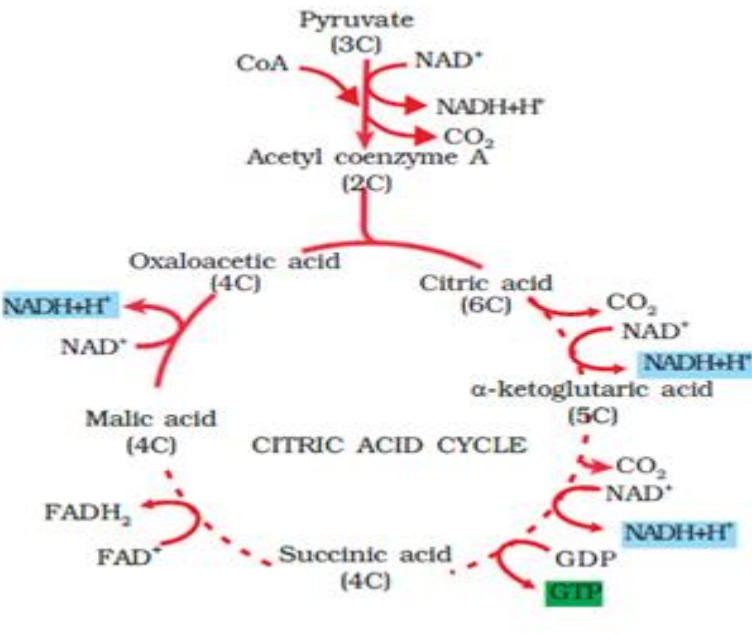


**KENDRIYA VIDYALAYA SANGATHAN
BENGALURU REGION
SAMPLE QUESTION PAPER - TERM – II: SESSION 2021-22**

Class : XI	Max. Marks: 35
Subject : BIOLOGY	Time: 2 hours
<p><i>General Instructions:</i></p> <p>i) All questions are compulsory.</p> <p>ii) The question paper has three sections and 13 questions. All questions are compulsory.</p> <p>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.</p> <p>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.</p> <p>v) Wherever necessary, neat and properly labeled diagrams should be drawn.</p>	

Q. No.	Section A	Marks
1	<p>A cell cycle is a series of events that takes place in a cell as it grows and divides.</p> <p>(a) Observe the following cell cycle diagram and identify the phases of it labeled as A,B,C, D.</p> <p>(b) In which phase replication of DNA occurs? If a cell has 20 chromosomes, what would be number of chromosomes at the end of this phase?</p>	2
2	<p>Establishment of proton gradient essential for synthesis of ATP in the chloroplast during light reaction of photosynthesis. List two ways how more H^+ accumulation can occur within the thylakoid lumen?</p> <p style="text-align: center;">OR</p>	2

	<p>a) Name the pigment molecule present in the reaction centre.</p> <p>b) What do you call the pigment molecules present around the reaction centre ? Write their functions</p>					
3	<p>Explain the role of the following in ETS:</p> <p>a) Complex I – NADH dehydrogenase</p> <p>b) Complex V- ATP synthase</p>	2				
4	<p>How are gibberlins useful in agriculture to improve crop productivity? Give four points in support of your answer.</p>	2				
5	<p>What is the role of Ca^{++} and ATP in muscle contraction?</p>	2				
6.	<p>Following flow chart represents generation and conduction of nerve impulse in a neuron. Fill in the blanks at (A), (B),(C), and (D)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> • In a resting neuron, the neuroplasm contains high concentration of K^+ and negatively charged proteins and low concentration of Na^+. Whereas, the fluid outside the axon contains -----(A)----- <p style="text-align: center;">↓</p> </td> </tr> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> • The electrical potential difference across the membrane is resting potential. When the neuron is stimulated, at that point there is influx of Na^+. There is reversal of polarity across the membrane. So, the membrane at the stimulated point is said to be -----(B)----- <p style="text-align: center;">↓</p> </td> </tr> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> • The electrical potential difference across the plasma membrane at the stimulated site is called -----©----- <p style="text-align: center;">↓</p> </td> </tr> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> • -----(D)----- transports 3 Na^+ outwards for 2 K^+ into the cell for each ATP spent. </td> </tr> </table>	<ul style="list-style-type: none"> • In a resting neuron, the neuroplasm contains high concentration of K^+ and negatively charged proteins and low concentration of Na^+. Whereas, the fluid outside the axon contains -----(A)----- <p style="text-align: center;">↓</p>	<ul style="list-style-type: none"> • The electrical potential difference across the membrane is resting potential. When the neuron is stimulated, at that point there is influx of Na^+. There is reversal of polarity across the membrane. So, the membrane at the stimulated point is said to be -----(B)----- <p style="text-align: center;">↓</p>	<ul style="list-style-type: none"> • The electrical potential difference across the plasma membrane at the stimulated site is called -----©----- <p style="text-align: center;">↓</p>	<ul style="list-style-type: none"> • -----(D)----- transports 3 Na^+ outwards for 2 K^+ into the cell for each ATP spent. 	
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SECTION B						
7	<p>Nano cut her hair to shoulder length. After a month it grew upto a meter length.</p> <p>(a) Identify the cell division involved here.</p> <p>(b)explain about any two phases of it with the help of diagrams.</p> <p>(c) What would happen if the nuclear division is not followed by cytokinesis</p>	3				
8	<p>In what different forms the CO_2 produced in the tissues is transported by blood to the lungs? Explain the steps of release of this CO_2 into the lungs for exhalation.</p>	3				
9	<p>Diagrammatically depict cyclic events that take place in reduction of CO_2 to carbohydrate during biosynthetic phase of</p>	3				

	photosynthesis in C ₄ plants	
10	 <p>Observe the citric acid cycle above. Calculate the total number of ATP that can be produced when 4 pyruvate molecules are oxidised . Assume that all the NADH and FADH produced in this cycle are further oxidized to yield ATP</p> <p>OR</p> <p>Glucose is partially oxidized into pyruvate in cytoplasm of cell to produce ATP. Schematically represent various steps of glycolysis.</p>	3
11	A patient is suffering from renal failure due to acute uremia and doctor advised for kidney transplantation. What method can you adopt to keep this patient alive until a suitable donor can be found? Explain it.	3
12	List 3 different groups of hormones secreted by adrenal cortex and write one major function of them Or Draw a standard ECG and explain the different segments in it	3
SECTION C		
13	Biology teacher was discussing about the importance of knowing Human blood groups for blood transfusion purpose and Rh incompatibility. She records blood groups of her students and explains the reason for variation in blood groups. Teacher further presents a pregnant lady- Mrs Flory's case. She is Rh ^{-ve} and her husband is Rh ^{+ve} . Their first child Sweetie is Rh ^{+ve} .She wants to go for second pregnancy. Doctor tells her that her blood has to be screened for certain antibodies presence and destroy them	

before she conceives for the second time. Other wise second baby would be deficient of RBC and anemic.

- (a) A person with 'O' blood group travelling on a bike with high speed , hit a divider on the road and seriously injured with lot of blood loss. He needed immediate blood transfusion. His father is B group and mother is A group. Can his parents donate blood ? Give reason
- (b) Which group blood is called Universal donor and why?
- (c) Explain Why the second baby of Mrs Florey would be anaemic and with less RBC .

OR

A team of doctors specialized in endocrinology came for a medical check up.They observed the children and in one child they found swollen neck and suffering from a disease.

And they checked staff for blood glucose level and ADH hormone levels. Found certain abnormalities and advised the affected ones.

- (a) Can you explain, the disease that the child is suffering from and the reason behind it? What effect does this condition have on pregnancy?
- (b) Doctors found that hypoglycaemic and hyperglycaemic conditions in the staff ? What do they mean? Which hormones cause these conditions and how?
- (c) Write source gland and function of ADH ?
