



KARNATAKA ICSE SCHOOLS ASSOCIATION

ICSE STD. X Preparatory Examination 2024

Subject: BIOLOGY

Maximum Marks: 80

Time Allowed: 2 Hrs

Date: 07.02.2024

Answer Key

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during 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. [15]
(Do not copy the question, write the correct answers only.)

- (i) (b) Lenticels
- (ii) (c) Blue and red
- (iii) (b) Implantation
- (iv) (d) Bowman's capsule and PCT
- (v) (c) Chordae tendinae
- (vi) (a) Both A and R are True
- (vii) (c) Promotes chlorophyll synthesis
- (viii) (d) Nucleosomes
- (ix) (b) Turgor pressure exceeds wall pressure
- (x) (c) Yw and yw
- (xi) (b) Addison's disease
- (xii) (a) Vasectomy
- (xiii) (c) Only P and Q
- (xiv) (a) Grana
- (xv) (d) Only 1, 2 and 3

Question 2

- (i) Name the following: [5]
- (a) Homologous chromosomes
 - (b) Active transport
 - (c) Thrombokinase
 - (d) Pia mater
 - (e) Population density
- (ii) Arrange and rewrite the terms in each group in the correct order so as to be in a logical sequence beginning with the term that is underline. [5]
- (a) Fertilization, Implantation, Gestation, Parturition.
 - (b) Australopithecus, Homo erectus, Neanderthals, Cro magnon
 - (c) Pinna, Auditory canal, Ear ossicles, Auditory nerve,
 - (d) Grains, Rat, Snake, Peacock
 - (e) Soil water, Root hair, Cortex, Xylem
- (iii) Fill in the blanks with suitable words: [5]
- (a) Dark adaptation
 - (b) Visual purple or rhodopsin
 - (c) Rods
 - (d) Dilation
 - (e) Light
- (iv) Choose the odd one out from the following terms and name the category to which the others belong: [5]

SL. NO	ODD ONE	CATEGORY
(a)	Diabetes insipidus	Others are caused due to hyposecretion of thyroxine
(b)	DDT	Others are medical wastes
(c)	Cerebrum	Others are part of hind brain
(d)	Abscisic acid,	Others are growth promotor hormones
(e)	Axon	Others are parts of nephron

- (v) Match the items given in Column I with the most appropriate ones in Column II and rewrite the correct matching pairs. [5]

	Column I	Column II
(a)	Recessive gene	3. A gene that can express only in homozygous condition.
(b)	Phloem	1. Downward flow of sap
(c)	Liquid part squeezed out of blood during clotting	5. Serum
(d)	Cranial nerves	2. 12 pairs
(e)	Conjunctiva	6. Single layer of transparent membrane.

SECTION B

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

Question 3

- (i) The two members of a pair of factors separate during the formation of gametes. [1]
- (ii) A sudden change in the one or more genes, or in the number or in the structure of chromosomes. Eg: Sickle cell anaemia, albinism. [2]
- (iii) Autosomes are the chromosomes which determine general body features like height, seed colour etc of an organism. There are 44 autosomes in human being. [2]
- (iv) Mendel selected pea plants for the following reasons. (**Any two**) [2]
1. Many varieties were available in alternative forms of a character.
 2. Varieties were present in pure forms that bred. i.e., produced the same type generation after generation.
 3. They normally self-pollinate but self-pollination can be prevented and could as well be cross-pollinated.
 4. Have short life span and many generations can be obtained and studied in less time.
- (v) (a) AaPp [3]
(b) 9:3:3:1
(c) *Pisum sativum*

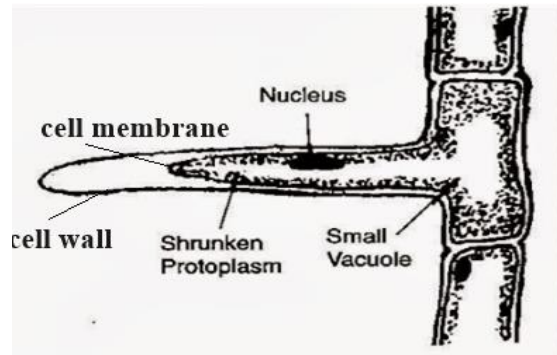
Question 4

- (i) Produce the male hormone Testosterone. [1]
- (ii) Follicle stimulating hormone (FSH) and Luteinizing hormone (LH) [2]
- (iii) Functions of Amniotic fluid (**Any two**) [2]
1. Protect the embryo from physical damage due to mechanical shocks.
 2. Keeps even pressure all around the embryo.
 3. Allows the foetus restricted movement.
 4. Prevents sticking of the foetus to the amnion.
- (iv) Spermatogenesis is the process of production of sperms in the seminiferous tubules. [2]
- Oogenesis is the process in which the ova-producing cells give rise to the mature ovum.
- (v) (a) (D), (C), (B), (A) [3]
- (b) Oviduct / Fallopian tube
- (c) A diploid cell called **Zygote**.

Question 5

- (i) The pressure developed in the roots due to continued inward movement of water through cell-to-cell osmosis. [1]
- (ii) When saplings were exposed to hot afternoon sun the amount of water lost during transpiration was more than the water absorbed by the roots. Hence the cells become flaccid / plasmolysed and the leaves drooped. [2]
- (iii) The solution was hypertonic. The cell became flaccid due to exosmosis. [2]
- (iv) Guttation is the loss of excessive water in the form of droplets from the margins of leaves. [2]
- Bleeding is loss of cell sap through cut stem or through injured part of the plant.
- (v) (i) Root hair cell is an extension of the epidermal cell of the root. Hence it is unicellular. [3]
- (ii) Part labelled 3- Cell wall – It is completely permeable
Part labelled 4- Cell membrane – It is semi-permeable

(iii)



Question 6

(i) Nicotinamide adenine dinucleotide phosphate [1]

(ii) Grasses growing in the shade or under rocks turns yellow due to the non-formation of new chlorophyll and also due to the disintegration of the older one in the absence of light. [2]

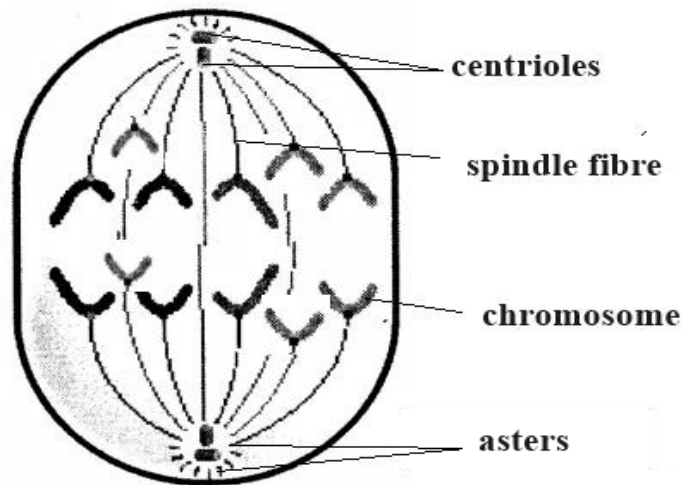
(iii) Adaptations in leaves for photosynthesis (**Any two**) [2]

1. Large surface area – Large surface area helps in maximum light absorption.
2. Leaf arrangement at the right angle to the light source to obtain maximum light.
3. Cuticle and upper epidermis are transparent and water proof to allow light to enter freely.
4. Numerous stomata allow rapid exchange of gases.

(iv) Necessity of Carbon dioxide for photosynthesis. [2]

To remove CO₂ from the air present inside the bottle / Potassium hydroxide is used as an absorbent as it absorbs CO₂

(v) [3]



Question 7

- (i) Apical dominance is the phenomenon of the suppression of growth of lateral buds by apical buds. [1]
- (ii) Pituitary gland controls the functioning of other endocrine glands and hence it is called as Master gland. Antidiuretic hormone (ADH) / (Vasopressin) [2]
- (iii) Limitations in the use of potometer (**Any two**) [2]
1. Introducing the air bubble is not very easy.
 2. The twig may not remain be alive for a long time.
 3. Any change in the outside air temperature may affect the position of the air bubble in the capillary tube.
- (iv) Lamarck proposed the Theory of inheritance of acquired characters. [2]
Eg: Long neck of giraffe. Limbless snakes, webbed feet in swimming birds.
- (v) (i) Volcanic eruptions, forest fire, dust storms etc., [3]
- (ii) Measures to reduce air pollution (**Any one**)
1. Use of unleaded petrol and CNG in automobiles.
 2. Use of electric vehicles
 3. Installation of tall chimneys fitted with filters and electrostatic precipitators.
- (iii) Causes asthma and allergies

Question 8

- (i) Kidney is located on either side of the backbone and protected by the last two ribs [1]
- (ii) Hypothalamus – Controls body temperature and the pituitary gland. [2]
Medulla oblongata – controls the activities of internal organs like beating of heart, breathing, peristaltic movement of the gut etc.,
- (iii) Gametes are formed by meiosis so that the original chromosome number is restored in the organism on fertilization. [2]
- (iv) Blood pressure is the pressure exerted on the walls of the arteries when the blood is flowing through it. [2]
Pulse is the alternate expansion and recoil of the wall of the artery during ventricular systole.
- (v) (i) Glomerular filtration / Ultrafiltration [3]
- (ii) Glomerular filtration is the process by which the liquid part of blood filters out from glomerulus under high pressure (hydrostatic pressure).
- (iii) Urea, Uric acid, Creatinine (**Any one**)