

2024

SPECIMEN PAPERS

ICSE 2024 EXAMINATION

SPECIMEN QUESTION PAPER

BIOLOGY

(SCIENCE PAPER – 3)

Maximum Marks: 80

Time allowed: Two hours

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) Loss of water as droplets from the hydathodes is called:

(a) Transpiration

(b) Bleeding

(c) Guttation

(d) Evaporation

(ii) Synthesis phase in the cell cycle is called so, because of the synthesis of more:

(a) Glucose

(b) Proteins

(c) RNA

(d) DNA

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(iii) While playing with his friends, Peter inserted a stick into his ear. He lost his hearing due to the rupture of:

(a) Ear drum

(b) Pericardium

(c) Cornea

(d) Pinna

(iv) The prime source of Chloro fluorocarbons is:

(a) Vehicular emissions

(b) Refrigeration equipment

(c) Sewage

(d) Effuents

(v) Oxygenated blood to heart is supplied by:

(a) Hepatic artery

(b) Coronary artery

(c) Renal artery

(d) Pulmonary artery

(vi) Assertion (A): There is frequent urination in summer than in winter.

Reason (R): In summer we lose a lot of water as sweat, so the kidneys reabsorb more water. Hence, urine formed is less in summer than in winter.

(a) Both A and R are True

(b) Both A and R are False

(c) A is True and R is False

(d) A is False and R is True

(vii) The age restrictions for marriage for boys and girls by law in India is:

(a) Boys 18 years, Girls 21 years

(b) Boys 17 years, Girls 16 years

(c) Boys 21 years, Girls 18 years

(d) Boys 20 years, Girls 17 years

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(viii) Hari is fond of watching the fish in an aquarium. So, he set up an aquarium in his house. Along with a number of fresh water fish, he also placed a clown fish which is a salt water fish. After few hours, the clown fish was found dead and floating on water. This was due to:

(a) Endosmosis

(b) Exosmosis

(c) Osmoregulation

(d) Excretion

(ix) The solvent used for dissolving chlorophyll while testing a leaf for starch is:

(a) Sodium hydroxide

(b) Lime water

(c) Water

(d) Ethyl alcohol

(x) The structure related to storage and maturation of sperms in a human male is:

(a) Epididymis

(b) Epidermis

(c) Epithelium

(d) Endothelium

(xi) A sequence of DNA has 200 nitrogenous base pairs, of which 100 are Thymine-Adenine pairs. What is the number of Cytosine-Guanine pairs in this sequence:

(a) 50

(b) 200

(c) 100

(d) 25

(xii) The stress hormone in plants which functions during a drought is:

(a) Auxins

(b) Abscisic acid

(c) Ethylene

(d) Cytokinins

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(xiii) Compressed natural gas (CNG) is proposed to be a better alternative to fossil fuel Which of the following reasons makes it a better alternative?

P. Combustion leaves little or no residue

Q. Absence of Carbon in CNG

R. Easily available

(a) Only P

(b) Only Q

(c) Only P and R

(d) Only Q and R

(xiv) The ground substance present in chloroplast is:

(a) Stoma

(b) Stroma

(c) Grana

(d) Thylakoids

(xv) Lata wanted to cross the road. She looked on either side of the road and then walked across to the other side of the road.

Which of the following is / are involved in the process described above?

1. Cerebrum

2. Cerebellum

3. Skeletal muscles

4. Medulla Oblongata

(a) Only 3

(b) Only 1 and 3

(c) Only 1, 3 and 4

(d) Only 1, 2 and 3

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Question 2

(i) Name the following: [5]

(a) The respiratory pigment in Erythrocytes.

(b) The tissue that transports manufactured food from the leaves to all the parts of the plant.

(c) The type of gene, which in the presence of a contrasting allele, is not expressed.

(d) The duct which carries urine from the urinary bladder to outside the body.

(e) The collective term for the protective membranes of the brain.

(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 underlined. [5]

(a) Snake, <u>Grass</u>, Frog, Grasshopper

(b) Cochlea, Malleus, <u>Pinna</u>, Stapes

(c) Fibrin, Thrombin, Fibrinogen, <u>Platelets</u>

(d) Endodermis, Cortex, Xylem, <u>Epidermis</u>

(e) <u>Embryo</u>, Foetus, Blastocyst, Morula

(iii) Fill in the blanks with suitable words: [5]

The technical term for short sightedness is (a) _____. This defect is caused because the eyeball is (b) _____ from front to back or the lens is too (c) _____. It can be corrected by using a suitable (d) _____ lens. The power of the lens is mentioned in (e) _____.

(iv) Choose the odd one out from the following terms and name the category to which the others belong: [5]

(a) Newspapers, Vegetable peels, Electric bulbs, Animal excreta

(b) Renal pelvis, Renal artery, Renal Cortex, Renal medulla

(c) Urochrome, Urea, Keratin, Uric acid

(d) Oval window, Cochlea, Auditory canal, Round window

(e) ADH, TSH, ACTH, NADP

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(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)	Spinal Cord	1.	Adrenalin
(b)	Adrenal medulla	2.	44
(c)	Number of autosomes in man	3.	Nephrons
(d)	Kidney	4.	46
(e)	Adrenal cortex	5.	Thyroxine
		6.	Neurons
		7.	Cortisones

SECTION B

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

Question 3

(i) The gene of red hair is recessive to the gene for black hair. What will be the hair colour of a person if he inherits a gene for red hair from his mother and a gene for black hair from his father? [1]

(ii) State Mendel's Law of Dominance. [2]

(iii) What are Homologous chromosomes? [2]

(iv) Differentiate between Phenotype and Genotype. [2]

(v) Draw a neat, labelled diagram of a duplicated chromosome. [3]

Question 4

(i) Mention the exact location of Corpus callosum. [1]

(ii) What are the two hormones secreted by Corpus luteum? [2]

(iii) Differentiate between Menarche and Menopause. [2]

(iv) What is the significance of placenta in the growth of foetus? [2]

(v) Draw a neat, labelled diagram of a human gamete that has the sex chromosome.Y [3]

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Question 5

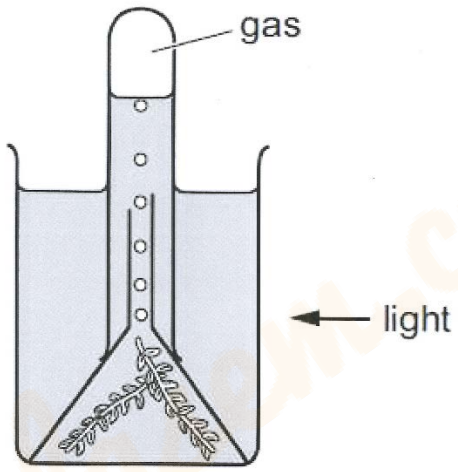
(i) Explain the term – Photsynthesis. [1]

(ii) Write the overall chemical equation of Photosynthesis. [2]

(iii) A potted plant having variegated leaves was exposed to sunlight for 3 hours. One of the leaves was plucked and tested for starch. What will be your observation after the starch test? [2]

(iv) The initial food prepared by a green plant is A, which is later converted to food B by polymerization. Name food A and food B. [2]

(v) Study the diagram given below and answer the questions that follow: [3]



(a) Name the gas released when the setup was placed in sunlight.

(b) Give an example of an aquatic plant that can be used in the above experiment.

(c) What will happen if a pinch of Sodium bicarbonate is added to the water?

Question 6

(i) Give the exact location of genes. [1]

(ii) Differentiate between Karyokinesis and Cytokinesis. [2]

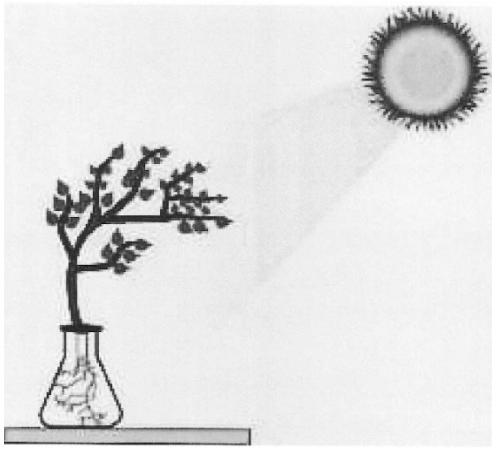
(iii) Mention two significant features of the stage Anaphase during Mitosis. [2]

(iv) How many daughter cells are formed at the end of Mitosis and Meiosis? [2]

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(v) Study the diagram given below and answer the questions that follow: [3]



(a) Name the phenomenon depicted by the shoot in the above diagram.

(b) Which plant hormone plays an important role in the above movement?

(c) Name one stimulus which gives a positive response for the roots but negative response for the shoot.

Question 7

(i) What is the scientific name for man? [1]

(ii) What are vestigial organs? Give one example. [2]

(iii) State two structural differences between an artery and vein. [2]

(iv) Mention any two features of the Cro-Magnon man. [2]

(v) Study the picture given below and answer the questions that follow: [3]



(a) Name the category of waste that is being disposed.

(b) Give an example of such a waste.

(c) Are they hazardous to humans and animals? Give a suitable reason to justify your answer.

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Question 8

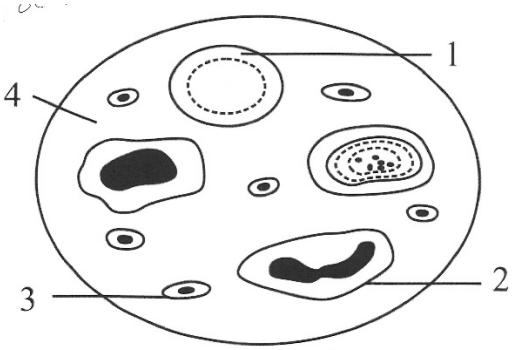
(i) Define – Osmosis. [1]

(ii) Name the two sensory cells in retina meant for light adaptation. [2]

(iii) Mention one function each for – Cerebrum and Cerebellum. [2]

(iv) State any two objectives of *Swachh Bharat Abhiyan*. [2]

(v) Given below is the diagram of human blood smear. Answer the questions that follow: [3]



(a) Mention one structural difference between 1 and 2.

(b) What is the function of part 3?

(c) Name the part labelled 4.

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