FULL SYLLABUS TEST

Class: X ICSE **BIOLOGY** **Full Marks: 80**

Time: 2 hrs.

Answers to this Paper must be written on the paper provided separately.
*You will not be allowed to write during the 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** question 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) Identify the correct statement.

(a) Hypothyroidism causes cretinism

(b) Hypothyroidism causes goitre

(c) Hyperthyroidism adversely affects the body physiology

(d) All of the above

(ii) Which one of the following is the correct route during the transport of sperm in human male?

(a) Vas deferens → Epididymis →Urethra

(b) Epididymis→ Urethra → Vas deferens

(c) Epididymis →Vas deferens → Urethra

(d) Urethra → Epididymis → Vas deferens

(iii) Which of the following is not the function of cerebrum?

(a) Seat for thinking and memory

(b) Reflex center for muscular activities

(c) Responds to heat and pain

(d) Controls emotions and speech

(iv) Heart sounds are produced due to:

(a) Closure of tricuspid and bicuspid valves

(b) Rushing of blood through valves producing turbulence

(c) Closure of atrioventricular valves and semilunar valves

(d) Entry of blood into auricles

(v) Which of the events listed below is not observed during mitosis?

(a) Chromatin condensation

(b) Movement of centrioles to opposite poles

(c) Appearance of chromosomes with two chromatids joined together at the centromere.

(d) Crossing over

(vi) Which of the following options, (a – d) are the pyrimidine bases found in DNA?

(a) Uracil and Thymine (b) Thymine and Cytosine

(c) Adenine and Thymine (d) Cytosine and Uracil

(vii) **Assertion (A):** Auxin is responsible for apical dominance.

Reason (R): Auxin can induce fruit formation without fertilization in fruits like apples.

(a) Both Assertion and Reason are true (b) Both Assertion and Reason are false

(c) Assertion is true and Reason is false (d) Assertion is false and Reason is true

(viii) A complete ring of bark cut from the round circumference of a tree trunk causes the tress to die eventually. Why do you think it happens so?

(a) Xylem does not carry water and minerals upward

(b) Phloem does not carry food prepared in the leaf upward to stem

(c) Xylem and phloem both are damaged in the tree.

(d) Phloem does not carry food prepared in the leaf downward to roots

(ix) Given below are sets of five terms each. Choose the option which has the terms in the correct sequence.

photosynthesis, stomata open, daytime, higher carbohydrate concentration, swollen guard cells, osmotic uptake of water

(a) Higher carbohydrate concentration, daytime, photosynthesis, osmotic uptake of water, swollen guard cells, stomata open

(b) Higher carbohydrate concentration, daytime, photosynthesis, swollen guard cells, osmotic uptake of water, stomata open

(c) Daytime, photosynthesis, osmotic uptake of water, higher carbohydrate concentration, swollen guard cells, stomata open

(d) Daytime, photosynthesis, higher carbohydrate concentration, osmotic uptake of water, swollen guard cells, stomata open

(x) **Assertion (A):** Cytokinins are in highest concentration in roots, unripe fruits and seeds.

Reason (R): Cytokinins are responsible for promoting cell division.

(a) Both Assertion and Reason are true (b) Both Assertion and Reason are false

(c) Assertion is true and Reason is false (d) Assertion is false and Reason is true

(xi) Which of the following conditions would most likely lead to a decrease in the rate of transpiration?

(a) A well-watered plant in a dry environment

(b) A dry plant in a humid environment

(c) A plant with fewer stomata in a windy environment

(d) A plant with more stomata in a hot and dry environment

(xii) Which of the following statements accurately describes the role of antidiuretic hormone (ADH) in the excretory system?

(a) ADH increases the amount of urine produced by the kidneys

(b) ADH causes the reabsorption of sodium ions from the urine

(c) ADH decreases water reabsorption in the kidneys, increasing urine volume

(d) ADH increases the permeability of the collecting ducts to water, reducing urine volume

(xiii) Which of the following statements is correct about the luteal phase of the menstrual cycle?

(a) It begins immediately after ovulation and is characterized by high levels of progesterone.

(b) It is the phase when menstruation occurs.

(c) It is the phase during which ovulation takes place

(d) It is associated with the growth of the follicle and is characterized by high level of estrogen.

(xiv) Which of the following is the role of the hypothalamus in the endocrine system?

(a) It produces insulin to regulate blood sugar levels.

(b) It controls the pituitary gland and regulates hormone release.

(c) It secretes hormones that directly affect the adrenal glands.

(d) It produces thyroid hormones.

(xv) During a period of high light intensity and warm temperatures, a plant begins to show signs of wilting despite having adequate water. This is likely because:

(a) Photosynthesis is not occurring due to the lack of carbon dioxide

(b) The rate of transpiration exceeds the plant's ability to absorb water, affecting photosynthesis

(c) The plant is not able to produce oxygen

(d) The stomata are closed, preventing water loss

Question 2

(i) Name the following: [5]

(a) The gland which secretes the hormone so called emergency hormone.

(b) The structure which generates an electrical signal in the heart to initiate the heartbeat.

(c) The bony socket in which the eye ball is well protected.

(d) The pressure exerted by the cell contents on the plant cell wall.

(e) The stage of the cell division in which the nuclear membrane dissolves.

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

COLUMN A	COLUMN B
i. Monocyte	a. 31 pairs
ii. Cranial nerve	b. Oxygenated blood
iii. Oxytocin	c. 12 pairs
iv. Coronary artery	d. Agranulocyte
v. Spinal nerve	e. Posterior pituitary
	f. Deoxygenated blood
	g. Anterior pituitary

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

(a) Malleus, Cornea, Stapes, Incus

(b) Loop of Henle, PCT, DCT, Urethra

(c) Ureter, Urinary bladder, Uterus, Urethra

(d) Wisdom teeth, Vertebrae, Appendix, Tailbone

(e) Prostate gland, Cowper's gland, Seminal vesicle, Seminiferous tubules

(iv) Given below is an example of certain structures and their special functional activities.

For example: Chloroplast and photosynthesis. On the similar pattern complete the following: [5]

(a) Epididymis and _____

(b) Lacrimal gland and _____

(c) Eustachian tube and _____

(d) Leydig cells and _____

(e) Beta cells of Islets of Langerhans and _____

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

Chloroplasts are minute oval bodies bounded by a double membrane and their interior contains packed flattened sacs called as _____1____. These sacs are arranged in piles called as __2_____ in the colourless ground substance called ___3_____. The green coloured pigment _____4____ is contained in the walls of _____5_____.

SECTION B

(Attempt any four questions from this section)

Question 3 **[1+2+2+2+3=10]**

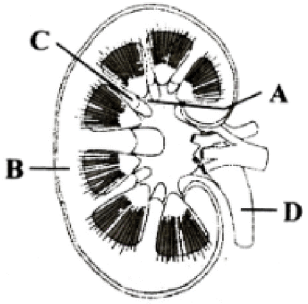
(i) State Mendel's Law of Segregation.

(ii) Explain any two uses of turgidity to plants.

(iii) Justify the statement "Placenta acts as an endocrine gland during pregnancy".

(iv) Highlight any two important aspects of Darwin's theory of natural selection.

(v) Given figure is of longitudinal section of kidney. Study the diagram and answer the following questions:



(a) Identify the parts labelled as A, B, C and D.

(b) Name the structural and functional unit of the kidney.

(c) Write the significance of the part labelled D.

Question 4 **[1+2+2+2+3=10]**

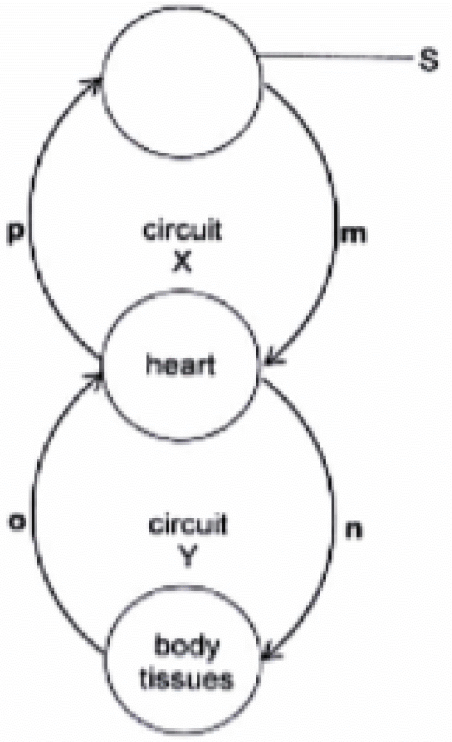
(i) State the use of a clinostat.

(ii) The light phase of photosynthesis is called as the photochemical phase. In this phase, light plays the key role. Write about any two important events of photosynthesis taking place in this phase.

(iii) In the experiments to demonstrate transpiration cobalt chloride paper is used. What are the characteristics of this paper that suits the experiment?

(iv) Osmosis is a unidirectional process. Justify.

(v) The diagram given below explains the two types of blood circulation in our body [circuit X and circuit Y]. Study the diagram and answer the questions that follow:



(a) Identify the part labelled as S.

(b) Write the name of the circuits labelled X and Y.

(c) Which two letters represent blood vessels carrying deoxygenated blood? Name the blood vessels.

Question 5 **[1+2+2+2+3=10]**

(i) Define Demography.

(ii) Give reasons for the following:

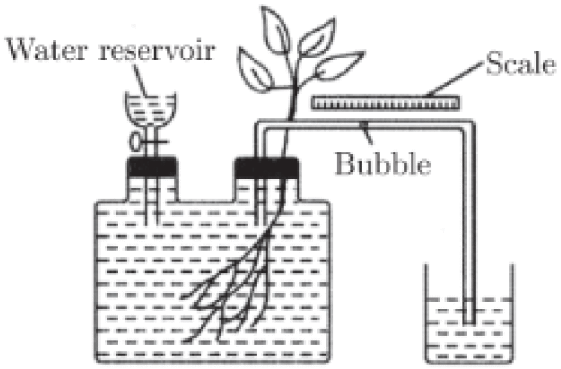
(a) In some xerophytes, leaves are modified into spines.

(b) Bacteria and fungi do not grow in pickles, jams, jellies and squashes.

(iii) Write the scientific name of the plant selected by Mendel for his experiments. Also mention any two reasons for the selection of that specific plant by him.

(iv) Rise in the level of carbon-dioxide in the atmosphere is leading to the phenomenon of global warming. Mention any two reasons for the increase in carbon-dioxide level in the atmosphere in present days.

(v) The diagram shows an experimental set-up to demonstrate and measure a particular physiological phenomenon in plants.



(a) Which physiological phenomenon is being studied above?

(b) What happens to the movement of air bubble in the horizontal graduated capillary tube if the apparatus is kept under following conditions: (i) In dark (ii) In bright sunlight

(c) Mention any two precautions which should be kept in mind while using the above instrument.

Question 6 **[1+2+2+2+3=10]**

(i) A cell kept in certain solution bursts after sometime. Comment upon the kind of solution.

(ii) Write the characteristics of Cro-Magnon Man specifying its cranial capacity and development of chin.

(iii) With reference to the functioning of the eye, answer the following questions:

(a) What is the shape of the eye lens during near vision and distant vision?

(b) Name the two structures in the eye responsible for bringing about the change in the shape of the lens.

(iv) In cross 1 the mice with black fur is bred with the mice with white fur. All of their 16 offsprings had black fur. In cross 2 the offspring from cross 1 were interbred to produce 44 offsprings of which only 11 had white fur and the rest had black fur. Using the letters B and b to represent the two alleles controlling fur colour, show cross 1 and cross 2 with punnet squares.

(v) Sheetal was cooking food when she accidentally touched the hot pan. She quickly withdrew her hand. Draw a neatly labelled diagram to show the path taken by the nerve impulse for Sheetal's quick response.

Question 7 **[1+2+2+2+3=10]**

(i) Define Ascent of Sap.

(ii) Distinguish between:

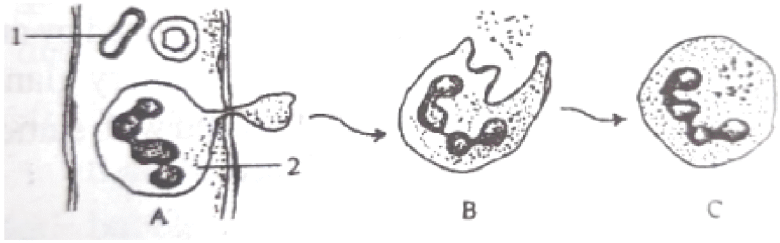
(a) Corpus callosum and corpus luteum[function]

(b) Insulin and glucagon[function]

(iii) With reference to the structure of human sperm, state the function of the acrosome and the tail.

(iv) Distinguish between myopia and hyperopia on the basis of the type of sightedness and its correction.

(v) Study the following diagram carefully and then answer the questions that follow:



(a) Name the cell labelled 1 and 2.

(b) Mention one functional difference between the cell type 1 and 2.

(c) Name and Define the phenomenon occurring in A & B.

Question 8 **[1+2+2+2+3=10]**

(i) Define allele.

(ii) The follicular phase of the menstrual cycle continues from days 5-12. Elaborate the events taking place in the uterus of the female reproductive system during this phase.

(iii) During a street fight between two individuals, mention the effects on the following organs by the autonomic nervous system in the table given below: (one has been done for you as an example).

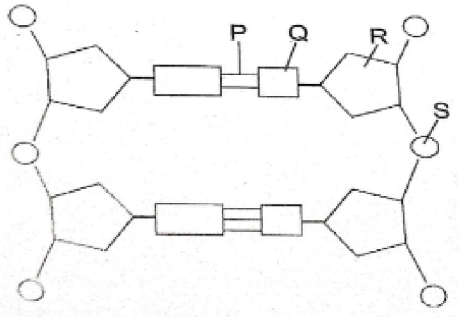
Organ	Sympathetic nervous system	Parasympathetic nervous system
E.g: Heart	Increases heartbeat	Decreases heartbeat
1. Salivary glands		
2. Lungs		

(iv) Give reasons for the following:

(a) The image formed at the blind spot of the eye is not perceived by the brain.

(b) An injury to medulla oblongata causes an immediate death.

(v) Study the diagram given below showing a portion of the DNA strand and answer the following questions:



(a) Identify the part labelled P, Q, Rand S.

(b) Parts labelled Q, R and S constitute the repeating unit of DNA strand. Identify it.

(c) Write the names of the bases which are joined by double and triple hydrogen bonds respectively.