Chapter:13 Photosynthesis in Higher Plants

True and False

Q.No	Question	Answer True/ False	Typology
Q.1	The water splitting complex is associated with the PS-II	TRUE	Understanding
Q.2	During photosynthesis, the synthesis of ATP and NADPH takes place during dark reaction	FALSE	Understanding
Q.3	In C_4 plants , photorespiration does not occur because they have a mechanism that decreases the concentration of CO_2 at enzyme site	FALSE	Understanding
Q.4	Water stress reduces the photosynthetic rate as it opens the stomata.	FALSE	Knowledge
Q.5	Six molecules of glucose requires six turns of Calvin cycle.	FALSE	Understanding
Q.6	Primary carbon dioxide acceptor in Hatch and Slack pathway is Phosphoenol pyruvate	TRUE	Knowledge
Q.7	The major limiting factor for rate of photosynthesisis carbon dioxide	TRUE	Knowledge
Q.8	RuBisCO has active site which can bind to both CO_2 and O_2	TRUE	Knowledge
Q.9	In light harvesting complex, the single chlorophyll a molecule forms the reaction center	TRUE	Knowledge
Q.10	RuBisCO is the most abundant enzyme in the world	TRUE	Understanding
Q.11	In C4 cycle, PEPcase is present in mesophyll cells.	TRUE	Knowledge
Q.12	Dark reactions are not light dependent.	FALSE	Knowledge
Q.13	Plants restore the air which was removed by breathing animals and burning candles	TRUE	Understanding
Q.14	In green plants, CO_2 is the oxygen donor	FALSE	Knowledge
Q.15	In an experiment performed by T.W Engelmann, aerobic bacteria accumulated in the green region of the spectrum.	FALSE	Application

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Multiple Choice Questions

Q.No	Question	Answer	Typology
Q.1	The first stable product formed in C_3 cycle is- A)RuBP B)Phoshoglyceric acid C)Oxalo acetic acid D) Pyruvic acid	b. Phoshoglyceric acid	Knowledge
Q.2	ATP molecules utilized during C_3cycle are- A)18 B)1 C)12 D) 6	a. 18	Knowledge
Q.3	Kranz anatomy is observed in A)Mustard B) Maize C)Pea D) Gram	b. Maize	Knowledge
Q.4	The primary CO_2 acceptor in Hatch and Slack pathway is A)Phosphoenol pyruvate B) PGA C)Oxaloacetic acid D)Malic Acid	d. Phosphoenol pyruvate	Knowledge
Q.5	Oxygen evolved during photosynthesis comes from A)CO_2 B) H_2O C)$C_6H_{12}O_6$ D) HNO_3	b. H_2O	Application
Q.6	The first stage of Calvin cycle is- A)Reduction B) Regeneration C) Oxygenation D) Carboxylation	d. Carboxylation	Knowledge
Q.7	External factor which influences photosynthesis is- A) Mesophyll cells B) Orientation of leaves C)Amount of chlorophyll D) Internal CO2 conc.	b. Orientation of leaves	Understanding
Q.8	Splitting of H_2O molecule is associated with- A)PS-I B)PS-II C)Stromal membrane D)Respiration	b. PS-II	Knowledge
Q.9	RuBisCO has a much greater affinity for- A)O_2 B)CO_2 C)NO_2 D)SO_2	b. CO2	Knowledge
Q.10	Wasteful oxygenation reaction in C3 plants is- A)Chemiosmosis B) Photophosphorylation C)Photorespiration D) Dark reaction	c.Photorespiration	understanding

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Fill in the Blanks

Q.No	Question	Answer	Typology
Q.1	Formation of one molecule of glucose requires _____turns of C_3 cycle.	6	application
Q.2	In C_4 cycle Carbon di oxide fixation in mesophyll cells is carried out by the enzyme _____.	PEPcase	Application
Q.3	Law of Limiting Factor is proposed by _____	Blackman	Knowledge
Q.4	In the C_4 plants, Calvin cycle doesnot take place in the _____cells	Mesophyll	understanding
Q.5	T.W Engelmann performed photosynthetic experiments on green algae____	*Cladophora*	Application
Q.6	The major limiting factor for photosynthesis is _____	Carbon dioxide	Understanding
Q.7	In Z-scheme of light reaction, electron deficit of PSII is fulfilled by the electrons released during _____	Hydrolysis of water	Knowledge
Q.8	Hydrolysis of water takes place in the lumen of thylakoid, this helps to set up_____ _____ required for ATP synthesis	Proton gradient	Knowledge
Q.9	The part of ATPase which forms a transmembrane channel is _____	F_0	Knowledge
Q.10	The _____ pathway is common to the C3 and C4 plants.	Calvin	Understanding
Q.20			

Match the Following

Q.No	Question		Answer		Typology
Q.1	Column A a. Chl a b. Chl b	Column B i)Yellow ii)Yellow green iii)blue green iv) Yellow orange	Column A a. b.	Column B iii) ii)	Knowledge
Q.2	Column A a. PS-I b.PS-II	Column B i)600nm ii)780nm iii)680nm iv)700nm	Column A a. b.	Column B iv) iii)	Knowledge
Q.3	Column A a. accessory pigments b. reaction centre	Column B i)chlorophyll a ii)xanthophyll iii)cytochrome a iv)ferridoxin	Column A a. b.	Column B ii) i)	Understanding
Q.4	Column A a. Utilisation of ATP b. Production of energy	Column B i)green and blue region ii)biosynthetic phase iii)blue and red region iv)photochemical phase	Column A a. b.	Column B iii) iv)	Application
Q.5	Column A a. Light reaction b. Dark reaction	Column B i)synthesis of glucose ii) photorespiration iii)Synthesis of ATP iv) takes place in dark	Column A a. b.	Column B iii) i)	Application

Q.6	Column A a. Non cyclic photophosphorylation b. Transmembrane channel	Column B i)F_0 ii)synthesis of ATP and NADPH iii)F_1 iv)synthesis of ADP	Column A a. b.	Column B ii) i)	Knowledge
Q.7	Column A a. RuBP b. PGA	Column B i) 2 Carbon compound ii) 5-Carbon compound iii) 6-Carbon compound iv) 3-Carbon compound	Column A a. b.	Column B ii) iv)	Understanding
Q.8	Column A a. Joseph Priestly b. Jan Ingenhousz	Column B i)role of air in growth of plants ii)role of CO_2 in photosynthesis iii)sunlight is essential to the plants iv)water is essential to the plants	Column A a. b.	Column B i) iii)	Knowledge
Q.9	Column A a.Grana b.stroma	Column B i)respiration ii)light reaction iii)displacement iv)dark reaction	Column A a.Grana b.stroma	Column B ii) iv)	Knowledge
Q.10	Column A a.grana lamellae b.stroma lamellae	Column B i)have PS I ii)have PS II iii)have PS I and PS II iv)lack PS I and PS II	Column A a. b.	Column B iii) i)	Understanding
Q.11	Column A a.Kranz anatomy b. by product when H_2S is used as reducing agent in autotrophs.	Column B i) C_4 ii)C_3 iii) sulphur iv)Oxygen	Column A a. b.	Column B i) iii)	Knowledge