ICSE 2025 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 [ ].

Instruction for the Supervising Examiner

Kindly read aloud the Instructions given above to all the candidates present in the Examination Hall.

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) The Loops of Henle lie in

(a) Renal Cortex

(b) Renal Medulla

(c) Renal Pelvis

(d) Renal Artery **[Recall]**

(ii) The antiseptic present in tears:

(a) Iodine

(b) Hydrogen peroxide

(c) Lysozyme

(d) Lysosome **[Recall]**

(iii) **Assertion (A) :** The foetus respires but does not breathe.

Reason (R) : The maternal blood supplies oxygen to the foetus through placenta.

(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 **[Analysis]**

(iv) During ventricular systole, the atrioventricular valves (P)_____ and semilunar valves (Q) _____.

(a) P – close, Q – Open

(b) P – close, Q – Close

(c) P – open, Q – Close

(d) P – open, Q – Open **[Application]**

(v) The two cerebral hemispheres are joined by a sheet of fibres called:

(a) Pons

(b) Corpus luteum

(c) Hypothalamus

(d) Corpus callosum **[Recall]**

(vi) The onset of menstruation in a human female is called:

(a) Menopause

(b) Menarche

(c) Ovulation

(d) Oogenesis **[Recall]**

(vii) **Assertion (A):** Rods and Cones are photoreceptors in the sclera of eyeball.

Reason (R): Rods are sensitive to dim light.

(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. **[Application]**

(viii) Priya tried to match the hormones with their effect on the human body. She tabulated the pairs as follows:

Hormone	Effect on the body
P	Stimulates conversion of Glycogen to Glucose
Q	Reabsorption of water by the Nephrons.

Identify the correct pair of hormones.

(a) P – Insulin, Q – Glucagon.

(b) P – Adrenaline, Q – Oxytocin.

(c) P – Glucagon, Q – Vasopressin. **[Understanding & Application]**

(d) P – Vasopressin, Q – Adrenaline.

(ix) While studying the stages in the evolution of man, a well-developed chin is observed in

(a) Homo habilis

(b) Homo erectus

(c) Homo sapiens

(d) Australopithecus **[Recall]**

(x) A pair of corresponding chromosomes of the same shape, size and one from each parent is called:

(a) Autosomes

(b) Allosomes

(c) Analogous chromosomes

(d) Homologous chromosomes **[Recall]**

(xi) **Assertion (A):** We urinate more in summer.

Reason (R): Sweat glands are more active in summer.

(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 **[Understanding]**

(xii) Rahul inserted a hairpin into his right ear to remove ear wax. He felt a sudden sharp pain with loss of hearing. This was due to:

(a) Rupture of eardrum

(b) Rupture of vestibule

(c) Rupture of cornea

(d) Rupture of pinna **[Analysis]**

(xiii) **Assertion (A):** All food chains begin with herbivores.

Reason (R): Green plants are heterotrophs.

(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 **[Application]**

(xiv) A biology teacher asked her students to give two examples of vestigial organs in the human body.

Raj said: Wisdom teeth and Pinna

Sonu said: Body hair and large intestine

Lata said: Vermiform appendix and wisdom teeth

Abhay said: Pinna and Ossicles

Who were correct?

(a) Abhay and Sonu

(b) Sonu and Lata

(c) Raj and Lata **[Recall & Understanding]**

(d) Abhay and Raj

(xv) During a practical exam, a plant cell in a particular solution was placed under a compound microscope. Students were told to observe the cell and name the tonicity of the solution and mention the process that occurred in the cell.



(a) Isotonic, Endosmosis

(b) Hypotonic, Active Transport

(c) Hypertonic, Endosmosis **[Analysis & Application]**

(d) Hypertonic, Exosmosis

Question 2

(i) Name the following: [5]

(a) The basic units of heredity. **[Recall]**

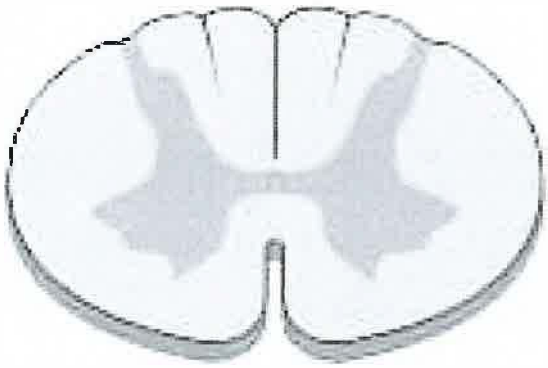
(b) The undesirable change in the environment leading to its deterioration. **[Understanding]**

(c) The structure that connects placenta and the human foetus. **[Analysis]**

(d) The statistical study of human population. **[Recall]**

(e) The nitrogenous base that pairs with adenine. **[Understanding]**

(ii) Given below is the transverse section of the spinal cord. Read the information below the diagram and fill in the blanks: [5]



The spinal cord extends from the medulla oblongata of the brain and runs down through the whole length of the vertebral column. The spinal cord is covered by the meninges. It conducts impulses from the skin and muscles to the brain. It also conducts impulses from the brain to the muscles of the trunk and limbs.

The spinal cord is a part of the (a) _____ Nervous System. The grey matter in the picture given above consists of (b) _____ while the white matter consists of (c) _____. The spinal cord is concerned with the (d) _____ actions below the neck. (e) _____ is the bony structure that protects the spinal cord. **[Recall & Application]**

(iii) 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) Apical meristem, Positive phototropism, <u>Auxins,</u> Cell elongation.

(b) Urethra, Urinary bladder, Ureter, <u>Kidney.</u>

(c) <u>Auditory canal,</u> Organ of Corti, Stapes, Malleus.

(d) Cell membrane, <u>Chromatin fibres,</u> Cell wall, Cytoplasm.

(e) Lungs, Right auricle, <u>Inferior venacava,</u> Pulmonary Artery.

[Analysis]

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

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

Answer: Liver.

(a) Food conducting tissue in vascular plants.

(b) A cell formed by the fusion of gametes.

(c) The smallest blood vessels in the human body.

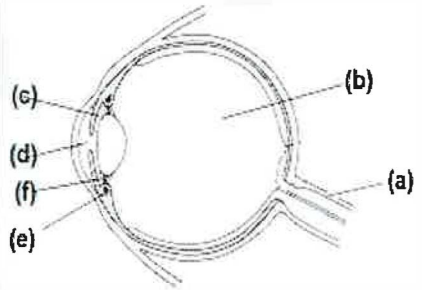
(d) A tubular passage that connects the pharynx and the middle ear.

(e) The openings on the barks of trees through which transpiration occurs.

[Understanding]

(v) Given below is a cross section of the **human eye**. Match the structures marked (a) to (e) with their correct functions: [5]

Example: (f) - 6. Holds the lens in position

Cross section of Human Eye	Functions
	1. Protects retina 2. Regulates the size of the pupil 3. Alters the shape of the lens 4. Keeps the lens moist 5. Transmits nerve impulses to brain 6. Holds the lens in position

[Analysis]

SECTION B

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

Question 3

(i) Explain the term – Active transport. [1]

[Recall]

(ii) Name the structures through which Transpiration and Guttation occur in a plant. [2]

[Understanding]

(iii) How does the rate of Transpiration differ when there is : [2]

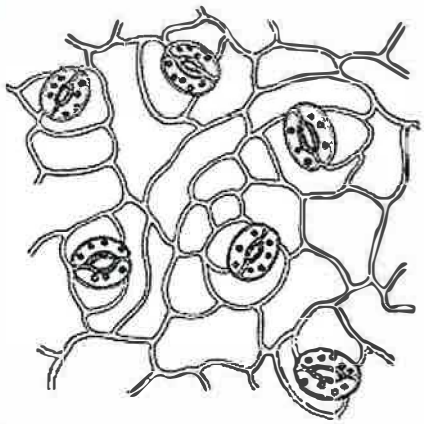
(a) High temperature

(b) High humidity **[Analysis]**

(iv) Write the overall chemical equation for Photosynthesis. [2]

[Recall]

(v) Sam observed a slide containing the lower epidermis of a leaf under a microscope. A number of tiny openings between the epidermal cells were present as shown below in the diagram: [3]



(a) What are these tiny openings called?

(b) Name the cells that regulate the opening and closing of these structures.

(c) Which ion is responsible for the opening and closing of these openings?

[Application]

Question 4

(i) Why is Adrenaline called 'The Emergency Hormone'? [1]

[Understanding]

(ii) Expand the abbreviation – ADH. Give one example of a diuretic substance. [2]

[Recall]

(iii) Mention the significance of the following minerals: [2]

(a) Iodine in our food.

(b) Magnesium for green plants.

[Application]

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

[Recall]

(v) Draw a neat, labelled diagram of a root hair. [3]

[Recall]

Question 5

(i) Mention one characteristic of roots for absorbing water from the soil. [1]

[Understanding]

(ii) What is Parthenocarpy? Give one example. [2]

[Recall]

(iii) State the difference between Micturition and Parturition. [2]

[Recall]

(iv) Write any two functions of Lymph. [2]

[Understanding]

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



(a) How does water get polluted?

(b) What is the effect of water pollution on human life?

(c) Mention one control measure to stop the pollution of water bodies.

[Analysis & Application]

Question 6

(i) State Mendel's Law of Segregation [1]

[Recall]

(ii) What are Tropic hormones? Give one example [2]

[Understanding]

(iii) Differentiate between the terms Phenotype and Genotype [2]

[Understanding]

(iv) What is the significance of Testes being placed in Scrotal sacs? [2]

[Analysis]

(v) Draw a neat, labelled diagram of a human sperm. [3]

[Understanding, Creative & Skill]

Question 7

(i) What is the scientific name of the pea plant that Mendel used for his experiments? [1]

[Recall]

(ii) Mention the surgical methods of contraception in: [2]

(a) Men

(b) Women **[Understanding]**

(iii) Name two harmful effects of noise pollution. [2]

[Application]

(iv) Which parts of a plant exhibit: [2]

(a) Negative Geotropism

(b) Positive Hydrotropism **[Analysis]**

(v) Kathak is an Indian classical dance which involves a lot of spinning by the dancers. The learners of this dance experience dizziness in the beginning while spinning. [3]



(a) Name the part of the membranous labyrinth responsible for this dizziness.

(b) Give a suitable reason for your answer.

(c) Mention the nerve that carries the impulse for dizziness to the brain.

[Analysis & Application]

Question 8

(i) How does Transpiration help in the uptake of water from the soil? [1]

[Application]

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

(a) Fresh water fish when placed in hypertonic salt solution absorb water and burst.

(b) Seminiferous tubules secrete Testosterone. **[Analysis]**

(iii) During Mitosis what is the position of chromatids in: [2]

(a) Metaphase

(b) Anaphase **[Recall]**

(iv) Chris was watching the display of fireworks in the sky. [2]



(a) Trace the path of the light rays using the following terms:

Fovea, Lens, Conjunctiva, Pupil, Cornea

(b) Name the nerve that carries the impulse for vision to the brain. **[Application]**

(v) Draw a neat, labelled diagram of a Malpighian Capsule. [3]

[Recall]

ICSE 2025 SPECIMEN

DRAFT MARKING SCHEME – BIOLOGY (SCIENCE PAPER 3)

Question 1 [15x1]

(i)	(b)	Renal Medulla
(ii)	(c)	Lysozyme
(iii)	(c)	Both A and R are True
(iv)	(a)	P – close, Q – Open
(v)	(d)	Corpus callosum
(vi)	(b)	Menarche
(vii)	(b)	A is False and R is True.
(viii)	(c)	P – Glucagon, Q – Vasopressin.
(ix)	(c)	Homo sapiens
(x)	(d)	Homologous chromosomes
(xi)	(b)	A is False and R is True
(xii)	(a)	Rupture of eardrum
(xiii)	(d)	Both A and R are False
(xiv)	(c)	Raj and Lata
(xv)	(d)	Hypertonic, Exosmosis

Question 2

(i) [5x1]

	(a)	Genes
	(b)	Pollution
	(c)	Umbilical Cord
	(d)	Demography
	(e)	Thymine

(ii) [5x1]

	(a)	Central
	(b)	Cytons / Nerve cell bodies
	(c)	Axons / Nerve cell fibres
	(d)	Reflex
	(e)	Vertebral column

(iii) (a) Auxins, Apical meristem, Cell elongation, Positive phototropism [5x1]

(b) Kidney, Ureter, Urinary bladder, Urethra

(c) Auditory canal, Malleus, Stapes, Organ of Corti

(d) Chromatin fibres, Cytoplasm, Cell membrane, Cell wall

(e) Inferior venacava, Right auricle, Pulmonary Artery, Lungs.

(iv) (a) Phloem [5x1]

(b) Zygote

(c) Capillaries

(d) Eustachian Tube

(e) Lenticels

(v) (a) 5 [5x1]

(b) 1

(c) 2

(d) 4

(e) 3

Question 3

(i) It is the movement of salt or ion across a cell membrane from lower to higher concentration by the use of energy. [1]

(ii) Transpiration – Stomata, Lenticels, Cuticle [2]

Guttation – Hydathodes

(iii) (a) Increases [2]

(b) Decreases

(iv) $6CO_2 + 12H_2O \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + 6H_2O + 6O_2$ [2]

(v) (a) Stomata [3]

(b) Guard cells

(c) K+ / Potassium ions

Question 4

(i) It is secreted under conditions of stress like anger, fear, excitement. It prepares the body to face the emergency situation. [1]

(ii) Antidiuretic Hormone [2]

Alcohol, Coconut water, Caffeine, etc.

(Any one)

(iii) (a) For synthesis of thyroxine by Thyroid gland [2]

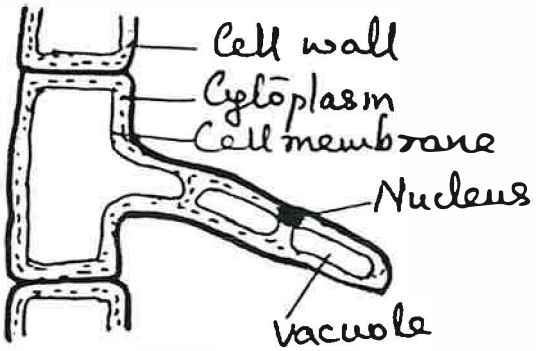
(b) For synthesis of chlorophyll.

(iv) - To clean streets, roads, cities and towns [2]

- To eliminate open defecation by constructing toilets.
- Management of solid and liquid waste.

(Any two)

(v) Diagram of a root hair. [3]



Question 5

(i) - Root hairs have thin cell walls [1]

- Enormous surface area of roots
- Higher concentration of cell sap than soil water

(Any one)

(ii) It is development of fruits without fertilization. [2]

Apples, tomatoes etc.

(iii) Micturition: It is the expulsion of urine from the urinary bladder [2]

Parturition: It the expulsion of the fully developed foetus from the uterus at the end of gestation.

(iv) - Absorption of fats from intestines [2]

- Drains excess tissue fluid into blood
- Protects body from disease causing germs.

(v) (a) Sewage, industrial effluents, oil spills [3]

(b) Spread of diseases like diarrhea, cholera, typhoid.

(c) Sewage must be treated before letting it into water bodies.

Question 6

(i) The two members of a pair of factors separate during gamete formation. [1]

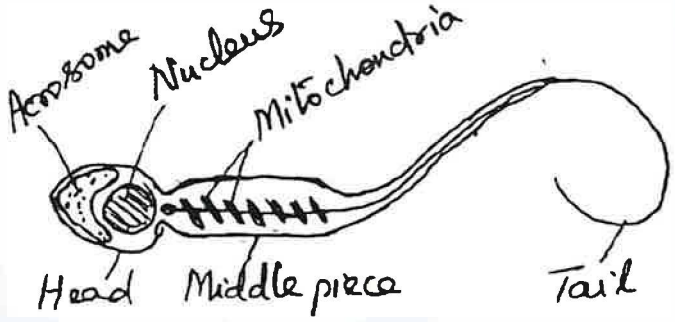
(ii) They stimulate other endocrine glands to secrete their specific hormones. E.g. TSH. [2]

(iii) Phenotype – It is the observable characteristic which can be controlled genetically. [2]

Genotype – It is the set of genes present in the cells of an organism.

(iv) To maintain an ideal temperature of 2 to 3° C less than body temperature for survival of sperms. [2]

(v) Diagram of human sperm. [3]



Question 7

(i) Pisum Sativum [1]

(ii) (a) Vasectomy [2]

(b) Tubectomy

(iii) - Disturbs sleep [2]

- Interrupts concentration of thought

(iv) (a) Shoot [2]

(b) Root

(v) (a) Semicircular canals [3]

(b) The fluid in the semi circular canals continue to spin for a short time even after the dancer stops spinning. This results in dizziness

(c) Auditory nerve.

Question 8

(i) As water evaporates, a suction force is created which draws water up through the stem. [1]

(ii) (a) Fresh water fish when placed in hypertonic salt solution lose water and shrink [2]

Or

Marine fish when placed in hypotonic salt solution absorb water and burst.

(b) Seminiferous tubules produce sperms.

Or

Leydig cells secrete Testosterone.

(iii) (a) In the equatorial plane [2]

(b) Sister chromatids separate and move towards the opposite poles.

(iv) (a) Conjunctiva, Cornea, Pupil, Lens, Fovea [2]

(b) Optic nerve.

(v) Diagram of Malpighian capsule [3]

