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INDIAN SCHOOL SALALAH
FIRST TERM EXAMINATION – SEPTEMBER 2024



BIOLOGY (044)

Class: XI

Date: 26/09/2024

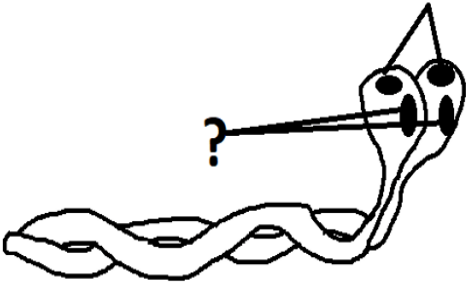
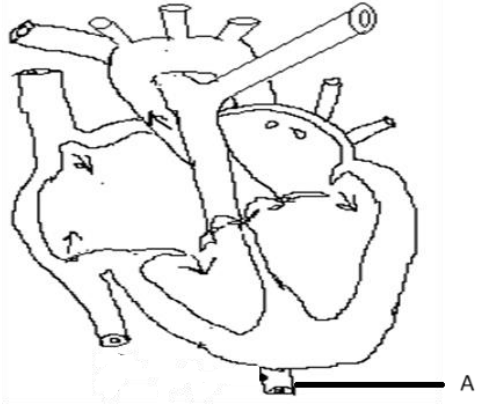
Time: 3 Hrs.

Maximum Marks: 70

General Instructions:

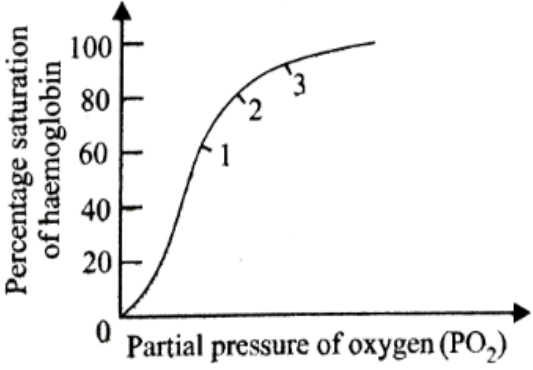
- 1. This question paper has five sections and 33 questions.**
- 2. Section A has 16 questions of 1 mark each.**
- 3. Section B has 5 questions of 2 marks each.**
- 4. Section C has 7 questions of 3 marks each.**
- 5. Section D has 2 case-based questions of 4 marks each.**
- 6. Section E has 3 questions of 5 marks each.**
- 7. All questions are compulsory. 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.**
- 8. Wherever necessary, neat and properly labeled diagrams should be drawn.**

SECTION A		
1.	The hormone melatonin is involved in: a) Regulating blood pressure b) Stimulating milk production in lactating mothers c) Controlling the menstrual cycle d) Regulating calcium levels in the blood	1

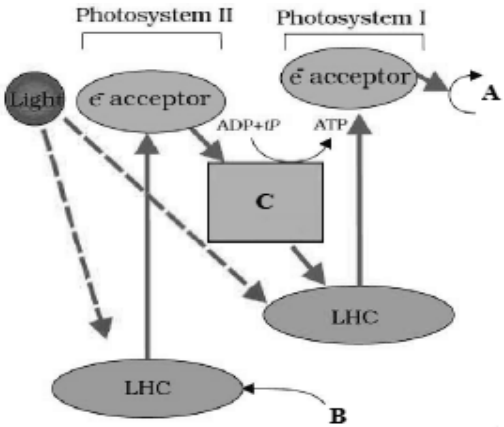
<p>2.</p>	<p style="text-align: center;">Head</p>  <p>Identify the structure shown in the figure of meromyosin.</p> <ul style="list-style-type: none"> a) LMM b) Actin binding site c) ATP binding site d) Cross arm 	<p>1</p>
<p>3.</p>	<p>Which of the following organisms is not ureotelic?</p> <ul style="list-style-type: none"> a) Bony fishes b) Mammals c) Terrestrial amphibians d) Marine fishes 	<p>1</p>
<p>4.</p>	<p>Identify the marked part A.</p>  <ul style="list-style-type: none"> a) Aorta b) Inferior vena cava c) Superior vena cava d) Pulmonary vein 	<p>1</p>
<p>5.</p>	<p>On which of the following factors diffusion does not depend?</p> <ul style="list-style-type: none"> a) Solubility of gases b) Thickness of the respiratory membrane c) Partial pressure difference d) Molecular weight of gases 	<p>1</p>


6.	The TCA cycle starts with the condensation of which of the following compounds? a) Sucrose b) Acetyl group c) Ethanol d) Pyruvate	1
7.	The net gain of ATP in glycolysis is _____ ATP a) 16 b) 32 c) 4 d) 8	1
8.	Which among the following are raw materials required for the light reaction? a) NADPH ₂ and H ₂ O b) ADP and OH ₂ c) ATP only d) ADP, H ₂ O, and NADP	1
9.	What do we call the organism that does photosynthesis but does not release oxygen? a) Green sulfur bacterium b) Blue-green algae c) Green algae d) Green plants	1
10.	Which of the following is not a function of Ethylene? a) It promotes senescence of leaves b) It is highly effective in fruit ripening. c) It induces flowering in mango. d) It speeds up the malting process.	1
11.	The part of nephron impermeable to salts, but permeable to water is a) Descending limb of Henle's loop b) Ascending limb of Henle's loop c) Distal convoluted tubule d) Collecting duct	1
12.	Unidirectional transmission of a nerve impulse through nerve fibres is due to the fact that a) Nerve fibre is insulated by myelin sheath. b) Sodium pump starts operating only at the cyton and then continues in to the nerve fibre. c) Neurotransmitters are released by the axon endings and not by dendrites. d) Neurotransmitters are released by dendrites and not by axons.	1

	<p>Question No.13 to 16 consist of two statements- Assertion (A) and reason (R). Answer these questions selecting the appropriate options given below.</p> <p>A. Both A and R are true and R is the correct explanation of A</p> <p>B. Both A and R are true and R is not the correct explanation of A</p> <p>C. A is true but R is false</p> <p>D. A is false but R is true.</p>	
13.	<p>Assertion: Photorespiration takes place in C3 plants.</p> <p>Reason: C3 plants have a mechanism that protects them from the above process.</p>	1
14.	<p>Assertion: High p O₂ increases the transport of oxygen by blood.</p> <p>Reason: High pCO₂ in the tissues favours the dissociation of oxyhaemoglobin to release oxygen.</p>	1
15.	<p>Assertion: Aerobic respiration yields more energy than anaerobic respiration</p> <p>Reason: There is complete breakdown of the respiratory substrate in aerobic respiration.</p>	1
16.	<p>Assertion: Auxin is responsible for apical dominance.</p> <p>Reason: In apical dominance lateral buds suppresses the growth of apical buds.</p>	1
SECTION B		
17.	<p>Name the following:</p> <p>a) A hormone responsible for suppressing immune response</p> <p>b) The cavity in the girdle, into which the head of humerus fits.</p> <p>c) The hormone released by the walls of the artery of the heart in response to an increase in blood volume and pressure.</p> <p>d) Enzyme responsible for the conversion of pyruvic acid into lactic acid.</p>	2
18.	<p>Which hormonal deficiency is responsible for the following? Write one symptom for each deficiency.</p> <p>a) Diabetes insipidus</p> <p>b) Graves disease</p>	2
19.	<p>What is an Electrocardiogram? What do P wave and QRS complex represent in a standard ECG?</p>	2
20.	<p>What is the stress hormone in plants? Justify giving examples of its action.</p> <p style="text-align: center;">OR</p> <p>What is Erythroblastosis foetalis? Write down the clinical method to overcome this condition?</p>	2

21.	 <p>a. Identify the given graph and comment on it.</p> <p>b. Name the factors that favor the dissociation of oxyhemoglobin in the tissues.</p>	2
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SECTION C

22.	<p>Write short notes on the functions of following hormones.</p> <p>a) Thymosin</p> <p>b) Erythropoietin</p> <p>c) TCT</p>	3
23.	<p>Write down three points of differences between C₃ plants and C₄ plants.</p>	3
24.	<p>Briefly explain the following clinical conditions in human beings.</p> <p>a) Osteoporosis</p> <p>b) Atherosclerosis</p> <p>c) Occupational Respiratory disorders</p>	3
25.	<p>a) Explain Renin- Angiotensin mechanism</p> <p>b) What are podocytes?</p>	3
26.	<p>Give reasons for the following.</p> <p>a) Photorespiration is a wasteful process.</p> <p>b) AB blood group individuals are universal recipients.</p> <p>c) Glucagon is a hyperglycemic hormone.</p>	3
27.	<p>Observe the diagram given below and answer the following questions.</p> 	3

	<p>a) Replace the letters A, B, and C with correct terms.</p> <p>b) Name the process and explain it.</p> <p style="text-align: center;">OR</p> <p>The neural system of all animals is composed of specialized cells called neurons.</p> <p>A. Draw a neatly labeled diagram of a neuron.</p> <p>B. What is resting membrane potential and how is it established?</p>	
28.	<div style="text-align: center;">  </div> <p>A. Identify the given pictures A, B, and C.</p> <p>B. Write three points of differences between A and B.</p>	3
<p>SECTION D</p> <p>Q. No. 29 and 30 are case-based questions. Each question has 3 subparts with internal choice in one subpart.</p>		
29.	<p>Kidneys are located just below the rib cage, one on each side of your spine. Healthy kidneys filter about a half cup of blood every minute, removing wastes and extra water to make urine. The urine flows from the kidneys to the bladder through two thin tubes of muscle called ureters, one on each side of your bladder.</p> <p>a) What are peritubular capillaries?</p> <p>b) Write a note on renal corpuscle?</p> <p>c) What is GFR?</p> <p>d) Mention two functions of ADH in kidney functioning.</p> <p style="text-align: center;">OR</p> <p>d) Differentiate between cortical nephron and juxta medullary nephron.</p>	4
30.	<p>There are about 600 muscles in the human body. The three main types of muscle include skeletal, smooth and cardiac. The brain, nerves and skeletal muscles work together to cause movement – this is collectively known as the neuromuscular system.</p> <p>a) What is Sarcomere?</p> <p>b) What causes muscle fatigue?</p> <p>c) Mention the role of calcium ions in muscle contraction.</p> <p>d) Differentiate between red muscle fibre and white muscle fibre</p> <p style="text-align: center;">OR</p>	4

d) State the sliding filament theory of muscle contraction.

SECTION E

31. a) Write down any two functions of ethylene.
b) Define parthenocarpy. Name the plant hormone used to induce parthenocarpy.
c) What is respiratory climactic?
d) Mention the uses of Ethephon in plants.
e) A gardener finds some broad-leaved dicot weeds growing in his lawns. What can be done to get rid of the weeds efficiently?

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OR

- a) Explain Hatch and Slack pathway of CO₂ fixation in plants.
b) Draw a schematic representation of Calvin cycle.

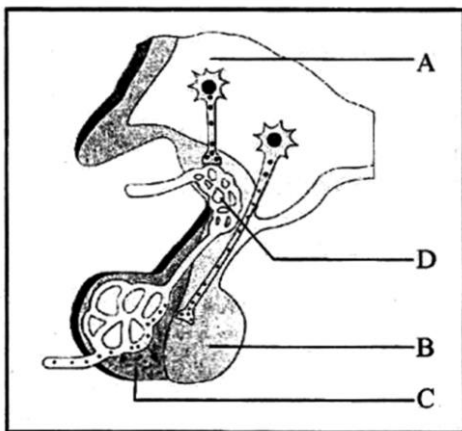
32. a) Differentiate between pulmonary circulation and systemic circulation.
b) What do you mean by cardiac output?
c) Explain conducting system of heart in detail.

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OR

- a) Explain the role of diaphragm and intercostal muscles in inhalation.
b) Write a note on three mechanisms of transport of CO₂ through blood in humans.

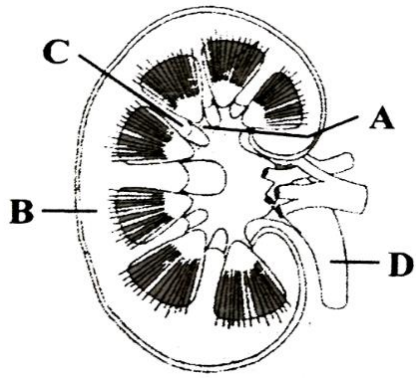
33.



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- a) Identify the parts A, B, C and D.
b) Explain the role of A in controlling C.
c) Name the hormones of B.

OR



The given figure is of the longitudinal section of the Kidney.

- A. Identify and write down the parts labeled from A to D.
- B. Explain the counter-current mechanism of concentrating the filtrate.
- C. What is glomerulonephritis?