule, Renal arteriole, Loop of Henle, collecting duct.
- d) Lens, pupil, conjunctiva, yellow spot, cornea.
- e) Association neuron, effector, motor neuron, receptor, sensory neuron.

4) Read the explanation and name the term: [5]

- a) A campaign started by the government of India to clean roads, streets and infrastructure.
- b) The blood vessel that supplies blood to the liver.
- c) The exudation of sap from injured part of plant.
- d) The term used for mature follicle in females.
- e) The structure through which guttation occurs in plants.

5) Read the information given below the diagram and fill in the blanks. [5]



Stomata, the small, microscopic pores are present on leaves in plants. They help in regulating the influx of carbon dioxide for photosynthesis.

Stomata are surrounded by specialised ____ (a) cells that can open and close to regulate the rate of ____ (b) and control water loss through ____ (c). The stomata are ____ (d) during the day and ____ (e) during the night.

SECTION - B

(Attempt any four questions from this section)

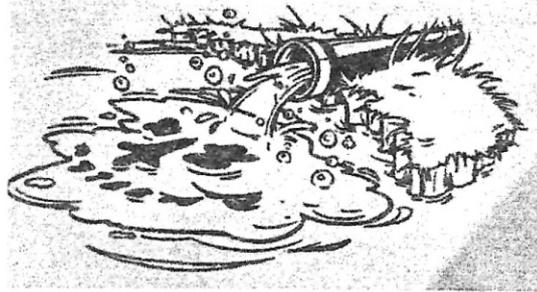
Q 3)

- 1) Define the term Nucleosome. [1]
- 2) Differentiate between Diabetes mellitus and Diabetes insipidus. [2]

- 3) Mention the significance of following minerals: [2]
a) Calcium in our food.
b) Iodine in table salt.
- 4) Why are RBCs efficient in their functions though they lack nucleus and mitochondria? [2]
- 5) Draw a neat, labelled diagram of a chloroplast. [3]

Q 4)

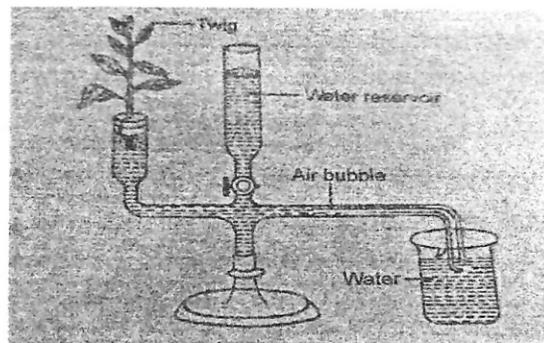
- 1) Expand the abbreviation-NADP. [1]
2) Differentiate between acrosome and centrosome. [2]
3) Why does one feel blinded for a short while on coming out of a dark room? [2]
4) What are variegated leaves and why is this kind of leaves used for the experiment? [2]
5) Given below is the representation of a type of pollution. Study the same and answer the questions that follow: [3]



- a) Name the type of pollution shown in the picture.
b) List any two sources of this pollution.
c) Why is this pollution a serious problem in modern times?

Q 5)

- 1) What is parthenocarpy? [1]
2) Name the largest lymphatic organ. State its main function. [2]
3) How is cerebrum different from spinal cord in case of arrangement of neurons? [2]
4) What is the effect of increase in Carbon di oxide concentration on Transpiration. Give a suitable reason. [2]
5) Given below is a diagram of an apparatus used to study a phenomenon in plants. Observe the diagram and answer the following questions. [3]

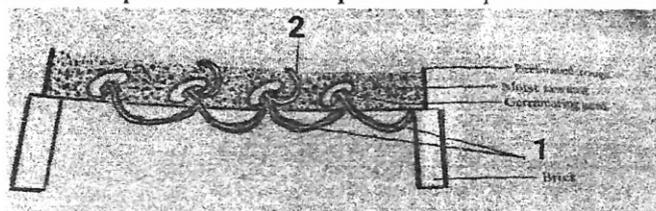


- a) Name the apparatus.
b) What is the apparatus used for?
c) What happens to the movement of air bubble if the apparatus is kept in bright sunlight?

Q 6)

- 1) State Mendel's law of Segregation. [1]
2) Situation A: Rajan is an athlete. After running for a 500m sprint on a sunny afternoon his face turns red.
Situation B: Jimmy was on a shoot to Leh Ladakh with temperature as low as -2°C . His face turned blue after few minutes of shoot. What could be the possible reason? Give the technical term for both the situations. [2]
3) Name two harmful effects of noise pollution. [2]
4) What are the parts of renal tubule responsible for [2]
a) Ultrafiltration
b) Reabsorption of most water

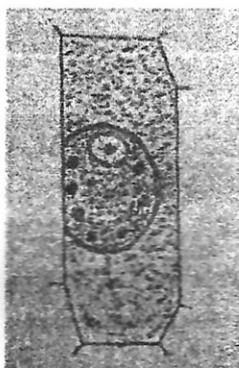
- 5) Given below is an experimental set up to demonstrate a particular tropic movement in germinating seeds. [3]



- Name the parts labelled as 1 and 2.
- Name the type of movement shown by parts labelled as 1 and 2.
- Part 1 is affected by two stimuli. Which one of the two is stronger?

Q 7)

- Define Demography. [1]
- Name the disease caused due to [2]
 - Hyopsecretion of Adrenal Cortex hormone.
 - Hypersecretion of adrenal Cortex hormone.
- What is role of Thalamus and Hypothalamus in the brain? [2]
- A horticulturist wants to produce long grapes in his farm for good commercial gain. Which phytohormone should he use? Give one more function of the same hormone. [2]
- In a biology class, Ratan observed the slide of the epidermal cells of an onion bulb. He then poured few drops of sugar solution to it. [3]



- What scientific term is used for changes as shown above?
- What should be done to restore the cells back to its original condition?
- Give the scientific term for recovery of cell as a result of the step taken in (b) above.

Q 8)

- Define allele. [1]
- Name two surgical methods of contraception in humans. [2]
- Give the exact location of [2]
 - Pons
 - Leydig cells.
- Sharad and Priya are a married couple. Sharad has normal vision whereas Priya is colorblind. Draw a Punnett square to show the phenotype of color blindness and normal vision in children. [2]
- Draw a well labelled diagram showing structural differences between artery and vein. [3]