

COMMON APEEJAY EXAMINATION (2021-22)

SUBJECT-BIOLOGY

CLASS-XI

Term-II

Max. Marks 35

Time Duration-2hrs.

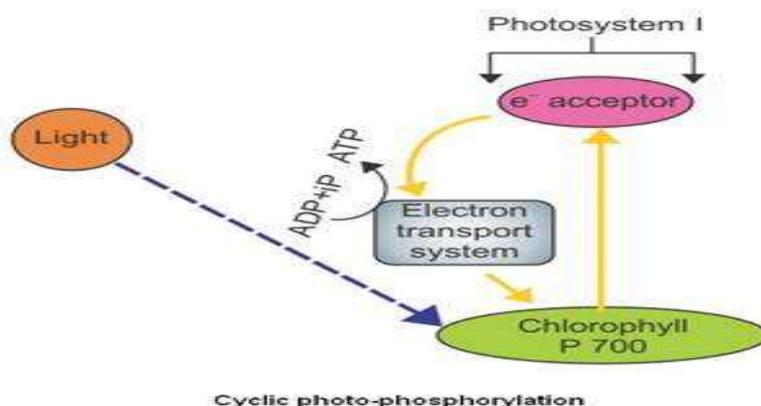
General Instructions:

1. All questions are compulsory.
2. The question paper has three sections and 13 questions in all.
3. 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.
4. Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
5. Wherever necessary, neat and properly labelled diagrams should be drawn.

SECTION-A

- 1 Why is the colour of leaf kept in dark frequently becoming yellow or pale green? Which pigment do you think is more stable? (2)
- 2 A cyclic process is occurring in C3 plants. This is light dependent and needs oxygen. (2)  
This process need not produce energy rather it consumes energy.
  - a) Can you name the given process?
  - b) Is it essential for survival?
  - c) What are the end products of the process?
  - d) Where does it occur?

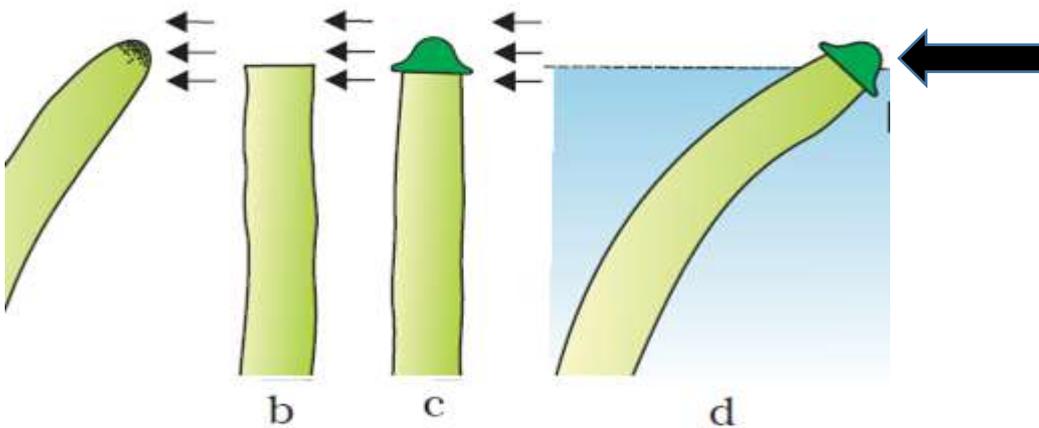
OR



- a) Why this process is called cyclic photophosphorylation?
  - b) Under what conditions does it operate?
  - c) Where does it occur?
- 3 Represent schematically the pathway of fermentation of lactic acid from glucose. (2)
  - 4 Indicate two decarboxylation steps in Kreb's cycle. Write down their reactions. (2)

- 5 What would be expected to happen if: (2)
- GA3 is applied to rice seedlings.
  - A rotten fruit gets mixed with unripe fruit.
  - You forget to add cytokinin in culture medium.
  - Dividing cells stop differentiating.
- 6 (a) A gardener found some broad leaved Dicot weeds growing in lawn. What can be done to get rid of the leaves? (2)
- (b) Define bolting.

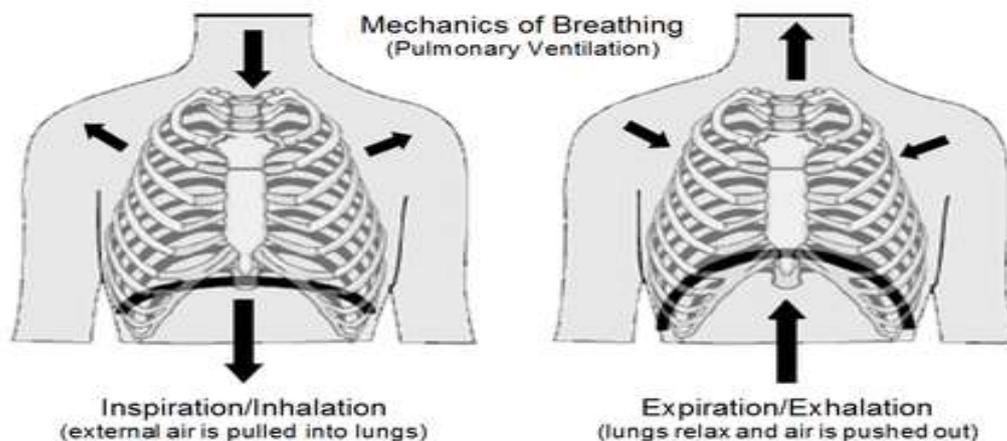
OR



- Name two persons who observed the above phenomena.
- Explain their observation?
- What happened when tip was decapitated and mica plate was inserted in between The tip and the shoot.

### SECTION-B

- 7 Observe the given picture and answer the following questions- (3)

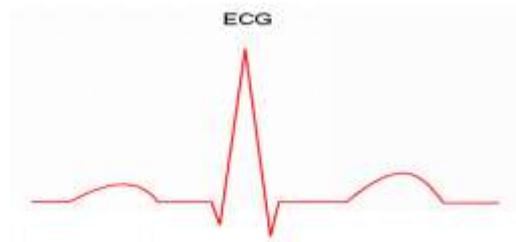


- Why man is called negative pressure breather?
- What happens to diaphragm during inspiration and expiration?
- What is the effect of smoking on Vital capacity?

**OR**

Describe the process of transport of respiratory gases in human blood.

**8**



(3)

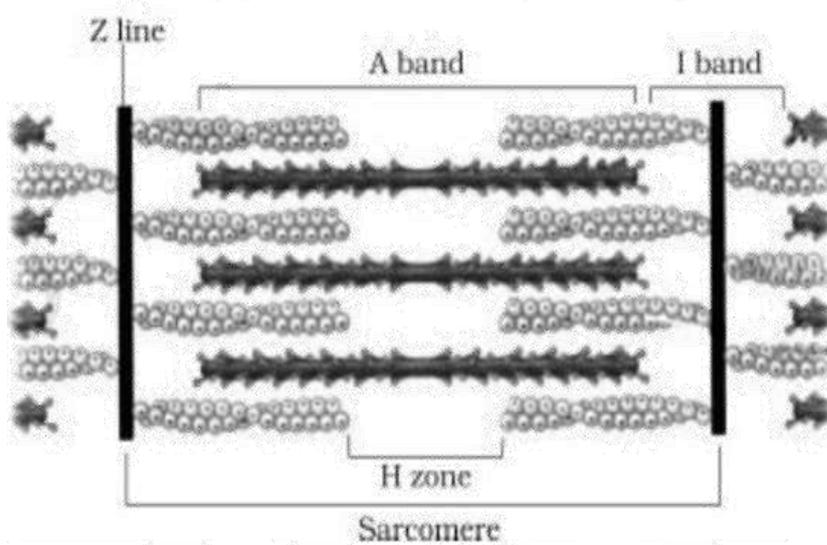
- Figure shown above depicts ECG, define it and explain the different segments in it.
- Why do we call our heart myogenic?

**9** a) How does RAAS help in the process of osmoregulation? (3)

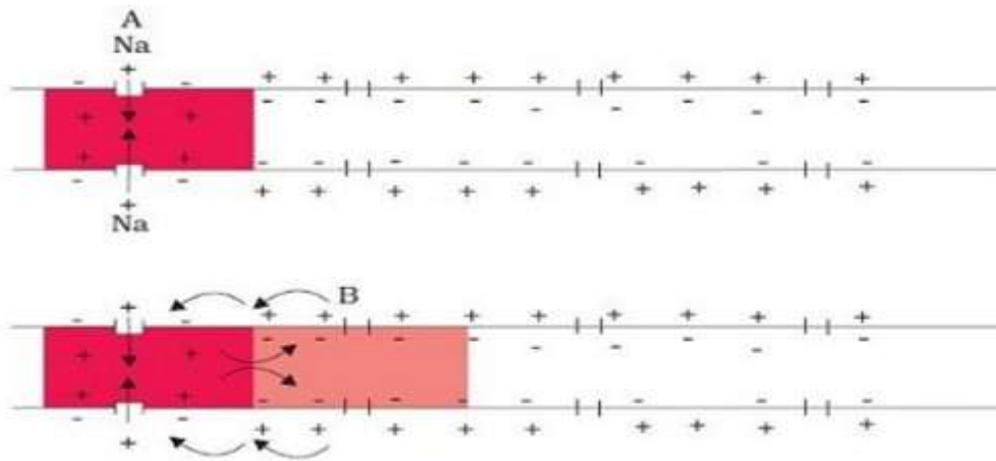
b) RAAS and ANF act antagonistic to each other. Justify

c) Name two diuretics.

**10** Observe the given picture carefully and answer the following questions (3)



- Give the composition of a sarcomere.
- Why are dark bands called A bands?
- When a muscle contracts what happens to H zone?



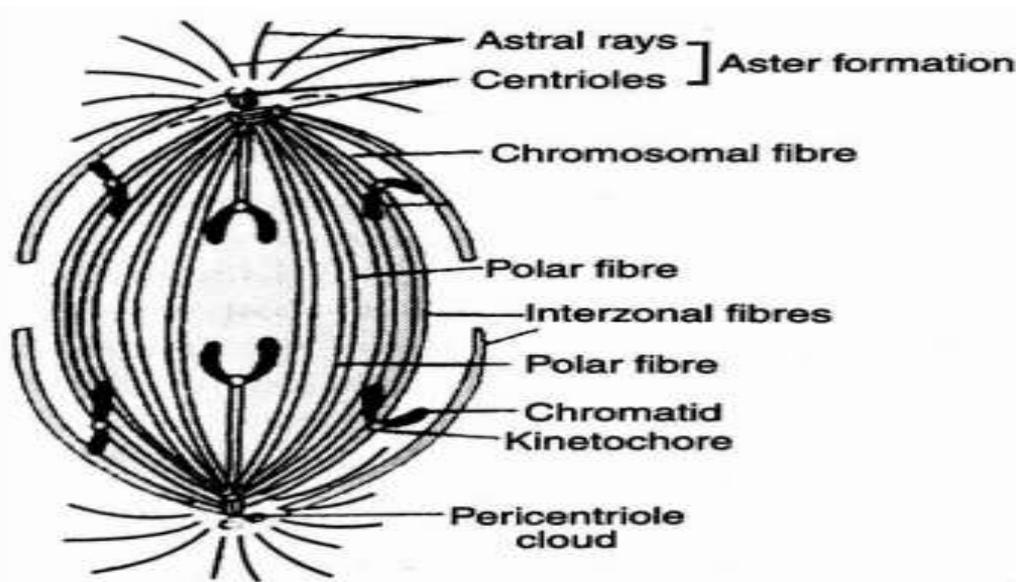
- Define resting potential.
- How and when do sodium potassium pumps operate?
- Describe the process of generation of action potential.

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- Can Pituitary be called as the master endocrine gland? Justify (3)
- Name a hormone responsible for sleep wake cycle in our body and also name the gland producing it.
- Differentiate between hypothyroidism and hyperthyroidism.

### SECTION-C

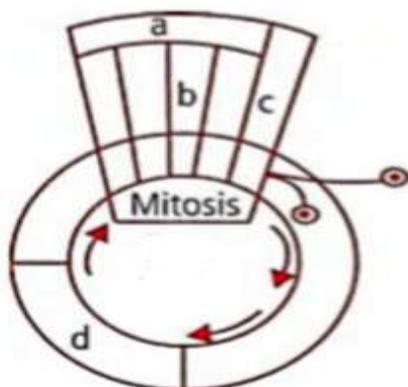
- 13 The M Phase represents the phase when the actual cell division or mitosis occurs and the interphase represents the phase between two successive M phases. Though for convenience mitosis has been divided into four stages of nuclear division, it is very essential to understand that cell division is a progressive process and very clear-cut lines cannot be drawn between various stages- Prophase, Metaphase, Anaphase and Telophase. Prophase which is the first stage of mitosis follows the S and G<sub>2</sub> phases of interphase. At the onset of anaphase, each chromosome arranged at the metaphase plate splits and moves towards opposite poles now referred to as chromosomes of the future daughter nuclei. (5)



- a) Anaphase-I results in reductional division in daughter cells. Justify
- b) How sister chromatids are pulled towards poles?
- c) Why are chromosomes visible in V,J,L,I shapes during this movement?
- d) Differentiate between Anaphase-I and Anaphase-II. Write at least two points of difference

OR

Given below is the schematic break up of the phases/stage of cell cycle



- a) Onion root tip cells have 16 chromosomes in each cell. How many chromosomes will the cell have at G1 phase and S phase? Also, what will be the DNA content of the cells at G1 and after S phase, if the content after M phase is  $2C$ .
- b) What is the main point of difference between cytokinesis in plant and animal cells?
- c) Which phase of the cycle occupies the maximum part? Name a pathological condition when uncontrolled cell division occurs?