

QB365 Question Bank Software Study Materials

Plant Anatomy and Plant Physiology Important 2 Marks Questions With Answers (Book Back and Creative)

10th Standard

Science

Total Marks : 40

2 Marks

20 x 2 = 40

1) What is collateral vascular bundle?

Answer : When xylem lies towards the centre and phloem lies towards the periphery, it is called collateral vascular bundle.

2) Where does the carbon that is used in photosynthesis come from?

Answer : The carbon that is used in photosynthesis comes from carbon dioxide, or CO₂ that's present in our atmosphere.

3) What is the common step in aerobic and anaerobic pathway?

Answer : Glycolysis is the common step in both aerobic and anaerobic pathway.

4) Name the phenomenon by which carbohydrates are oxidized to release ethyl alcohol.

Answer : Anaerobic respiration is a process by which carbohydrates are converted into ethyl alcohol.

5) Name the three basic tissues system in flowering plants.

Answer : The three basic tissue systems in flowering plants are

- (i) Dermal or Epidermal tissue system
- (ii) Ground tissue system
- (iii) Vascular tissue system

6) What are grana?

Answer : (i) In the stroma of a chloroplast some of the thylakoids are arranged in the form of discs stacked one above the other.
(ii) These stacks are termed as grana. They are interconnected to each other by membranous lamellae called Fret channels.

7) List the functions of chloroplast.

Answer : (i) Photosynthesis.
(ii) Storage of starch.
(iii) Synthesis of fatty acids.
(iv) Storage of lipids.
(v) Formation of chloroplasts.

8) What is reaction centre in photosynthesis?

Answer : Chlorophyll 'a' is the primary pigment that traps solar energy and converts it into electrical and chemical energy. Thus it is called the reaction centre in photosynthesis.

9) List the functions of mitochondria.

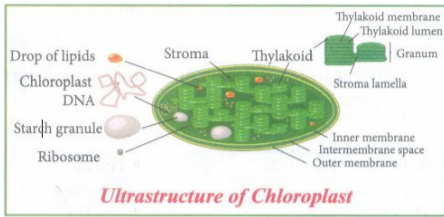
Answer : Functions of Mitochondria :

- (i) Mitochondria is the main organelle of cell respiration. They produce a large number of ATP molecules. So they are called as power houses of the cell or ATP factory of the cell.
- (ii) It helps the cells to maintain normal concentration of calcium ions.
- (iii) It regulates the metabolic activity of the cell.

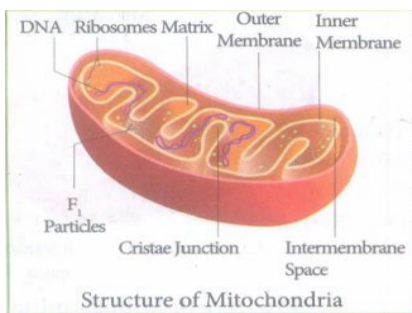
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- 10) **Answer : Structure of Chloroplast:** Chloroplasts are green plastids containing green pigment called chlorophyll. Chloroplasts are oval shaped organelles having a diameter of 2-10 micrometer and a thickness of 1-2 micrometer
- (i) Envelope:** Chloroplast envelope has outer and inner membranes which is separated by intermembrane space.
- (ii) Stroma:** Matrix present inside to the membrane is called stroma. It contains DNA, 70 S ribosomes and other molecules required for protein synthesis
- (iii) Thylakoids:** It consists of thylakoid membrane that encloses thylakoid lumen.
- (iv) Grana:** Some of the thylakoids are arranged in the form of discs stacked one above the other. These stacks are termed as grana, they are interconnected to each other by membranous lamellae called Fret channels.



- 11) Draw the ultrastructure of mitochondria and label the parts.



Answer :

- 12) Differentiate endarch and exarch

Answer :

Endarch	Exarch
i) Protoxylem lies towards the centre.	i) Protoxylem lies towards the periphery.
ii) Metaxylem lies towards the periphery.	ii) Metaxylem lies towards the centre.
iii) This is characteristic feature of stem.	iii) This is characteristic feature of root.

- 13) Describe regions of the cortex of dicot stem.

Answer : Cortex of dicot stem is divided into three regions:

- (i) Hypodermis :** It consists of 3 - 6 layers of collenchyma cells. It gives mechanical support.
- (ii) Middle cortex :** It is made up of few layers of chlorenchyma cells. It is involved in photosynthesis due to the presence of chloroplast.
- (iii) Inner cortex :** It is made up of few layers of parenchyma cells. It helps in gaseous exchange and stores food materials. Endodermis is the inner most layer of cortex it consists of a single layer of barrel shaped cells, these cells contain starch grains. So it is also called starch sheath.

- 14) Write the differences between palisade and spongy parenchyma of dicot leaf.

Answer :

S. No.	Palisade Parenchyma	Spongy Parenchyma
i	These cells have more number of chloroplasts.	These cells have fewer chloroplasts.
ii	The cells are elongated.	The cells are spherical or oval in shape.
iii	It takes part in photosynthesis.	It helps in gaseous exchange.

- 15) Which is the powerhouse of cells? Why?

- Answer :** i) Mitochondria is the power house of cells.
ii) Because produces a large number of ATP molecules.

16) What is Morphogenesis?

Answer : i) In term morphogenesis, morphe means shape and genesis means creation. So morphogenesis is defined as the biological process that causes an organism to develop its shape.

ii) In plants, growth occurs during cell division, cell elongation and cell differentiation.

iii) Both auxins and cytokinins are essential for the formation of new organs from the callus in tissue culture.

17) What are the three types of cells present in cortex of dicot stem. Mention the their uses.

Answer :

S. No.	Types of cell in cortex of dicot stem	Function
i	Collenchyma cells.	They give mechanical support.
ii	Chlorenchyma cells.	They involve in photosynthesis.
iii	Parenchyma cells.	They help in gaseous exchange and stores food materials.

18) What are oxysomes?

Answer : The inner mitochondrial membrane bear minute regularly spaced tennis racket shaped particles known as oxysomes (F₁ particle). They are involved in ATP synthesis

19) Write a short note on plastids.

Answer : a) Plastids are double membrane bound organelles found in plants and some algae.

b) They is responsible for the preparation and storage of food.

c) There are three types of plastids.

(i) Chloroplast - green colour plastids

(ii) Chromoplast - yellow, red, orange coloured plastid

(iii) Leucoplast - colourless plastid.

20) What is anaerobic respiration?

Answer : Anaerobic respiration takes place without oxygen. Glucose is converted into ethanol (in plants) or lactate (in some bacteria).

