CHAPTER 11

MODEL SUBJECTIVE QUESTIONS

Prepared for new pattern of examination subjective part:

- What is bioenergetics? Give role of photosynthesis and evolution of respiration. (3)
- Write a note on photosynthetic reactants and products. (3)
- What is relationship between photosynthesis and respiration. (3)
- When does there is no absorption of carbon dioxide and oxygen? (3)
- What is compensation point? (2)
- What is role of water in photosynthesis? How was proved that oxygen was released from water not from carbon dioxide? (4)
- Write a note on chloroplast. (4)
- Write a note on photosynthetic pigments. (6)
- Write a note on chlorophylls. Differentiate between chlorophylla and chlorophyll b. (6)
- Draw structural formula of chlorophyll. (3)
- Differentiate between chlorophyll a and chlorophyll b. (3)
- Write a note on accessory pigment. What is their role in photosynthesis? (2)
- Discuss the role of light in photosynthesis. (6)
- What are absorption spectrum and action spectrum? Give their comparison. (4)
- Write a note on light dependent reaction. (6)
- What are absorption spectrum and action spectrum? Give their comparison. (4)
- Write a note on light dependent reaction. (6)
- What are photo-system? Give their types and components. (3)
- Write a note on non-cyclic phosphorylation. (4)
- Write note on cyclic phosphorylation. (4)
- What is chemiosmosis? Give its mechanism. (4)
- Describe Calvin cycle or dark reaction. (4)
- Draw labeled diagram of Calvin cycle.
- Write a note on aerobic and anaerobic respirations. (4)
- Differentiate between aerobic and anaerobic respirations. (4)
- What is ATP? Give its importance or uses. (3)

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- What is biological oxidation? (2)
- Describe different reaction of glycolysis. (6)
- Draw diagram of cycle of glycolysis. (6)
- Give pyruvic acid oxidation. (4)
- Discuss krebs cycle with labeled diagram. (6)
- Draw labeled diagram of process of glycolsis. (3)
- Describe respiratory chain or electron transport chain of respiration. (4)
- Write a note on oxidative phosphorylation. (3)
- Differentiate between photosynthesis and respiration. (4)

DEFINITIONS

Terms	Definitions
Absorption spectrum	The plot showing absorption of light of different wave lengths by a compound is called absorption spectrum.
Accessory pigments	The pigments absorb light of different wavelength and broadens the absorption spectrum are called accessory pigments.
Action spectrum	The plot showing relative effectiveness of different wavelengths (colour) of light for photosynthesis is called action spectrum.
Aerobic respiration	The respiration which occurs in the presence of oxygen is called aerobic respiration.
Anaerobic respiration	The respiration occurs in absence of oxygen is called anaerobic respiration.
Cellular respiration	The step by step breakdown of the C-chain molecules and the release of energy within the cell are called cellular respiration.
Chlorophyll	Green pigment is called chlorophyll.
Chlorophyll a	$C_{55}H_{72}O_5N_4Mg$
Chlorophyll b	$C_{55}H_{70}O_6N_4Mg$
Compensation point	The point when there is no net gas exchange between leaves and atmosphere at dawn and dusk is called compoensation point. At this point rate of respiration becomes equal to rate of photosynthesis in plants.
Cyclic phosphorylation	The returing back of the same excited electrons to the excited

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	chlorophyll by producing a molecule of ATP it is called Calvin cycle. Or back and forth movement of electron generate ATP this is known as cyclic phosphorylation
Cytochromes	Cytochromes act as intermediates during the transport of electrons. These are the iron containing proteins.
Bioenergetics	The quantitative study of energy relationship in the biological systems is called bioenergetics.
External respiration	The exchange of respiratory gases (CO_2 and O_2) between the organism and its environment is called external respiration.
Glycolysis	The breakdown of glucose up to formation of two molecules of Pyruvic acid is called glycolysis.
Grana (Granum)	The stacked columns of thylakoids are called grana.
Krebs cycle	The series of chemical reactions which completed the oxidation of glucose is called Krebs cycle. It occurs in mitochondria.
Light	Light is electromagnetic energy or radiations.
Non-cyclic phosphorylation	The formation of ATP during non-cyclic flow of electrons is called non-cyclic phosphorylation.
Oxidation	The addition of oxygen or removal of electron from compound is called oxidation.
Oxidative phosphorylation	The process by which energy released during oxidation reactions is stored in high energy phosphate bonds.
Oxidizing agent	The compound, which has capability to remove electron from a compound is called oxidizing agent.
Phosphorylation	The addition of phosphate groups to molecules. By this process ATP is formed.
Photo phosphorylation	The synthesis of ATP due to light energy is called photophosphorylation.
Photolysis	The splitting of water and release of oxygen during photosynthesis is called photolysis.
Photosynthesis	Photosynthesis is a process in which energy-poor inorganic oxidized compounds of carbon (CO_2) and hydrogen water (H_2O) are reduced to energy rich carbohydrates (sugar-glucose) by using light energy.
Photosystem	Photosynthetic pigments are organized into clusters called photosystems.
Pigment	The substances which absorb visible light (380 – 750 nm

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	wave length) are called pigments.
Reducing agent	The compound, which has capability to add electron in a compound is called reducing agent.
Reduction	The addition of electron or hydrogen into compound is called reduction.
Respiration	The breakdown of complex carbon compounds and the release of maximum usable energy with in the cell are called respiration.
Thylakoids	The thylakoids are set of interconnected flat disc like sacs.
Transport chain	The transfer of electron through a series of respiratory chain from NADH to oxygen is called electron transport chain.

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