INDIAN SCHOOL SALALAH

FIRST TERM EXAMINATION – SEPTEMBER 2025

BIOLOGY (044)

Class: XI **Date: 18.9.25**

Time: 3 Hrs. **Maximum Marks: 70**

General Instructions:

(i) All questions are compulsory.
(ii) The question paper has five sections and 33 questions. All questions are compulsory.
(iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; And Section–E has 3 questions of 5 marks each.
(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION – A

1 Which of the following is a vasoconstrictor? **1**

a) Oxytocin
b) Growth hormone
c) Follicle Stimulating Hormone
d) Adrenocorticotropic hormone

2 A unipolar neuron has **1**

a) Two axons and one dendrite
b) Two dendrites and one axon
c) Two axons and two dendrites
d) Cell body with one axon only

3 Joint between the Atlas and Axis which helps us to nod are examples of **1**

a) Ball and socket joint
b) Saddle joint
c) Hinge joint
d) Pivot joint

4 Mode of excretion in bony and cartilaginous fishes **1**

a) Ammonotelism and Ureotelism

b) Ureotelism and Ammonotelism

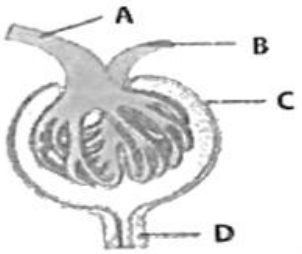
c) Uricotelism and Ammonotelism

d) Ammonotelism and Uricotelism

5 Photorespiration involves oxidation of **1**

a. PGA
b. RuBP
c. Chlorophyll a
d. Both a and b

6 **1**



The given figure represents the malpighian body. Identify the labeled parts A to D and select the correct option.

(i)	Efferent arteriole	Afferent arteriole	Bowman's capsule	Proximal convoluted tubule
(ii)	Afferent arteriole	Efferent arteriole	Renal corpuscle	Proximal convoluted tubule
(iii)	Afferent arteriole	Efferent arteriole	Bowman's capsule	Proximal convoluted tubule
(iv)	Afferent arteriole	Efferent arteriole	Bowman's capsule	Distal convoluted tubule

7 The first heart sound 'lubb' is associated with the closure of **1**

a) Tricuspid valve

b) Semilunar valves

c) Bicuspid valves

d) Tricuspid and bicuspid valves

8 A state of heart when it is not pumping blood effectively to meet the needs of the body is **1**

a) Angina

b) Heart failure

c) Cardiac arrest

d) Atherosclerosis

9 What is the location of the SAN? **1**

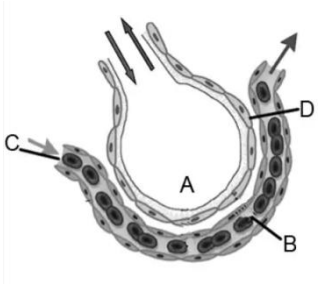
a) Left upper corner of right ventricle

b) Right upper corner of right ventricle

c) Right upper corner of left atrium

d) Right upper corner of right atrium

10 The figure given below, shows a small part of human lung, where exchange of gases takes place. In which one of the options given below, the one-part A, B, C or D is correctly identified along with its functions? **1**



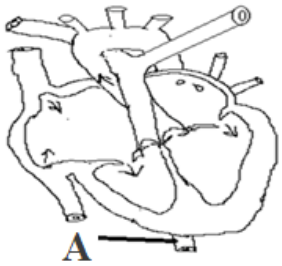
a) B is red blood cell involved in CO2 transport mainly.

b) C is arterial capillary that passes oxygen into tissues

c) A is alveolar cavity that is the main site of exchange of respiratory gases.

d) D is capillary wall between alveoli and blood

11 Identify the part of the heart marked as A. **1**



a) Aorta

b) Inferior vena cava

c) Superior vena cava

d) Pulmonary vein

12 In Hatch and slack pathway, the primary carbon dioxide acceptor is **1**

a) Phosphoenolpyruvate

b) Phosphoglyceric acid

c) Oxaloacetic acid

d) Rubisco

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

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

13 **Assertion**: The raw materials in Light reaction are ATP AND reduced NADPH. **1**

Reason: Light reaction results in formation of ATP and NADPH2.

14 **Assertion:** NADPH is not produced in cyclic photophosphorylation. **1**

Reason: The enzyme NADP reductase is abent in the lamella.

15 **Assertion**: In the descending loop of Henle, urine is hypertonic while in ascending limb the urine is hypotonic. **1**

Reason: Descending limb is impermeable to Na+ while ascending limb is impermeable to water.

16 **Assertion**: The wavelength at which there is maximum absorption by chlorophyll a is in the blue and red regions and shows high rate of photosynthesis. **1**

Reason: The above is the chief pigment in photosynthesis.

SECTION – B

17 **Give reason**: **2**

a) Insulin is called as hypoglycemic hormone.

b) Hyperthyroidism in adult is referred to as Graves' disease.

18 Differentiate: **2**

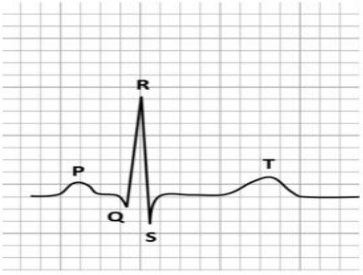
a) Cortical and juxta medullary nephrons

b) Uremia and ketonuria

19 **2**

a) Identify the above figure.

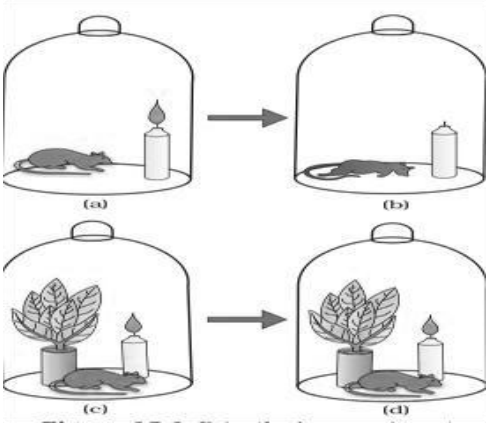
b) What does the labelled waves indicate?



20. **2**

a) What was the observation made by Priestley in the above experiment?

b) State the hypothesis which followed.



21(I) What is photorespiration? Why is it a wasteful process? **2**

OR

21(II) What is C4 process? State its importance.

SECTION – C

22 a) What are neurotransmitters? Give one example. **3**

b) Give the role of sodium-potassium pump in maintaining resting membrane potential.

c) Differentiate afferent and efferent nerve fibres.

23 a) What is a joint? **3**

b) Classify the three types of joints with one example for each.

24 a) Name the two groups of nephrons on the basis of their position in the kidney. How are they different from each other? **3**

b) Explain the role of liver and sweat glands in the elimination of wastes.

25 **Give reason for the following:** **3**

a) Heart failure is not the same as cardiac arrest.

b) Thrombokinase is needed for blood coagulation.

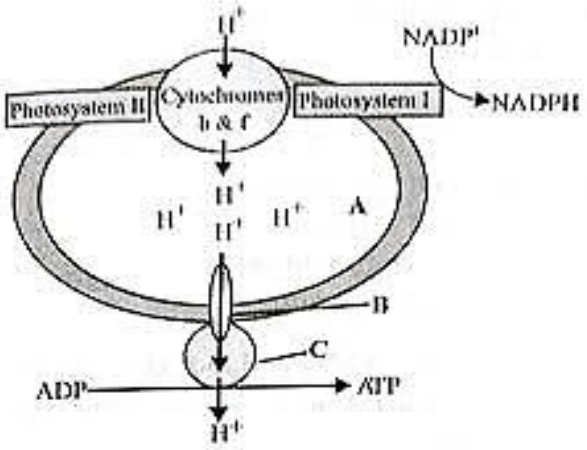
c) Blood group 'O' is the universal donor.

26. **3**

a) Identify the mechanism depicted by the above figure.

b) Label A, B and C.

c) State the importance of the process.



27. a) What is LHC? **3**

b) What are the 2 types of LHC? How are they named?

c) What is their role in the photochemical phase of photosynthesis?

28. Explain the mechanisms of transport of carbon dioxide and oxygen in blood. **3**

OR

Partial pressure of O_2 and CO_2 play an important role in gaseous exchange at the alveoli and tissues. Justify. Support your answer with a suitable illustration.

SECTION D

Q. No. 29 and 30 are case-based questions. Each question has 3 subparts with internal choice in one subpart.

29 A student observes the section of a leaf of a maize plant and sees a special type of leaf anatomy. **4**

a) Name the type of arrangement she must have seen in that tropical plant. Why is it called so?

b) Why do these plants have such a special anatomy?

c) What are these plants called as? How are they special?

OR

c) How are the normal plants different from these plants?

30. In human beings, the lungs are situated in the thoracic chamber which is formed dorsally by the vertebral column, ventrally by the sternum, laterally by the ribs, and on the lower side by the dome-shaped diaphragm. The anatomical setup of the lungs in the thorax is such that any change in the volume of the thoracic cavity will be reflected in the lung (pulmonary) cavity. Such an arrangement is essential for breathing. Breathing involves two stages – inspiration and expiration. During inspiration, the atmospheric air is drawn in and during expiration, the alveolar air is released out. **4**

a) What is the breathing rate in human?

b) What are the events which bring about inhalation?

c) What is TV and RV?

OR

c) What is IRV and ERV?

SECTION- E

31(I) a) Draw a schematic representation of peptide hormone action? **5**

b) List out the four major hormones of the gastro intestinal tract and their role.

c) What is Addison's disease? Mention its symptoms.

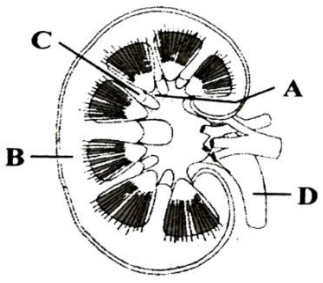
OR

31(II) a) Give a diagrammatic representation showing the relationship of pituitary and hypothalamus.

b) Comment on the hormones of the neurohypophysis and their role.

c) How does the pituitary depend on the hypothalamus for its function?

32(I) a) Observe the diagram and mark the parts labeled as A, B, C, and D **5**



b) Explain the counter current mechanism in urine formation.

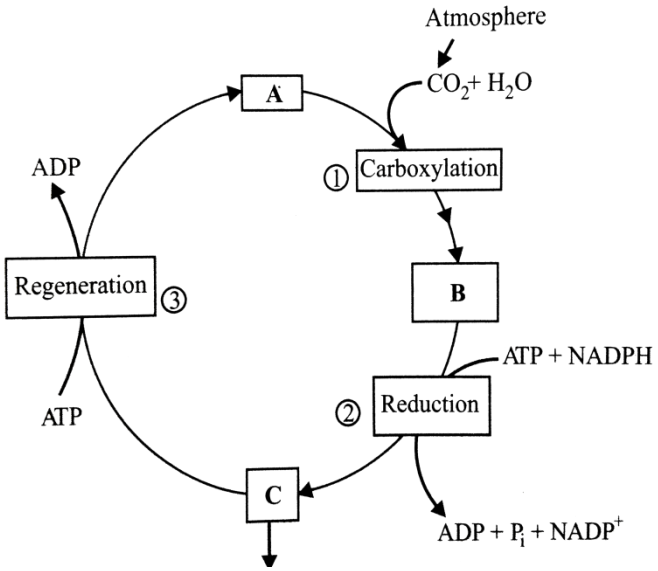
c) What is GFR? How is it regulated?

OR

32(II) a) Explain Renin Angiotensin system of kidney regulation.

b) What is the role of ANF in the above regulation?

33(I) **5**



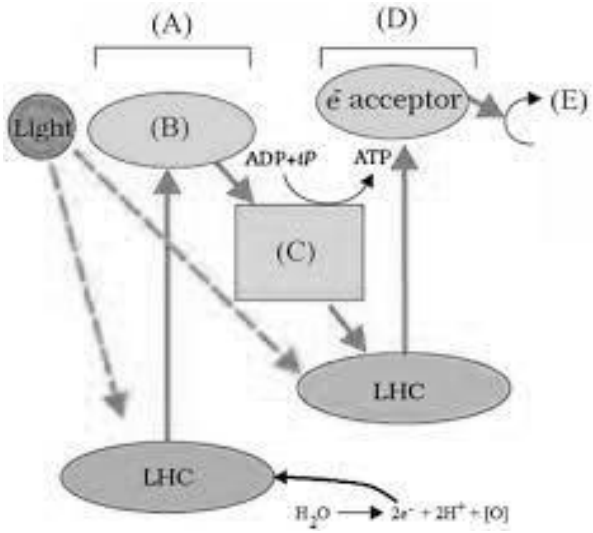
a) Name the above pathway and identify A, B and C.

b) Where does it occur?

c) Calculate the number of ATP and NADPH used to make one glucose.

OR

33(II)



a) Name the above pathway and why is it called so?

b) Label A to E in the above scheme.

c) Where does it occur?

d) What is the enzyme responsible for the production of E?

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