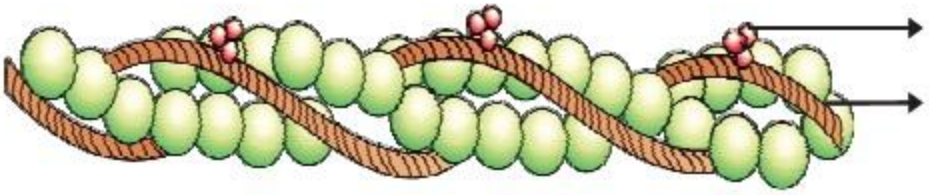
# ARMY PUBLIC SCHOOL RANIKHET
# WINTER BREAK ASSIGNMENT- (2020-21)
# CLASS XI BIOLOGY- Set II

**MM 100**

**General Instructions**: Attempt all the questions. Draw diagrams where ever necessary.

**SECTION A (1MARK EACH)**

1. A patient complains of constant thirst, excessive passing of urine and low blood pressure. When the doctor checked the patients' blood glucose and blood insulin level, the level were normal or slightly low. The doctor diagnosed the condition as diabetes insipidus. But he decided to measure one more hormone in patients blood. Which hormone does the doctor intend to measure?
2. Comment upon the role of ear in maintaining the balance of the body and posture.
3. Label the different components of actin filament in the diagram given below.

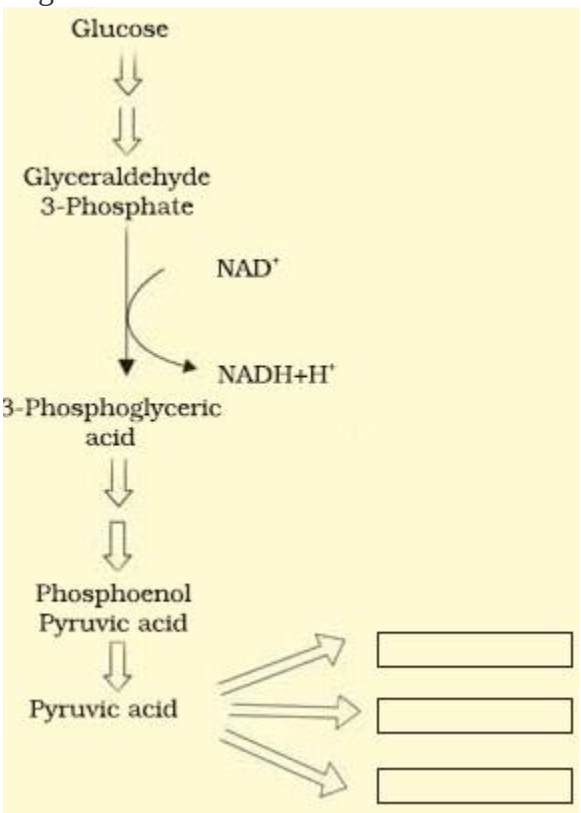


4. Mention the substances that exit from the tubules in order to maintain a concentration gradient in the medullary interstitium.
5. Given below is the diagrammatic representation of a standard ECG. Label its different peaks.

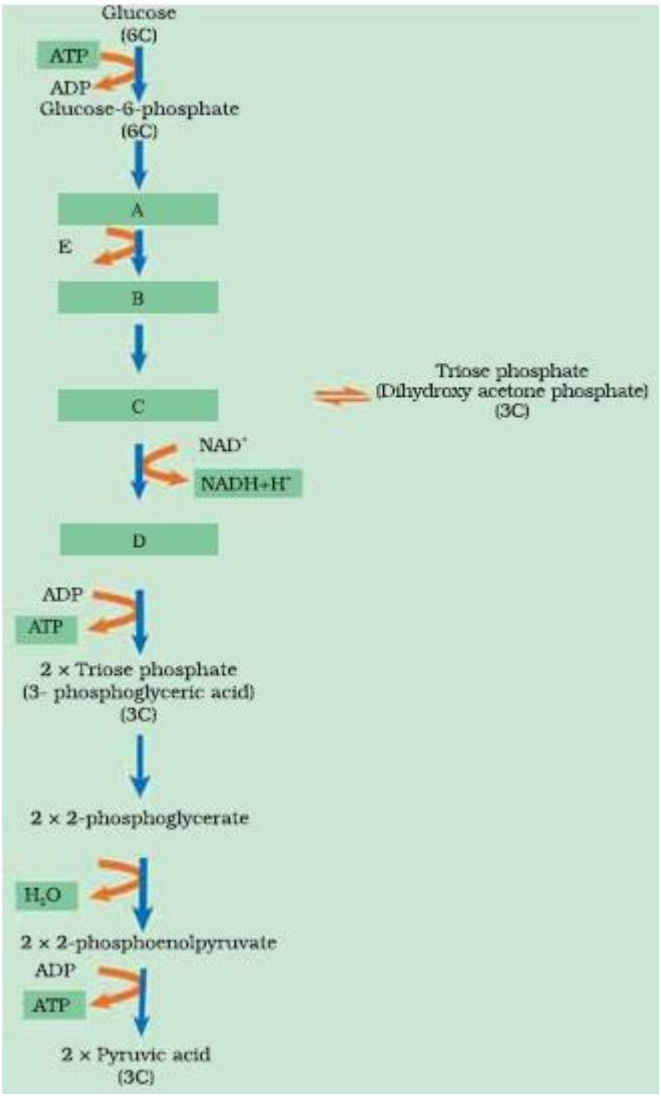
6. A major percentage (97%) of $O_2$ is transported by RBCs in the blood. How does the remaining percentage (3%) of $O_2$ transported?
7. Stomach is located in upper left portion of the abdominal cavity and has three major parts. Name these three parts.
8. A farmer grows cucumber plants in his field. He wants to increase the number of female flowers in them. Which plant growth regulator can be applied to achieve this?
9. Explain the term "Energy Currency". Which substance acts as energy currency in plants and animals?
10. What is the basis for designating C3 and C4 pathways of photosynthesis?

## SECTION B (2 MARKS EACH)

11. Why do old people have a weak immunity system?
12. State the difference between chemical and electrical transmission.
13. State the difference between the matrix of bones and cartilage.
14. What are the main processes of urine formation?
15. How will you interpret an electrocardiogram (ECG) in which time taken in QRS complex is higher
16. Name the important parts involved in creating a pressure gradient between lungs and the atmosphere during normal respiration.
17. 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.

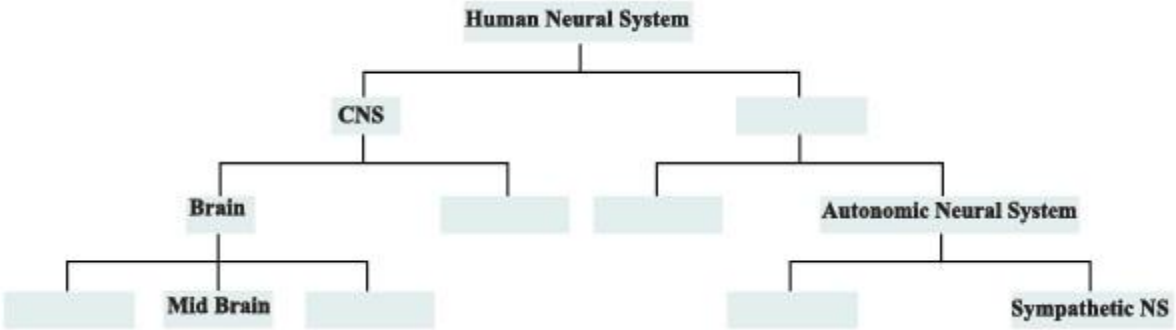


18. The figure given below shows the steps in glycolysis. Fill in the missing steps A, B, C, D and also indicate whether ATP is being used up or released at step E?




19. When does anaerobic respiration occur in man and yeast?

20. The major parts of the human neural system is depicted below. Fill in the empty boxes with appropriate words.



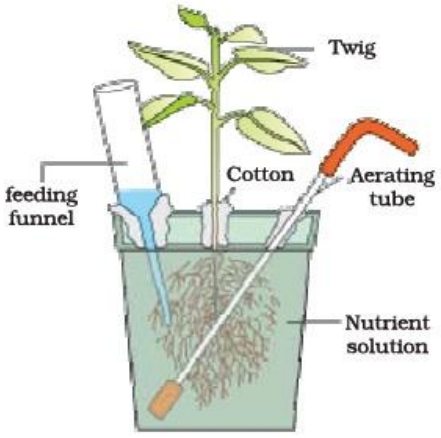
## SECTION C (3 MARKS EACH)

21. What are the points for articulation of Pelvic and Pectoral girdles?

22. What is the difference between electrical transmission and chemical transmission?

23. What is the procedure advised for the correction of extreme renal failure? Give a brief account of it.

24. Carefully observe the following figure




a. Name the technique shown in the figure and the scientist who demonstrated this technique for the first time.

b. Name atleast three plants for which this technique can be employed for their commercial production.

c. What is the significance of aerating tube and feeding funnel in this setup?

25. Both animals and plants grow. Why do we say that growth and differentiation in plants is open and not so in animals? Does this statement hold true for sponges also?

26. Answer the following

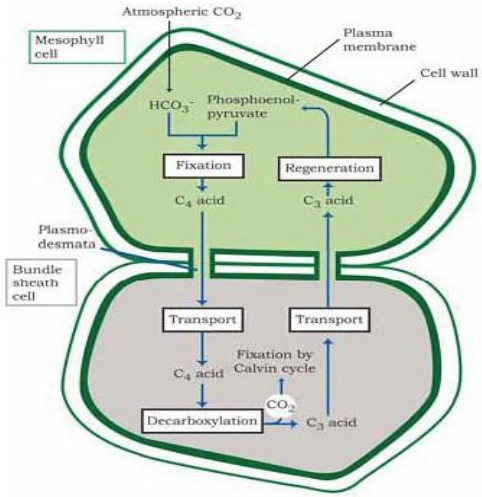
a. Name the major site where RBCs are formed.

b. Which part of heart is responsible for initiating and maintaining its rhythmic activity?

c. What is specific in the heart of crocodiles among reptilians?

27. Oxygen is an essential requirement for aerobic respiration but it enters the respiratory process at the end? Discuss.

28. Observe the diagram and answer the following.




a. Which group of plants exhibits these two types of cells?

b. What is the first product of $C_4$cycle?

c. Which enzyme is there in bundle sheath cells and mesophyll cells?

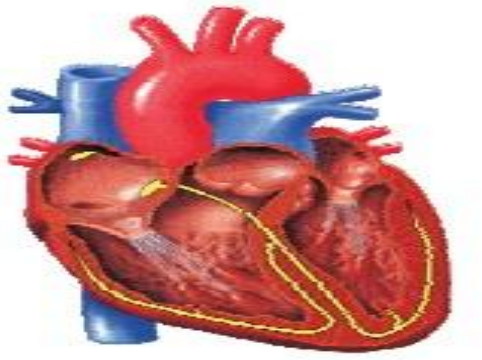
29. Suppose Euphorbia and Maize are grown in the tropical area.

a. Which one of them do you think will be able to survive under such conditions?

b. Which one of them is more efficient in terms of photosynthetic activity?

c. What difference do you think are there in their leaf anatomy?

30. In the diagrammatic presentation of heart given below, mark and label, SAN, AVN, AV bundles, bundle of His and Purkinje fibres.



**SECTION ( 5 MARKS EACH)**

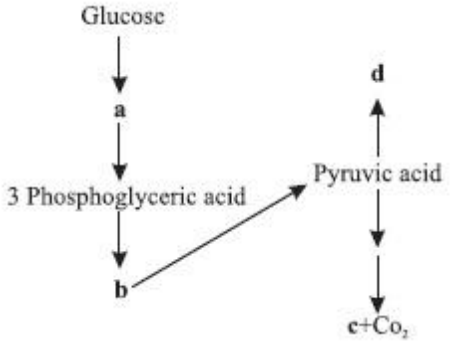
31. Describe the events in cardiac cycle. Explain "double circulation".

32. A milkman is very upset one morning as his cow refuses to give any milk. The milkman's wife gets the calf from the shed. On fondling by the calf, the cow gave sufficient milk. Describe the role of endocrine gland and pathway associated with this response?

33. Explain the process of the transport and release of a neurotransmitter with the help of a labelled diagram showing a complete neuron, axon terminal and synapse.

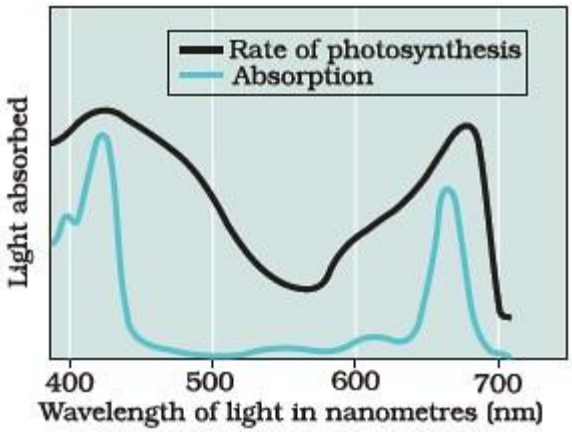
34. Explain sliding filament theory of muscle contraction with neat sketches

35. In the following flow chart, replace the symbols a,b,c and d with appropriate terms. Briefly explain the process and give any two application of it.




36. a. With the help of examples describe the classification of essential elements based on the function they perform.

b. In the figure given below, the black line (upper) indicates action spectrum for photosynthesis and the lighter line (lower) indicates the absorption spectrum of chlorophyll a, answer the followings:




a. What does the action spectrum indicate? How can we plot an action spectrum? Explain with an example.

b. How can we derive an absorption spectrum for any substance?

c. If chlorophyll a is responsible for light reaction of photosynthesis, why do the action spectrum and absorption spectrum not overlap?

37. Describe the structure of a human kidney with the help of a labelled diagram.

38. Explain the mechanism of breathing with neat labelled sketches.