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SAMPLE QUESTION PAPER

2021-22

CLASS: XI M.M. 35

SUBJECT: BIOLOGY(044) TIME: 2 HRS.

General Instructions:

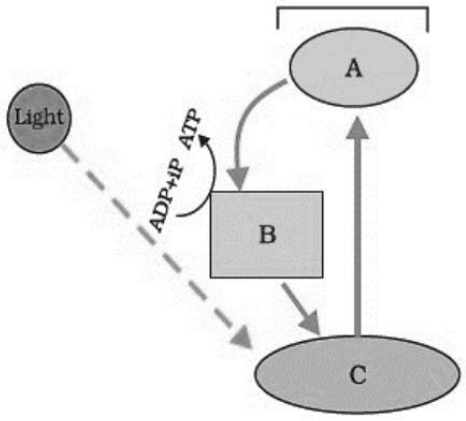
i) All questions are compulsory.

ii) The question paper has three sections and 13 questions. All questions are compulsory.

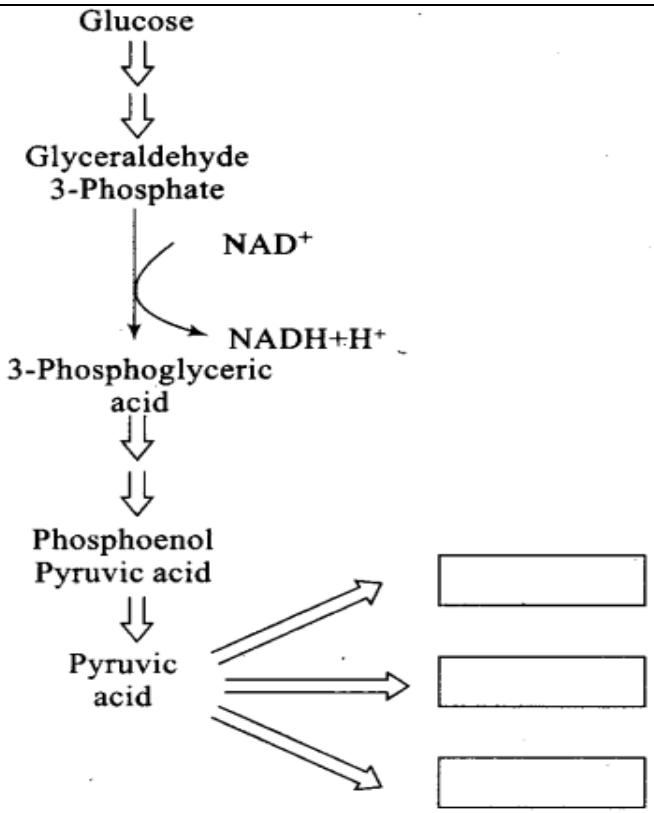
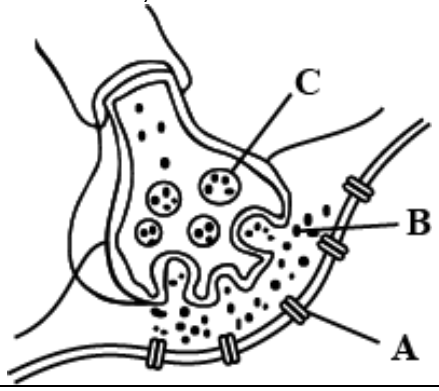
iii) Section–A has 6 questions of 2 marks each; Section–B has 6 questions of 3 marks each; and Section–C has a case-based question of 5 marks.

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.

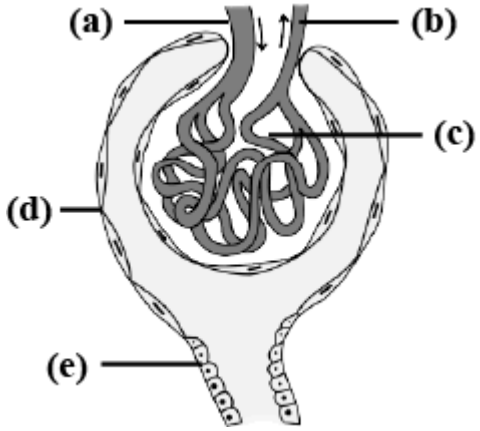
QUE .NO.	QUESTIONS	MARKS
	SECTION-A	
1.	The following Statements describe the four main stages in the process of mitosis. i) The spindle fibres break down and the nuclear membrane forms. ii) The chromosomes arrange themselves on the equator of the cell. iii) The spindle forms and the nuclear membrane disintegrate. iv) The centromere splits and the sister chromatids migrate to the opposite poles of the cell. Write the correct sequence of the stages in mitosis and also name each of the stage.	2
2.	In the diagram shown below, label A, B and C. Also mention what type of phosphorylation is possible in this? 	1½+½
3.	What would be the RQ value of yeast if it were to respire glucose anaerobically? **OR**	2

	Pyruvic acid generated in the crystal is transported to mitochondria and initiates the second phase of respiration. Before pyruvic acid enters the Kreb's cycle, one of its three carbon atoms is oxidized to carbon dioxide in the reaction called oxidative decarboxylation. (i) Name the enzyme that catalyses the process. (ii) How many NADH is produced during this process	2
4.	(i) In an experiment, the callus produced from intermodal segments did not proliferate until coconut water was added. Give reason why? (ii) What would be expected to happen if- GA3 is applied to rice seedlings	2
5.	Old people usually suffer from inflamed and stiff joints, name the condition. State the reasons for the symptoms.	2
6.	Name the gland that functions as a biological clock in our body where it is located? Name its one secretion. **OR** What is erythropoiesis? Which hormone stimulates it?	2
	SECTION – B	
7.	Given below is the diagrammatic representation of a standard ECG. Label its different peaks.  If a patient's ECG reveals an abnormally long delay between the P-wave and the QRS deflection, What would does this suggest?	3
8.	Arrange the following terms based on their volumes in an ascending order. Write the volumes for each too. a. Tidal Volume (TV) b. Residual Volume (RV) c. Inspiratory Reserve Volume (IRV)	3
9.	List the location in the cell where the following reactions take place during the process of photosynthesis. a) Synthesis of NADPH and ATP b) Photolysis of water c) CO_2 fixation	3
10.	Pyruvic acid is the end product of glycolysis. What are the three metabolic fates of pyruvic acid under aerobic and anaerobic conditions? Write in the space provided in the diagram.	3

		
11.	A biology student asked his teacher that why two individuals of same population does not look similar. The teacher told him about the concept of meiosis and crossing over. The teacher also mentioned that meiosis occurs in two stages which differ significantly. (i) When does the crossing over occur in humans and name the type of cells involved in it? (ii) How many daughter cells are produced at the end of meiosis-I and II respectively? (iii) Draw diagrams to show the striking difference between Anaphase-I and Anaphase-II of meiosis.	3
12.	Explain the factors on which the impulse conduction depends. What is the significance of Saltatory conduction? **OR** Observe the diagram and label A, B and C. Mention one function of each. 	3

SECTION- C

13. Observe the given diagram and answer the questions that follows:



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(i) What is the role of the structure shown in the figure? Name it.
(ii) Label a, b, c and d.
(iii) Give one point of difference between (a) and (b).
(iv) Define podocytes (e).

OR

Read the passage given below and answer the following questions given:

Kidneys are the chief excretory organs and are mainly concerned with the excretion of urea in the form of urine.They play a central role in cardiovascular homeostasis by ensuring a balance between the fluid taken in and that lost and excreted during everyday activities. This ensures stability of extracellular fluid volume and maintenance of normal levels of blood pressure. Renal fluid handling is controlled via neural and humoral influences, with the former determining a rapid dynamic response to changing intake of sodium whereas the latter cause a slower longer-term modulation of sodium and water handling.
The function of our kidney is monitored and regulated by the feedback mechanisms which involve the hypothalamus, juxta glomerular apparatus (JGA), and the heart.

1+2+1+1

(i)Name the hormone released by the heart for regulation of the kidney function.
(ii)How does Anti Diuretic Hormone (ADH) regulate body fluid volume?
(iii) Give the name of two actively transported substances in glomerular filtrate.
(iv) State why the composition of glomerular filtrate is not the same as urine.

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