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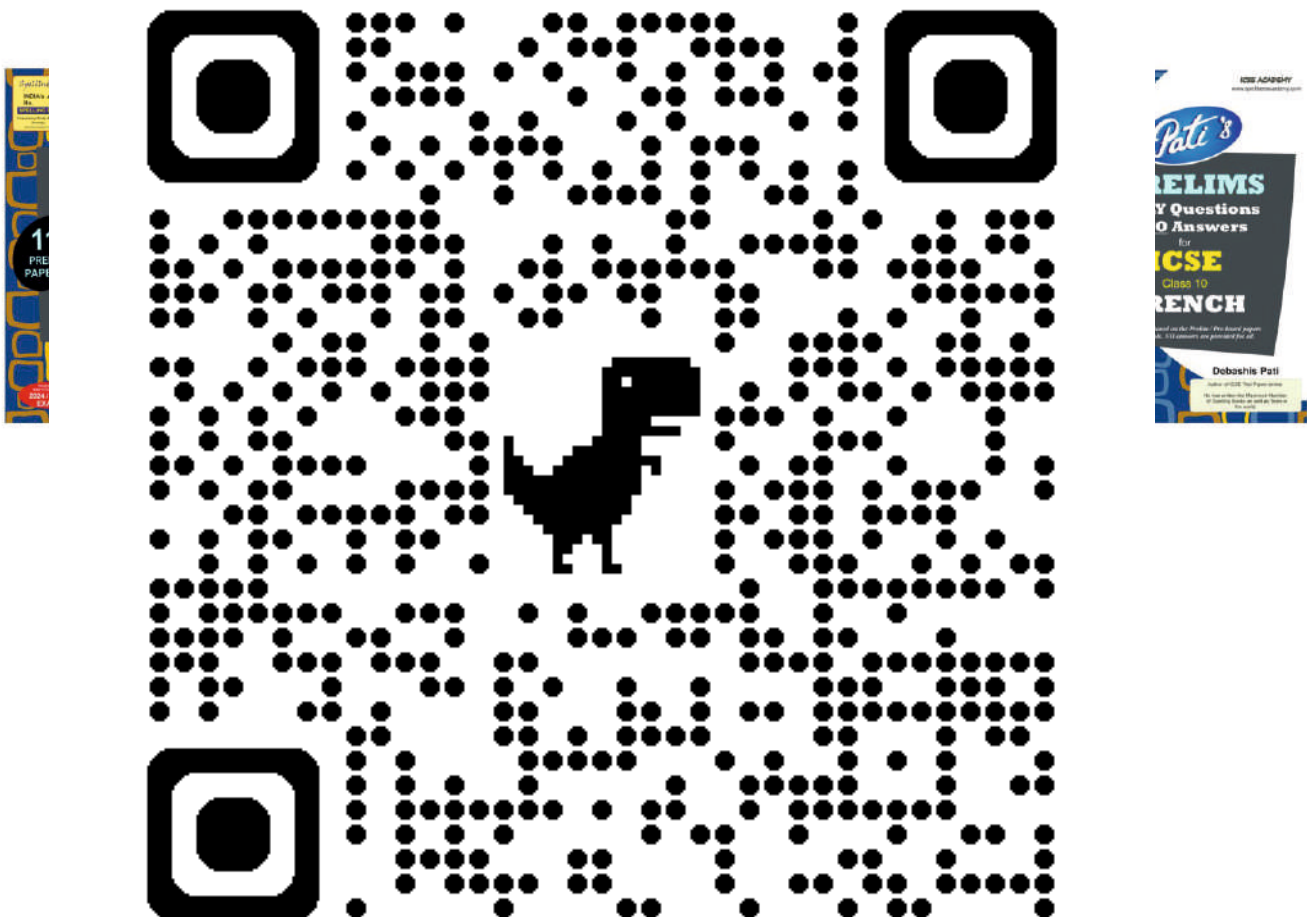
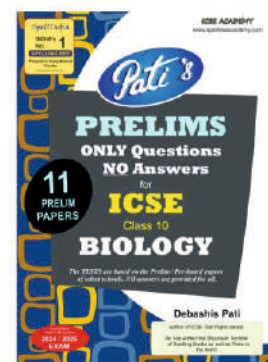
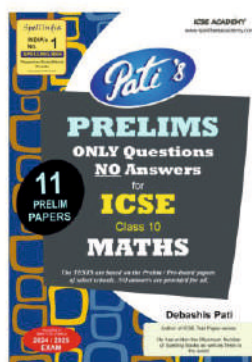
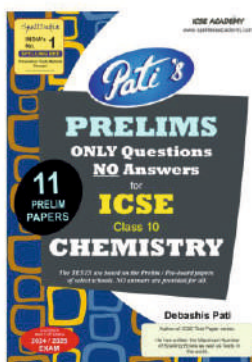
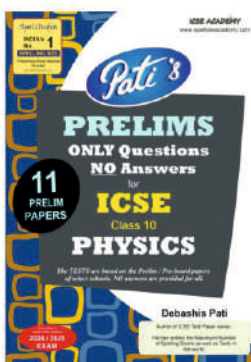
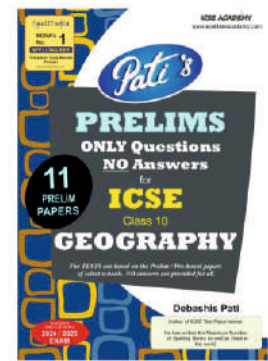
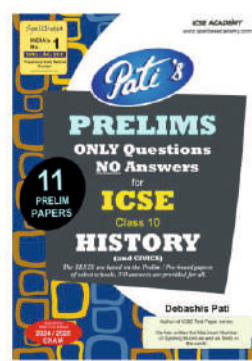
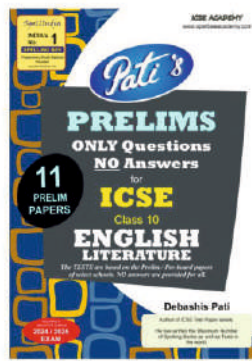
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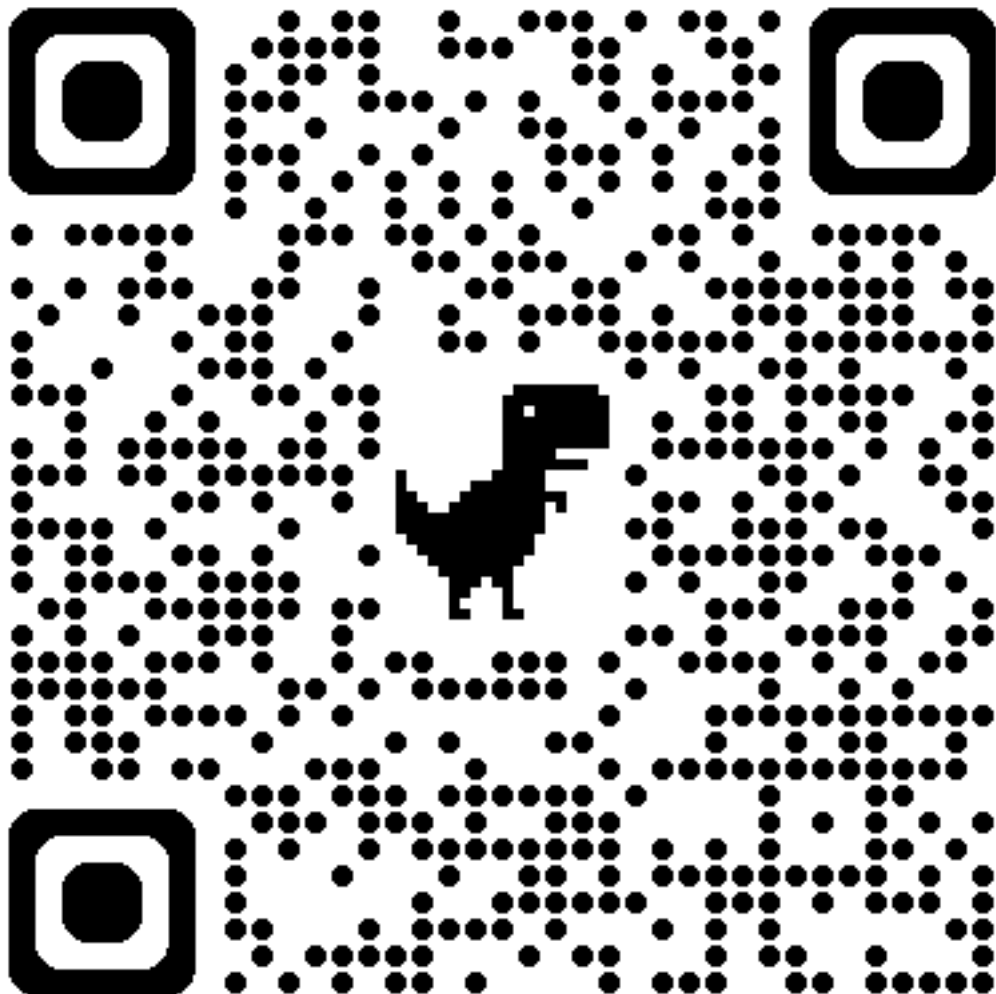


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- 2026

ICSE 2026 EXAMINATION
SPECIMEN QUESTION PAPER
BIOLOGY
(SCIENCE PAPER – 3)

Maximum Marks: 80

Time allowed: Two hours

1. *Answers to this Paper must be written on the paper provided separately.*
2. *You will not be allowed to write during first 15 minutes.*
3. *This time is to be spent in reading the question paper.*
4. *The time given at the head of this Paper is the time allowed for writing the answers.*

5. ***Section A is compulsory. Attempt any four questions from Section B.***
6. *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 (40 Marks)

(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) Allen's blood report showed an abnormal decrease in the number of R.B.C. He is suffering from:

- (a) Polycythemia
- (b) Erythropenia
- (c) Glycosuria
- (d) Haemophilia

[Application]

(ii) A farmer notices that storing ripe mangoes with unripe ones speeds up the ripening process. The phytohormone primarily responsible for this phenomenon is:

- (a) Auxins
- (b) Cytokinins
- (c) Gibberellins
- (d) Ethylene

[Analysis]

(iii) **Assertion (A)** : Oxygen is produced during light dependent reactions of photosynthesis.

Reason (R) : Oxygen is released as a byproduct during photolysis.

- (a) (A) is true and (R) is false.
- (b) (A) is false and (R) is true.
- (c) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (d) Both (A) and (R) are true but (R) is not the correct explanation of (A).

[Understanding]

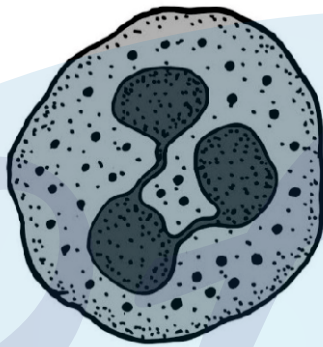
(iv) Reena gets emotionally stressed when the school examinations are approaching. Which hormone is responsible for this condition?

- (a) Adrenaline
- (b) Thyroxine
- (c) Insulin
- (d) Growth hormone

[Application]

(v) The diagram given below is that of a Neutrophil.

The function is _____:



- (a) secreting hormone
- (b) transporting food
- (c) phagocytosis
- (d) producing antibodies

[Understanding
& Recall]

(vi) **Assertion (A):** Pituitary gland is known as the master gland.

Reason (R): It regulates the activities of other exocrine glands.

- (a) (A) is true and (R) is false.
- (b) (A) is false and (R) is true.
- (c) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (d) Both (A) and (R) are true but (R) is not the correct explanation of (A).

[Understanding]

- (vii) Aruna went to a theatre to watch a movie on a bright sunny morning. As she came out of the theatre, she felt a dazzling effect and could not open her eyes. After a few minutes her vision became normal. This is due to:



- (a) Accommodation of eye
(b) Mutation
(c) Polarisation
(d) Adaptation of eyes [Analysis]
- (viii) Reflex actions provide a survival advantage because they:
- (a) are controlled by the cerebrum.
(b) are controlled by the medulla oblongata.
(c) require no conscious thought, allowing rapid responses.
(d) always involve the spinal cord. [Recall]
- (ix) Industrial melanism is the phenomenon by which the peppered moth:
- (a) die due to industrial growth.
(b) in polluted areas, became darker in colour for better camouflage.
(c) became lighter in colour due to natural selection. [Understanding & Recall]
(d) became resistant to industrial pollution.

(x) The hormone that maintains the thickening of the endometrium during pregnancy is:

- (a) Oestrogen
- (b) ACTH
- (c) Progesterone
- (d) Oxytocin

[Recall]

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

- (a) Menopause
- (b) Menarche
- (c) Ovulation
- (d) Oogenesis

[Understanding
& Recall]

(xii) The number of autosomes and allosomes present in a human cell:

- (a) 22 allosomes, 1 autosome
- (b) 22 pairs of autosomes, 1 pair of allosome
- (c) 22 autosomes, 1 allosome
- (d) 22 pairs of allosomes, 1 pair of autosome

[Recall]

(xiii) Cultural revolution favours a steep rise in human population. Identify the correct sequence of revolution:

- (a) Tool making, Scientific and Industrial, Agricultural
- (b) Agricultural, Tool making, Scientific and Industrial
- (c) Scientific and Industrial, Agricultural, Tool making
- (d) Tool making, Agricultural, Scientific and Industrial

[Understanding]

(xiv) Tanvi tried to match the phases of menstrual cycle with the number of days as given in the table below:

PHASE	DAYS
P – Follicular Phase	Day 5 – 12
Q – Luteal Phase	Day 15 – 28
R – Menstrual Phase	Day 3 – 5
S – Ovulatory Phase	Day 13 or 14

Identify the correct sequence:

- (a) P, Q, R, S
- (b) Q, S, R, P
- (c) R, P, S, Q
- (d) S, R, P, Q

[Application]

(xv) Aditya who is fond of roller skating. Identify the correct terms which help him to maintain his body balance:

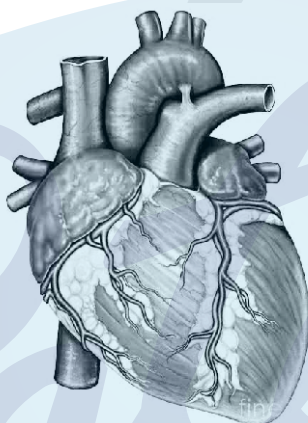


- (a) Cerebellum, Semicircular canals, Vestibule
- (b) Vestibule, Sclera, Cerebrum
- (c) Malleus, Semicircular canals, Utriculus
- (d) Sacculus, Stapes, Cochlea

[Analysis & Application]

Question 2

- (i) Give the biological/technical terms for the following: [5]
- (a) A mixture of smoke and fog.
 - (b) The inner lining of uterus.
 - (c) The pressure that is responsible for the movement of water molecules across the cortical cells of the root.
 - (d) The ground substance present in a chloroplast.
 - (e) The fluid present between the layers of meninges. [Recall]
- (ii) Given below is the diagram of a human heart. Read the information below the diagram and fill in the blanks: [5]



The human heart pumps blood throughout the body. It is the size of a large fist. The heart is located between the lungs in the thoracic cavity. It has four chambers. The heart functions all through the lifespan of a person and is responsible for the survival of the person.

The heart is enclosed by a membrane called (a) _____ (*Pericardium / Pleura*). The ventricles give rise to two large blood vessels called (b) _____ (*Pulmonary vein / Pulmonary artery*) and (c) _____ (*Aorta / Venacava*). The flaps of the cuspid valves are kept in position by (d) _____ (*Chordae tendinae / Endometrium*). (e) _____ (*Hepatic / Coronary*) arteries supply oxygenated blood to the walls of the heart.

[Recall & Application]

(iii) Choose the odd term out from each of the following set of terms. Mention the category to which the remaining three belong: [5]

- (a) Sulphur dioxide, Oxygen, Carbon monoxide, Nitrogen dioxide.
- (b) Pons, Epidermis, Xylem, Phloem.
- (c) Tympanum, Pinna, Auditory canal, Malleus.
- (d) Ureter, Urethra, Uterus, Renal Pelvis.
- (e) Stomata, Lenticles, Cuticle, Root hair.

[Understanding & Application]

(iv) Rajeev, a 10 year old boy, went to an Ophthalmologist to get his eyes tested. He noticed a poster in the clinic with questions related to the parts of human eye. Help Rajeev answer the questions: [5]

- (a) Which is the fluid that lubricates the eye?
- (b) Which cells help in colour vision?
- (c) Which nerve sends impulses from the eyeball to the brain?
- (d) Name the structure that gives colour to the eyes.
- (e) Name the part that allows entry of light rays into the eye.

[Application & Recall]

(v) Study the diagram given below and match the structure with its function: [5]

Example: Scrotum - (f)

Structure	Functions
	(a) Secrete Testosterone
	(b) Transports sperms to Epididymis
	(c) Stores sperms till maturation
	(d) Transport sperms to urethra
	(e) Produce sperms
	(f) Regulates temperature of Testis.

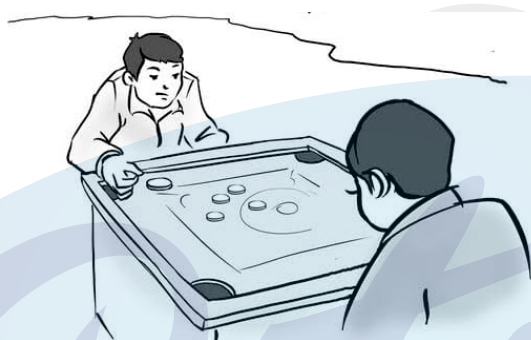
[Understanding & Recall]

SECTION B (40 Marks)

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

Question 3

- (i) Explain the term *Menarche*. [1]
[Recall]
- (ii) In what form is water lost during transpiration and guttation from plants? [2]
[Recall]
- (iii) Ayush was in the final round of a carrom match. He was focussing intently on the strokes of the opponent player. [2]

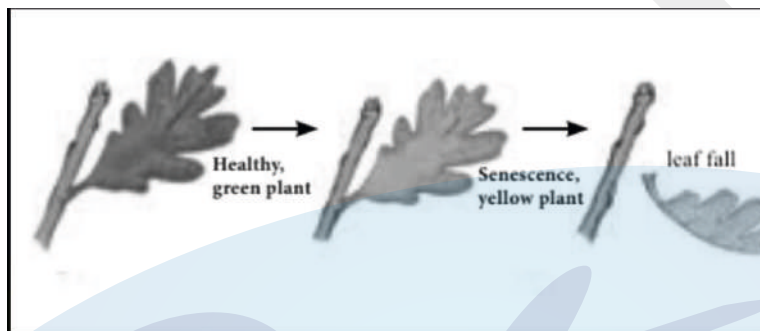


- (a) Which part of the brain helps Ayush to focus on the game? [1]
(b) Name the part of the brain that co-ordinates his muscles while using the striker. [2]
[Analysis & Application]
- (iv) State the permeability of cell membrane and cell wall. [2]
[Recall]
- (v) Draw a neat, labelled diagram of a cross section of an Artery and a Vein. [3]
[Understanding & Skill]

Question 4

- (i) What is Excretion? [1]
[Recall]
- (ii) Differentiate between *Diabetes mellitus* and *Diabetes insipidus* with reference to the hormone involved. [2]
[Understanding]

- (iii) Give the common name and the scientific name of the plant on which Gregor Mendel conducted his breeding experiments. [2]
[Recall]
- (iv) Name the tonicity of the solutions for a living cell to show Endosmosis and Exosmosis. [2]
[Understanding & Recall]
- (v) Plant hormones are produced in extremely low concentrations in plants to regulate the physiological processes and tropic movements – [3]



- (a) Name one plant hormone responsible for the changes shown in the above picture.
- (b) Identify a hormone that has an opposite effect to the one depicted in the picture.
- (c) Give an example of a plant that shows Thigmotropism.

[Analysis & Application]

Question 5

- (i) What are non-biodegradable wastes? [1]
[Understanding & Recall]
- (ii) Mention *any two* objectives of the *Swachh Bharat Abhiyan*. [2]
[Recall]
- (iii) Arrange the following *food chain* in a proper sequence: [2]
- (a) Small fish, Penguin, Algae, Seal, Mosquito larvae
- (b) Woodpecker, Caterpillar, Mountain lion, Fox, Cabbage [Understanding]

(iv) Mention the number of cranial nerves and spinal nerves in a human being. [2]

[Recall]

(v) Surya used a plant with variegated leaves for an experiment on photosynthesis. He tested a leaf with iodine after keeping the plant in sunlight for a few hours. [3]



(a) Which parts of the leaf will turn blue black after the iodine test?

(b) What does this tell us about the role of chlorophyll in photosynthesis?

[Application &
Recall]

(c) Write the overall chemical equation for photosynthesis.

Question 6

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

[Recall]

(ii) State the rate of transpiration when the air surrounding a plant has: [2]

(a) more atmospheric humidity.

[Understanding
& Application]

(b) hot and dry air.

(iii) Expand the following abbreviations: [2]

(a) ACTH

(b) ADH

[Recall]

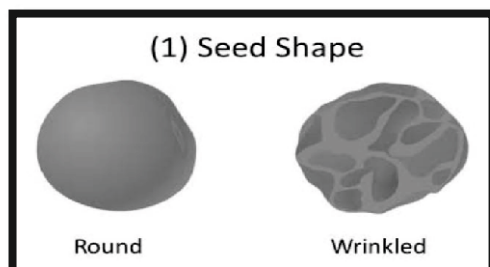
(iv) Which part of the ear equalizes air pressure on either side of the ear drum? [2]

Where is this structure located?

[Understanding
& Recall]

- (v) Santosh loved his garden, especially his pea plants. One year, he noticed that all the pea plants he grew from one batch of seeds had round seeds. Curious, he took the seeds from one of those plants and grew a new generation. To his surprise, 75% of the new plants had round seeds, but 25% had wrinkled seeds.

[3]



- (a) What were the genotypes of the parent plants that Santosh originally planted?
- (b) Which trait is dominant – round or wrinkled seeds?
- (c) What is the genotypic ratio of the second generation (F₂) plants?

[Analysis]

Question 7

- (i) Explain the term *Natality*.
- (ii) Distinguish between Sympathetic system and Parasympathetic system on the basis of heartbeat.
- (iii) Meena covered a potted plant as shown below with a transparent plastic bag. She observed water droplets inside the bag after a few hours when kept in sunlight.

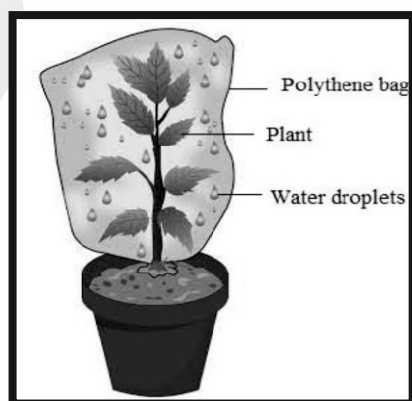
[1]

[Recall]

[2]

[Understanding
& Recall]

[2]



- (a) Name the process that resulted in the formation of water droplets inside the bag. [Analysis & Application]
- (b) Define the process mentioned above. [2]
- (iv) Mention the regions of the kidney where we can find glomerulus and Henle's loop. [Understanding & Recall]
- (v) Draw a neat, labelled diagram to show the internal structure of a root hair. [3]
- [Analysis & Application]

Question 8

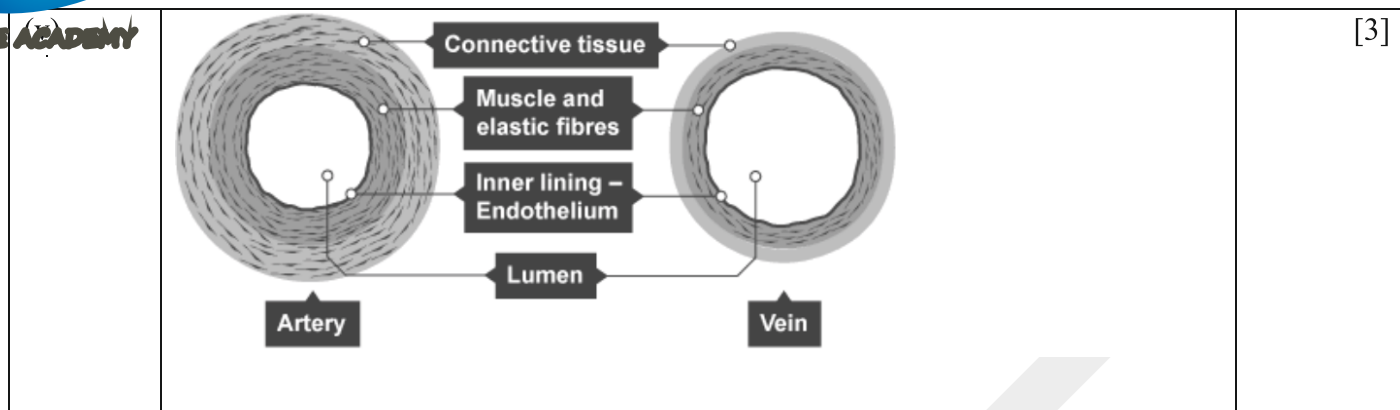
- (i) How does the ozone layer depletion affect life on earth? [1]
- [Application]
- (ii) Mention two body features of *Australopithecus*. [2]
- [Recall]
- (iii) Identical twins are always of the same gender. Explain why. [2]
- [Understanding]
- (iv) We should not insert sharp objects into the ear to remove ear wax. Give a suitable reason. [2]
- [Application]
- (v) In a school experiment, a few students grow plants in pots placed horizontally as shown below. After a few days, the students observed that the roots bent downward, and the shoots curved upward. [3]



- (a) Name the tropic movement seen in shoots.
- (b) Why do roots always grow downwards? [Analysis & Application]
- (c) Which phytohormone regulates the above tropic movements? [2]

Question 1		[15x1]
(i)	(b) Erythropenia	
(ii)	(d) Ethylene	
(iii)	(c) Both (A) and (R) are true and (R) is the correct explanation of (A).	
(iv)	(a) Adrenaline	
(v)	(c) Phagocytosis	
(vi)	(a) (A) is True but (R) is False	
(vii)	(d) Adaptation of eyes	
(viii)	(c) Require no conscious thought, allowing rapid responses.	
(ix)	(b) In polluted areas became darker in colour for better camouflage.	
(x)	(c) Progesterone	
(xi)	(a) Vasectomy in males, Tubectomy in females	
(xii)	(b) 22 pairs of autosomes, 1 pair of allosome	
(xiii)	(d) Tool making, Agricultural, Scientific and Industrial	
(xiv)	(c) R, P S, Q	
(xv)	(a) Cerebellum, Semicircular canals, Vestibule	
Question 2		
(i)	(a) Smog (b) Endometrium (c) Root pressure (d) Stroma (e) Cerebrospinal fluid	[5x1]
(ii)	(a) Pericardium (b) Pulmonary artery (c) Aorta (d) Chordae tendinae (e) Coronary	[5x1]

	Odd term	Category	[5x1]
	(a) Oxygen	Air pollutants	
	(b) Pons	Plant tissues	
	(c) Malleus	Parts of outer Ear	
	(d) Uterus	Parts of Urinary system	
	(e) Root hair	Parts through which transpiration takes place.	
(iv)	(a) Tears (b) Cones (c) Optic nerve (d) Iris (e) Pupil		[5x1]
(v)	(a) Interstitial cells (b) Efferent Ducts (c) Epididymis (d) Vas deferens (e) Seminiferous tubules		[5x1]
Question 3			
(i)	It is the onset of menstruation in a young female around the age of 13 years.		[1]
(ii)	Transpiration – As water vapour Guttation – As water droplets		[2]
(iii)	(a) Cerebrum (b) Cerebellum		[2]
(iv)	(a) Cell membrane - Semipermeable (b) Cell wall – Freely permeable		[2]

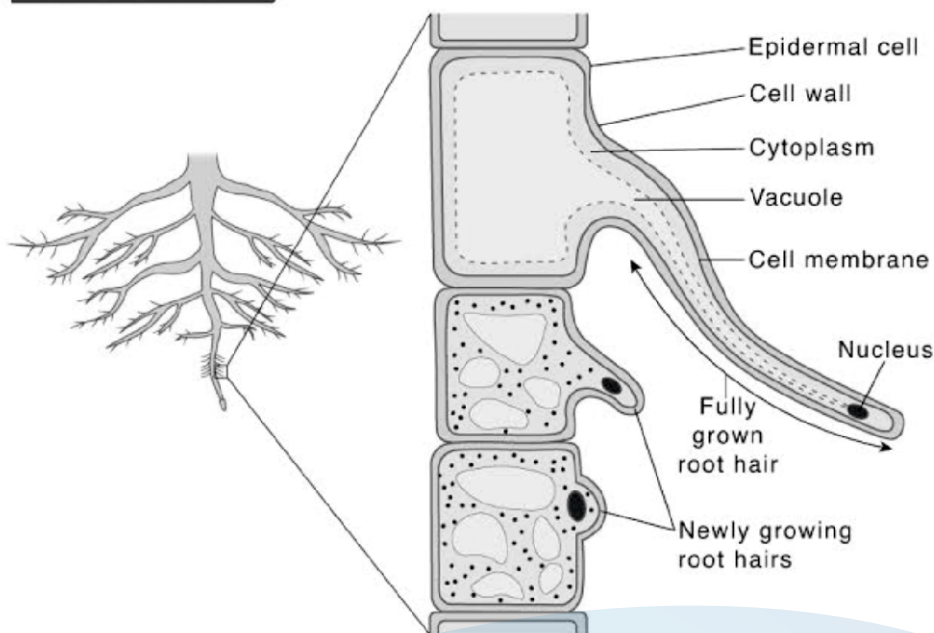


		[3]
Question 4		
(i)	It is the removal of harmful nitrogenous waste products from the body.	[1]
(ii)	Diabetes mellitus – Hyposecretion of Insulin. Diabetes insipidus – Hyposecretion of ADH.	[2]
(iii)	Common name – Garden pea Scientific name – <i>Pisum sativum</i>	[2]
(iv)	Endosmosis – Hypotonic solution Exosmosis – Hypertonic solution	[2]
(v)	(a) Abscisic acid, Ethylene (b) Auxin (c) Peas, Grapes, Ivy	[3]
Question 5		
(i)	Materials that can not be broken down by the microorganism. They persist in the environment causing pollution.	[1]
(ii)	- To eliminate open defecation - To clean streets, infrastructure of cities and towns	[2]
(iii)	(a) Algae, Mosquito larvae, Small fish, Seal, Penguin. (b) Cabbage, Caterpillar, Wood pecker, Fox, Mountain lion.	[2]
(iv)	Cranial nerves – 12 pairs Spinal nerves – 31 pairs	[2]
(v)	(a) Green parts	[3]

	(b) Green parts contain chlorophyll which traps sunlight for photosynthesis. (c) $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$ (Carbon dioxide) (Water) (Glucose) (Oxygen) (Water)	
Question 6		
(i)	Out of a pair of contrasting characters present together, only one is able to express itself while the other remains suppressed.	[1]
(ii)	(a) Less transpiration (b) More transpiration	[2]
(iii)	ACTH – Adreno Cortico Tropic Hormone ADH – Antidiuretic Hormone	[2]
(iv)	Eustachian tube. Located in the middle ear.	[2]
(v)	(a) Heterozygous dominant – Rr (b) Round (c) 1:2:1	[3]
Question 7		
(i)	It is the number of live births per 1000 people of population per year.	[1]
(ii)	Sympathetic System – Heartbeat increases. Parasympathetic System – Heartbeat decreases and becomes normal.	[2]
(iii)	(a) Transpiration (b) It is the loss of water as water vapour from the aerial parts of a plant.	[2]
(iv)	Glomerulus – Renal cortex Henle's loop – Renal medulla	[2]

Root Hair

[3]



Question 8

(i)	Causes skin cancer, cataract, reduced crop yields, harms marine life.	[1]
(ii)	<ul style="list-style-type: none"> - Chin absent - Prognathus face - Projecting eyebrow ridges 	[2]
(iii)	Because they develop from a single fertilised egg.	[2]
(iv)	It may rupture the ear drum leading to deafness.	[2]
(v)	<ul style="list-style-type: none"> (a) Phototropism (b) Because the roots are positively Geotropic and Hydrotropic. (c) Auxins 	[3]



ICSE ACADEMY

Specimen Papers

- 2025

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 respire 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.
- (d) P – Vasopressin, Q – Adrenaline.

[Understanding
& Application]

(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

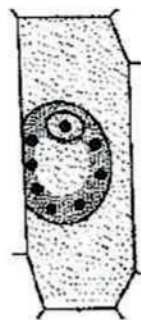
Who were correct?

- (a) Abhay and Sonu
- (b) Sonu and Lata
- (c) Raj and Lata
- (d) Abhay and Raj

[Recall & Understanding]

(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
- (d) Hypertonic, Exosmosis



[Analysis & Application]

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, Auxins, Cell elongation.
- (b) Urethra, Urinary bladder, Ureter, Kidney.
- (c) Auditory canal, Organ of Corti, Stapes, Malleus.
- (d) Cell membrane, Chromatin fibres, Cell wall, Cytoplasm.
- (e) Lungs, Right auricle, Inferior venacava, 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.

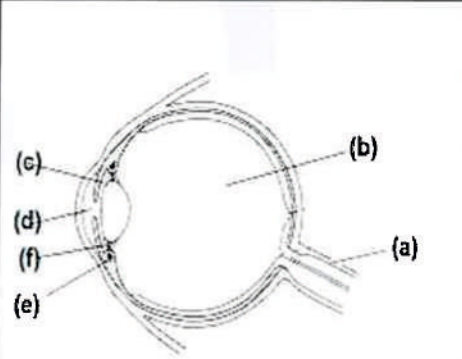
Answer: Liver.

- (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
	<ol style="list-style-type: none"> 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

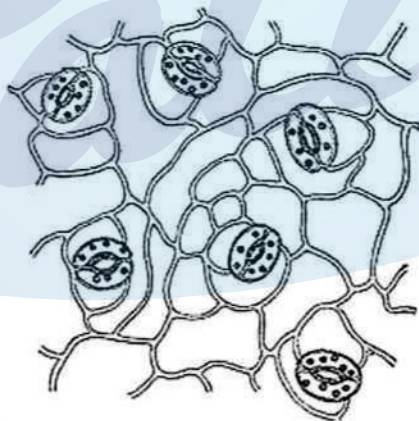
[Analysis]

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 the structures.
- (c) Which ion is responsible for the opening and closing of the 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? [3]
[Analysis & Application]
(c) Mention one control measure to stop the pollution of water bodies.

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]

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

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

[5x1]

[5x1]

[3]

- (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) $6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O} + 6\text{O}_2$ [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.

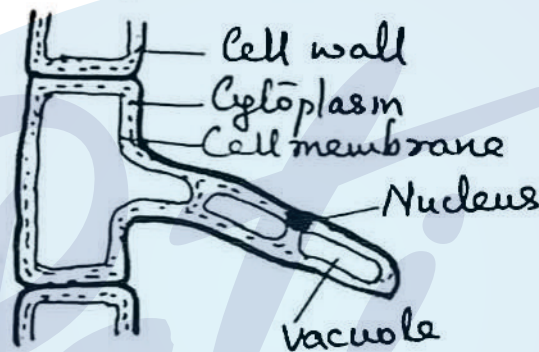
(Any one)

(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.

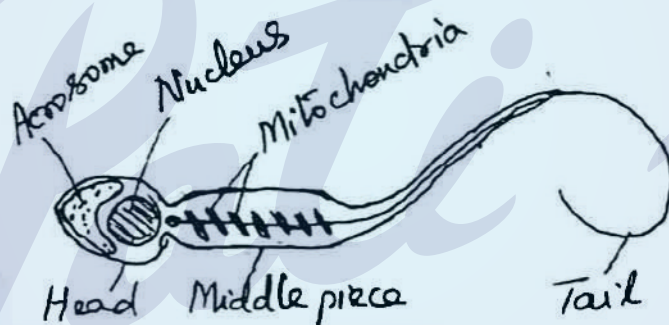
(iii) Micturition: It is the expulsion of urine from the urinary bladder [2]
Parturition: It the expulsion of the fully developed foetus from the uterus at the end of gestation.

(iv) - Absorption of fats from intestines [2]
- Drains excess tissue fluid into blood
- Protects body from disease causing germs.

- (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

[3]

- (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.

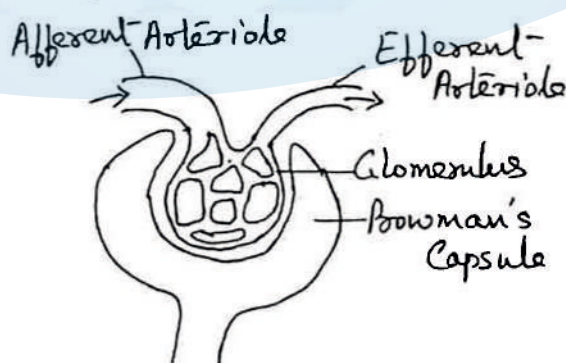
(iii) (a) In the equatorial plane [2]

(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]





ICSE ACADEMY

Specimen Papers

- 2024

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

- (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) Effluents
- (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

- (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

(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

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, Grass, Frog, Grasshopper
 - (b) Cochlea, Malleus, Pinna, Stapes
 - (c) Fibrin, Thrombin, Fibrinogen, Platelets
 - (d) Endodermis, Cortex, Xylem, Epidermis
 - (e) Embryo, 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

- (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

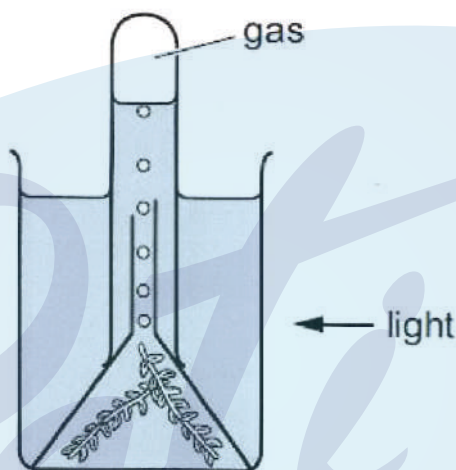
- (i) The gene of red hair is recessive to the gene for black hair. What will be the hair colour of a person if he inherits a gene for red hair from his mother and a gene for black hair from his father? [1]
- (ii) State Mendel's Law of Dominance. [2]
- (iii) What are Homologous chromosomes? [2]
- (iv) 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]

Question 5

- (i) Explain the term – Photosynthesis. [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]



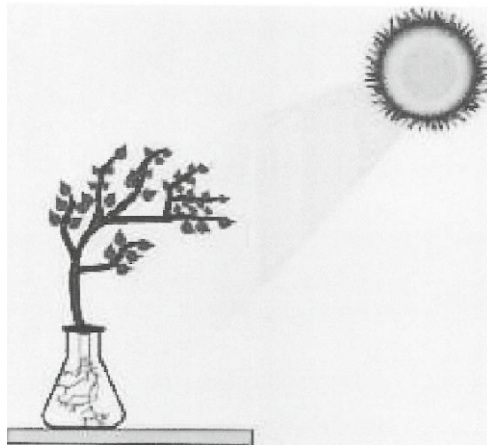
- (a) Name the gas released when the setup was placed in sunlight.
- (b) Give an example of an aquatic plant that can be used in the above experiment.
- (c) What will happen if a pinch of Sodium bicarbonate is added to the water?

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]

(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

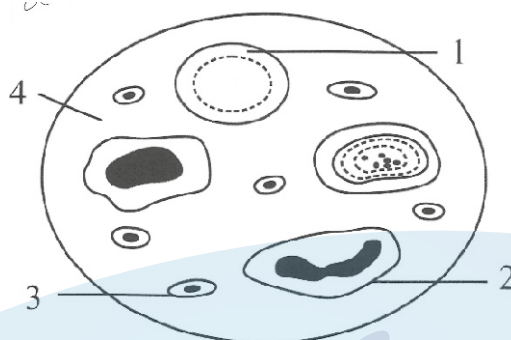
- (i) What is the scientific name for man? [1]
- (ii) What are vestigial organs? Give one example. [2]
- (iii) State two structural differences between an artery and vein. [2]
- (iv) Mention any two features of the Cro-Magnon man. [2]
- (v) Study the picture given below and answer the questions that 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.

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.



ICSE ACADEMY

Specimen Papers

- 2023

ICSE 2023 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

Select the correct answers to the questions from the given options. (Do not copy the question. [15]

Write the correct answer only) :

- (i) A muscular wall is absent in:
- (a) Capillary
 - (b) Arteriole
 - (c) Venule
 - (d) Vein
- (ii) On which day of the menstrual cycle does ovulation take place?
- (a) 1st day
 - (b) 5th day
 - (c) 14th day
 - (d) 28th day

- (iii) Ganong's Potometer is used to study:
- (a) Photosynthesis
 - (b) Rate of uptake of water
 - (c) Exosmosis
 - (d) Guttation
- (iv) The number of chromosomes in a human skin cell are:
- (a) 22
 - (b) 23
 - (c) 44
 - (d) 46
- (v) Cretinism and Myxedema are due to:
- (a) Hypersecretion of thyroxine
 - (b) Hypersecretion of growth hormone
 - (c) Hyposecretion of thyroxine
 - (d) Hypersecretion of growth hormone
- (vi) Light dependent phase of photosynthesis in green leaves takes place in:
- (a) Grana of chloroplast
 - (b) Stroma of chloroplast
 - (c) Nucleus of palisade cells
 - (d) Cytoplasm of palisade cells
- (vii) An example of a biodegradable substance is:
- (a) Aluminium
 - (b) Paper
 - (c) Plastic
 - (d) Steel

- (viii) The part that is cut in Vasectomy is:
- (a) Urethra
 - (b) Oviduct
 - (c) Fallopian tube
 - (d) Vas deferens
- (ix) Gestation period of human foetus is:
- (a) 40 days
 - (b) 280 days
 - (c) 280 weeks
 - (d) 40 months
- (x) The part of the human eye where the rods and cones are located is:
- (a) Iris
 - (b) Retina
 - (c) Sclera
 - (d) Choroid
- (xi) Organ of Corti is present in:
- (a) Utriculus
 - (b) Sacculus
 - (c) Cochlea
 - (d) Incus
- (xii) The outermost covering of the brain is:
- (a) Arachnoid
 - (b) Piamater
 - (c) Pericardium
 - (d) Duramater

- (xiii) Cytokinins are predominantly present in:
- (a) Meristematic tissues
 - (b) Permanent tissues
 - (c) Endodermis
 - (d) Epidermis
- (xiv) Marine fish when placed in tap water bursts because of:
- (a) Diffusion
 - (b) Plasmolysis
 - (c) Endosmosis
 - (d) Exosmosis
- (xv) Urine is carried from kidney to urinary bladder by:
- (a) Uterus
 - (b) Urethra
 - (c) Umbilical cord
 - (d) Ureter

Question 2

- (i) Name the following: [5]
- (a) The suppressed allele of a gene.
 - (b) The knot like mass of blood capillaries in Bowman's capsule.
 - (c) The mineral element required for the synthesis of thyroxine.
 - (d) One gaseous compound that depletes the ozone layer.
 - (e) The statistical study of human population.
- (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) Soil water, Xylem, Root hair, Cortex
 - (b) Tympanum, Incus, Malleus, Stapes
 - (c) Pulmonary Vein, Left Ventricle, Aorta, Left auricle
 - (d) Sperm, Urethra, Sperm duct, Epididymis
 - (e) Aqueous humour, Optic nerve, Retina, Lens

- (iii) 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) Natality	1. DDT
(b) Soil pollutant	2. Death rate
(c) Starch test	3. Carbon monoxide
(d) Mortality	4. Iodine solution
(e) Air pollutant	5. Lime water
	6. Birth rate
	7. Growth rate

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

- (a) Thyroid gland, Lacrimal gland, Pituitary gland, Adrenal gland.
- (b) Detergents, Sewage, X-rays, Oil spills
- (c) Spinal cord, Cerebrum, Pons, Cerebellum
- (d) Chloroplast, Cell wall, Large Vacuoles, Centrosome.
- (e) Auxin, Oxytocin, Gibberellin, Cytokinin

- (v) State the exact location of the following structures: [5]

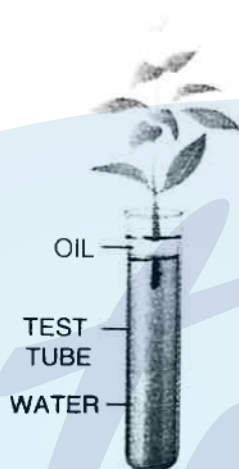
- (a) Thylakoids
- (b) Corpus callosum
- (c) Chordae tendinac
- (d) Prostate gland
- (e) Adrenal glands

SECTION B

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

Question 3

- (i) Define Guttation. [1]
- (ii) Give one difference between Lenticels and Stomata. [2]
- (iii) What is Parthenocarpy? Give one example. [2]
- (iv) State Mendel's Law of Segregation. [2]
- (v) Study the diagram given below and answer the questions that follow: [3]



- (a) Name process being studied in the above experiment.
- (b) What will you observe with regard to the level of water when this setup is placed in bright sunlight.
- (c) Mention one adaptation found in plants to overcome the process mentioned in (i).

Question 4

- (i) Expand the abbreviation – A T P. [1]
- (ii) Name any two nitrogenous bases. [2]
- (iii) Addition of salt to pickles prevents the growth of bacteria. Explain by giving two suitable reasons. [2]
- (iv) Mention two adaptations in leaves to perform Photosynthesis. [2]

- (v) Given below is a diagram representing a stage during the mitotic cell division. [3]
Answer the following questions:



- (a) Identify the stage.
(b) Give a suitable reason for your answer in (a).
(c) Name the stage that follows the one shown in the diagram.

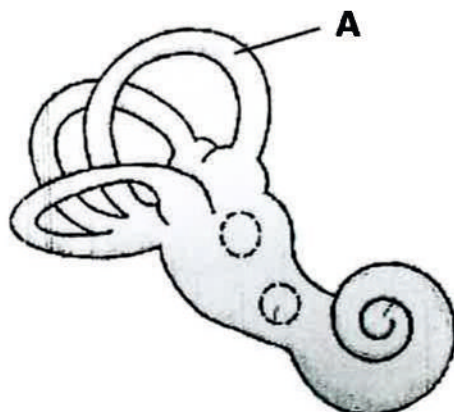
Question 5

- (i) Define – Excretion. [1]
(ii) What is the significance of Hepatic Portal Vein? [2]
(iii) State two functions of vitreous humour. [2]
(iv) Which gland secretes Glucagon? What is its effect on blood sugar level? [2]
(v) Draw a neat labelled diagram to show the internal structure of a human kidney. [3]

Question 6

- (i) Define – Gene. [1]
(ii) Differentiate between Cell wall and Cell membrane with reference to permeability. [2]
(iii) State the function of Medulla Oblongata with a suitable example. [2]
(iv) Colour blindness is generally seen in males. Explain. [2]

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



- (a) Identify the structure.
(b) In which part of the ear is it located?
(c) What is the function of the part marked A?

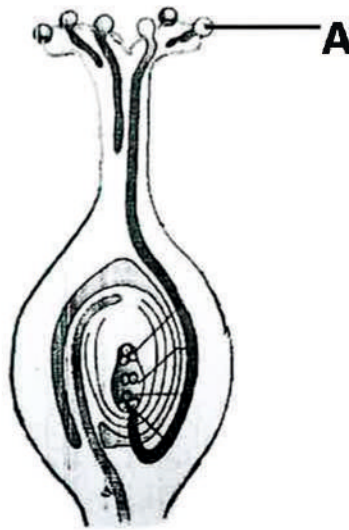
Question 7

- (i) Explain – Accommodation of eye. [1]
(ii) Give two reasons for a sharp rise in world human population. [2]
(iii) Mention two functions of Amniotic fluid. [2]
(iv) What is the difference between Phenotype and Genotype? [2]
(v) Draw neat labelled diagrams showing the cross sections of an Artery and a Vein. [3]

Question 8

- (i) Define – Pollution. [1]
(ii) Plants droop on a hot day even though the soil is well watered. Explain. [2]
(iii) Differentiate between Menarche and Menopause. [2]
(iv) State two harmful effects of acid rain. [2]

(v) The diagram given below shows a type of tropism. Answer the questions that follow: [3]



- (a) Name the type of tropism.
- (b) Define the above mentioned tropism.
- (c) Give an example of a stimulant that helps in the growth of the part marked – A.



ICSE ACADEMY

Specimen Papers

- 2022

Semester 2

ICSE SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER
BIOLOGY

(SCIENCE PAPER 3)

Maximum Marks: 40

Time allowed: One and a half hours

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

You will not be allowed to write during the first 10 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.

*Attempt **all** questions from **Section A** and **any three** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [].

SECTION A

*(Attempt **all** questions.)*

Question 1

Name the following by choosing the correct answers to the questions from the given options. (Do not copy the question, Write the correct answer only.)

[10]

- (i) A muscular wall is absent in:
- (a) Capillary
 - (b) Vein
 - (c) Venule
 - (d) Arteriole
- (ii) The outermost layer of meninges:
- (a) Piamater
 - (b) Arachnoid layer
 - (c) Grey matter
 - (d) Duramater

- (iii) Tear gland is also called:
- (a) Gastric gland
 - (b) Lacrimal gland
 - (c) Salivary gland
 - (d) Sebaceous gland
- (iv) Which one of the following is not a simple reflex?
- (a) Coughing
 - (b) Blinking
 - (c) Eating
 - (d) Swallowing
- (v) Loop of Henle lies in:
- (a) Medulla
 - (b) Cortex
 - (c) Pelvis
 - (d) Ureter
- (vi) The pigment that gives colour to urine:
- (a) Haemoglobin
 - (b) Chlorophyll
 - (c) Urochrome
 - (d) Melanin
- (vii) The number of spinal nerves in humans:
- (a) 12 pairs
 - (b) 23 pairs
 - (c) 31 pairs
 - (d) 10 pairs

(iii) The mineral element needed for the functioning of the Thyroid gland:

- (a) Sodium
- (b) Potassium
- (c) Magnesium
- (d) Iodine

(ix) The part of the brain concerned with memory:

- (a) Cerebrum
- (b) Cerebellum
- (c) Pons
- (d) Medulla Oblongata

(x) The pigmented circular area seen in front of the eye:

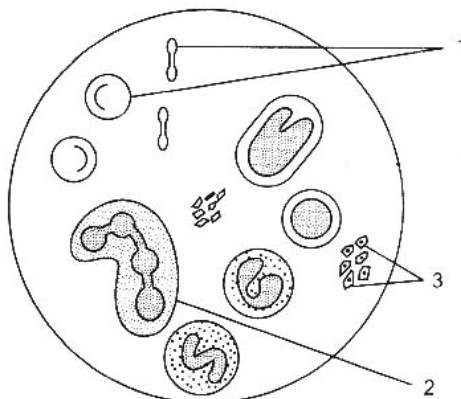
- (a) Cornea
- (b) Lens
- (c) Iris
- (d) Ciliary muscles

SECTION B

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

Question 2

- (i) Explain the term 'Tropic hormone'. Give one example of a Tropic hormone. [2]
- (ii) Give the location of Pericardial fluid. What is its function? [2]
- (iii) Given below is the diagram of a human blood smear. Label the parts numbered 1, 2 and 3. [3]



- (iv) Give the biological terms for the three ear ossicles. [3]

Question 3

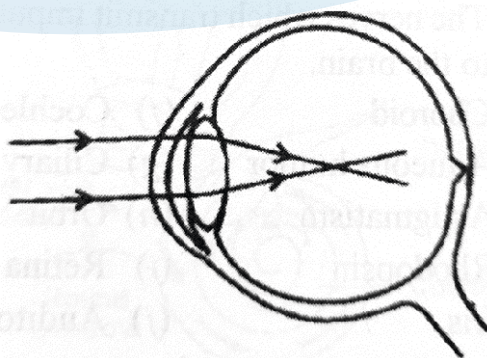
- (i) Mention two structural differences between an artery and a vein. [2]
- (ii) Where is Bicuspid valve located? What is its function? [2]
- (iii) Draw a neat diagram of a Malpighian capsule and label any two parts. [3]
- (iv) Define the term 'Excretion'. Which are the two main organic wastes present in urine? [3]

Question 4

- (i) Name the substance that initiates blood clotting. [2]
What is the mineral element essential to form a blood clot?
- (ii) Give the exact location of Adrenal glands. [2]
- (iii) Mention three functions of Adrenaline. [3]
- (iv) What is the contraction phase of auricles called? [3]
Name the two valves that open during this phase.

Question 5

- (i) How are cytons and axons arranged in the spinal cord. [2]
- (ii) We cannot distinguish colours in dim light. Explain giving suitable reasons. [2]
- (iii) Given below is a diagram depicting a defect of the human eye. [3]
Answer the questions that follow:



- (a) Give the scientific term for the defect.
- (b) Mention one possible reason for the defect.
- (c) What type of lens can be used to correct the defect?
- (iv) What are hormones? Name any two hormones secreted by the Pituitary gland? [3]

Question 6

(i) From where the following nerves arise. [2]

- (a) Optic nerve
- (b) Auditory nerve

(ii) Give the full form of the following abbreviations: [2]

- (a) T S H
- (b) A D H

(iii) What are the three main parts of the membranous labyrinth. [3]

(iv) Complete the following table by filling in the blanks (a) to (c): [3]

GLAND	HORMONE SECRETED	EFFECT OF OVERSECRETION
Pancreas	(a) _____	Hypoglycemia
Thyroid	(b) _____	(c) _____



ICSE ACADEMY

Specimen Papers

- 2022

Semester 1

ICSE SEMESTER 1 EXAMINATION
SPECIMEN QUESTION PAPER
BIOLOGY
SCIENCE Paper – 3

Maximum Marks: 40

Time allowed: One hour (inclusive of reading time)

ALL QUESTIONS ARE COMPULSORY

The marks intended for questions are given in brackets [].

Select the correct option for each of the following questions.

SECTION I (15 Marks)

Question 1

Name the following by choosing the correct option:

[5]

- (a) A pair of corresponding chromosomes of the same shape and size but one from each parent.
1. Autosomes
 2. Sex chromosomes
 3. Homologous chromosomes
 4. Analogous chromosomes
- (b) The factor that does not affect the rate of transpiration.
1. Intensity of light
 2. Velocity of wind
 3. Carbon dioxide
 4. Oxygen
- (c) Movement of molecules of a substance from their higher concentration to lower concentration when they are in direct contact.
1. Diffusion
 2. Endosmosis
 3. Imbibition
 4. Active transport

- (d) The complex molecule consisting of a DNA strand and a core of histones.
1. Centrosome
 2. Nucleotide
 3. Nucleosome
 4. Chromosome
- (e) The solvent used to dissolve the chlorophyll pigment while testing a leaf for starch.
1. Soda lime
 2. Carboic acid
 3. Methylated spirit
 4. Water

Question 2

Complete the following statements by choosing the appropriate option for each blank: [5]

- (a) During Meiosis _____ daughter cells are formed.
1. 4
 2. 2
 3. 8
 4. 6
- (b) Wooden doors swell up during the rainy season due to _____.
1. Osmosis
 2. Diffusion
 3. Imbibition
 4. Transpiration
- (c) The semi permeable membrane in a plant cell is the _____.
1. Cell wall
 2. Cell membrane
 3. Tonoplast
 4. None of the above

- (d) Guttation takes place through _____.
1. Stomata
 2. Lenticels
 3. Cuticle
 4. Hydathodes
- (e) A plant with variegated leaves is _____.
1. Coleus
 2. Lotus
 3. Peepal
 4. Mango

Question 3

Choose the correct answer from each of the four options given below:

[5]

- (a) The pressure exerted by the cell contents on the cell wall:
1. Turgor pressure
 2. Partial pressure
 3. Wall pressure
 4. Osmotic pressure
- (b) The cell component visible only during cell division:
1. Chromosome
 2. Chromoplast
 3. Chromatin
 4. Centriole
- (c) Marine fish when placed under tap water bursts, because of:
1. Endosmosis
 2. Exosmosis
 3. Diffusion
 4. Plasmolysis
- (d) The sites of dark reaction of photosynthesis:
1. Grana
 2. Fret
 3. Stroma

4. Stoma

(e) The alternative forms of the same gene occupying the same position on homologous chromosomes:

1. Chromatids
2. Alleles
3. Autosomes
4. Centromere

SECTION II (15Marks)

Question 4

Explain the following terms:

[5]

(a) Osmosis

1. Movement of water from their lower concentration to their higher concentration through a semi permeable membrane.
2. Movement of solutes from their lower concentration to their higher concentration through a semi permeable membrane.
3. Movement of water from their higher concentration to their lower concentration through a semi permeable membrane.
4. Movement of water from their higher concentration to their lower concentration through a freely permeable membrane.

(b) Photolysis

1. Splitting of water molecules into hydrogen ions and oxygen in the presence of light in grana.
2. Splitting of water molecules into hydrogen ions and oxygen in the presence of light in the stroma.
3. Splitting of water molecules into hydrogen ions and oxygen in the absence of light in grana.
4. Splitting of water molecules into hydrogen ions and oxygen in the absent of light in stoma.

(c) Law of segregation

1. The two members of a pair of factors join during the formation of gametes.
2. The two members of a pair of factors separate during the formation of gametes.
3. The two chromosomes of a pair of factors separate during the formation of gametes.
4. The two members of a pair of factors separate during the process of germination.

(d) Guttation

1. The loss of water in the form of water droplets from the surface of the leaf.
2. The loss of water in the form of water droplets through the stomata.
3. The loss of water in the form of water vapour along the leaf margin.
4. The loss of water in the form of water droplets along the leaf margin.

(e) Active transport

1. Passage of water from its lower to higher concentration through a cell membrane without any expenditure of energy.
2. Passage of ions from its lower to higher concentration through a cell membrane without any expenditure of energy.
3. Passage of water from its lower to higher concentration through a cell membrane using energy from the cell.
4. Passage of ions from its lower to higher concentration through a cell membrane using energy from the cell.

Question 5

State the exact location of the following:

[5]

(a) Spindle fibres

1. Between the two centrioles
2. Between the two centrosomes
3. Between chromatid and centromere
4. Between two centromeres

- (b) Root hair
1. Extension of the cortex
 2. Extension of epithelium
 3. Extension of epidermis
 4. Extension of endodermis
- (c) Stomata
1. More the upper surface of dorsiventral leaves
 2. More on the lower surface of the dorsiventral leaves
 3. Both upper and lower surface of the dorsiventral leaves
 4. None of the above.
- (d) Thylakoids
1. In the inner membrane of the chloroplast
 2. Wall of the chloroplast
 3. In the chlorophyll
 4. In the stroma of the chloroplast
- (e) Palisade parenchyma
1. Between the upper and lower epidermis of dicot leaves.
 2. Between the upper epidermis and spongy parenchyma of dicot leaves.
 3. Between the lower epidermis and spongy parenchyma of dicot leaves.
 4. Between the upper and lower epidermis of monocot leaves.

Question 6

State the function of the following:

[5]

- (a) Stroma
1. Site of photolysis of photosynthesis
 2. Site of photochemical phase of photosynthesis
 3. Site of light dependent phase of photosynthesis
 4. Site of light independent phase of photosynthesis
- (b) Guard cells
1. Regulate the closing of stomata
 2. Regulate the opening and closing of stomata
 3. Regulate the opening of stomata
 4. Regulate the process of photosynthesis

(c) Xylem

1. Translocation of food from the leaves to the other parts of the plant.
2. Conduction of food.
3. Conduction of water and food.
4. Conduction of water and minerals from the root to the other parts of the plant.

(d) Chromosomes

1. The carriers of heredity
2. The controlling centre of the cell
3. The site for various chemical reactions
4. Intracellular digestion.

(e) Hydathode

1. Helps in transpiration
2. Helps in guttation
3. Helps in imbibition
4. Helps in transportation of water

SECTION III (10 Marks)

Question 7

Given below is a diagram representing a stage during mitotic cell division. Answer the questions that follow. [5]



(a) Identify the stage

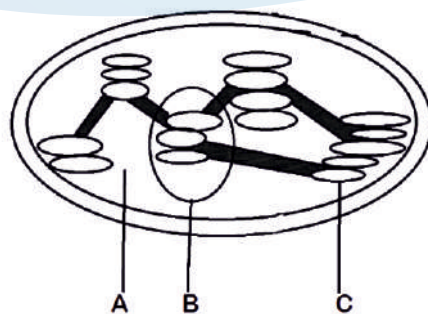
1. Telophase
2. Prophase
3. Metaphase
4. Anaphase

- (b) Label part marked 'X'
1. Centriole
 2. Centrosome
 3. Centromere
 4. Chromatid
- (c) Name the stage that follows the one shown here
1. Interphase
 2. Anaphase
 3. Telophase
 4. Metaphase
- (d) What is the diploid number of chromosomes shown in the diagram?
1. 6
 2. 2
 3. 4
 4. 8
- (e) Mention one important feature of this stage
1. Nucleolus reappears
 2. Nuclear membrane reappears
 3. Nuclear membrane disappears
 4. Chromosomes align on the equator

Question 8

Observe the diagram given below and answer the questions

[5]



- (a) Identify the cell organelle
1. Mitochondria
 2. Lysosome

3. Ribosome
4. Chloroplast

(b) Label the parts marked A, B & C

A. 1. Granum 2. Stroma 3. Fret 4. Thylakoid

B. 1. Granum 2. Stroma 3. Fret 4. Thylakoid

C. 1. Granum 2. Stroma 3. Fret 4. Thylakoid

(c) The unit of light absorbed by chlorophyll is _____

1. Proton
2. Photon
3. Electron
4. Neutron



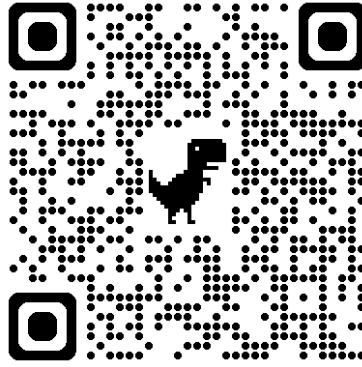


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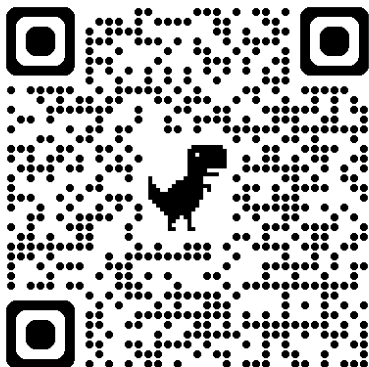
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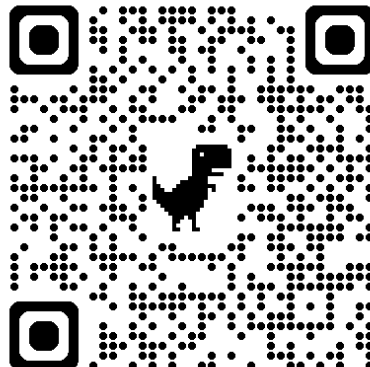
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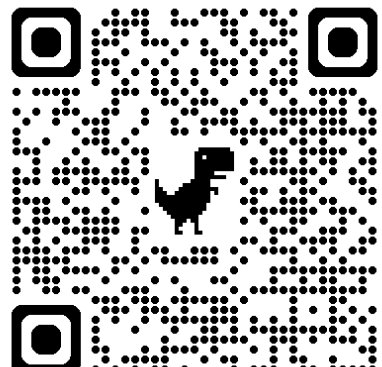
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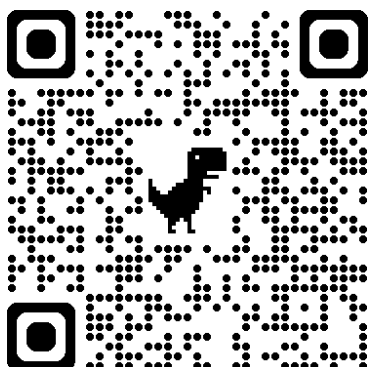
Physics



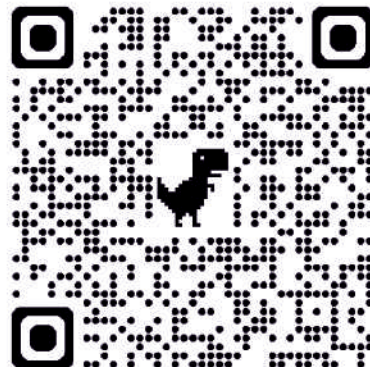
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Biology



Hindi



Physical
Education



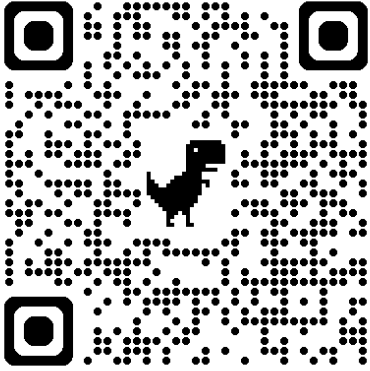
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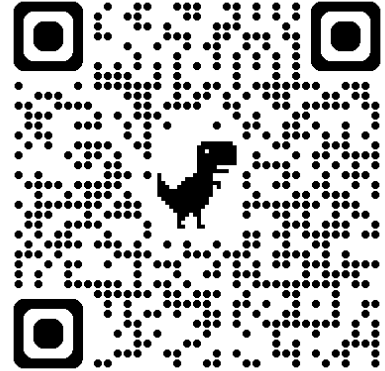
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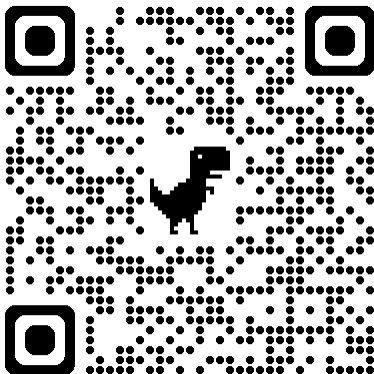
Economics



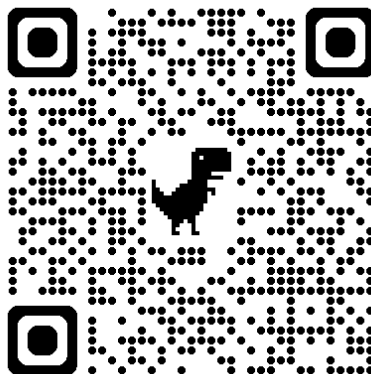
Commercial
Studies



French



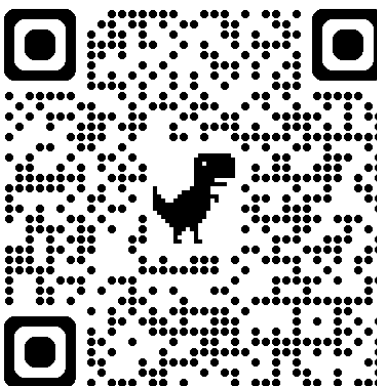
Robotics & AI



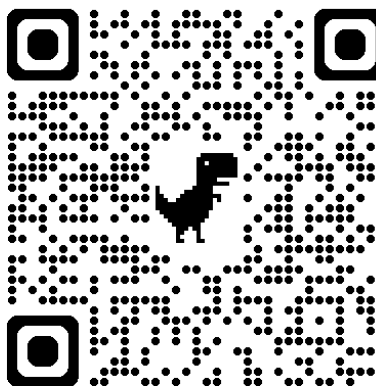
Home Science



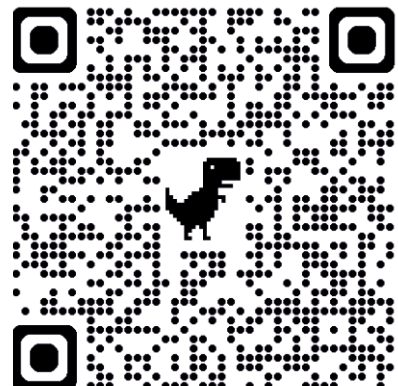
EVS



Marathi



Gujarati



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