A Division of Aggarwal Educare
Aggarwal CLASSES™

Daily Practice Problems

NEET BIOLOGY

Topic: Photosynthesis in Higher Plants

1. Match the list-I with List-II and select the correct answer using the codes given below to the lists :

List - I	List - II
A. Agranal chloroplast	i. Plants
B. RUBP carboxylase oxygenase	ii. C_4 plants
C. Photo synthesis in both mesophyll & bundle sheath cells	iii. Photosystem - I iv.bundle sheath cells
D. Cyclic photophosp-horylation	v. Photosystem - II

	A	B	C	D
1.	i	iv	ii	iii
2.	ii	v	iv	i
3.	iv	i	ii	iii
4.	iii	v	i	iv

2. Assertion (A) : Photosynthetic bacteria do not evolve oxygen during photosynthesis.
Reason (R): Photosynthetic bacteria are obligate or facultative anaerobes
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

3. Assertion (A) : In thylakoids chlorophyll pigments are found.
Reason (R) : Light dependent reactions occur in thylakoids
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

4. Identify the correct sequence of following events in photosynthesis
A : Excitation of chlorophyll
B : Light absorption
C : Transfer of electron
D : Synthesis of ATP

1. A,B,D,C 2. B,A,D,C 3. B,A,C,D 4. A,B,C,D

5. **Identify the correct sequence of following enzymes in fixation through Calvin cycle**
A : RUBISCO
B : Triose phosphate isomerase
C : Triose phosphate dehydrogenase
D : Phosphoglycerokinase

1. A,B,C,D **2. A,D,B,C** **3. A,D,C,B** **4. D,C,B,A**

6. **Identify the correct ascending arrangement of the following substances interms of number of carbon atoms**
A : ribulose-1,5 bisphosphate **B : erythrose phosphate**
C : pyruvic acid **D : Cis-aconitic acid**
E : Acetyl Co-A

1. C,E,B,A,D **2. E,C,B,A,D** **3. C,B,A,D,E** **4. E,D,A,B,C**

7. **Assertion (A) : The evolution of molecular oxygen is concerned with photosystem-I**
Reason (R) : Photosystem-II has role in evolution of oxygen.
1. both A and R are true and R is correct explanation of A
2. both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

8. **Identify the correct sequence of electron carriers in cyclic photophosphorylation**
A : Cytochrome - **B : Cytochrome -f** **C : Ferredoxin** **D : Plastoquinone**
E : Plastocyanin

1. A,B,C,D,E **2. D,A,B,E,C** **3. C,D,A,B,E** **4. C,A,D,B,E**

9. **Consider the following pigments**
A : Chlorophyll-a **B : Chlorophyll -b** **C : Chlorophyll - c** **D : Carotenes**
E : Xanthophyll

Identify the characteristic photosynthetic pigments present in chlorophyceae
1. A,B,C,D **2. A,C,D,E** **3. A,B,D,E** **4. A and B only**

10. **Assertion (A. : Prokaryotes lack photosynthesis**
Reason (R . : In prokaryotes chloroplasts are absent
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

11. Study the following :

Substrate	Enzyme	products
I. RUBP	RUBISCO	PGA
II. GAP	Isomerase	DHAP
III. Erythrose 4-phosphate		Transaldolsase Sedoheptu lose bisposphate
IV. Xylulose 5-phosphate		Epimerase Fructose 6-phosphate

Which two reactions shows correct combination

1. I and II **2. II and III** **3. I and III** **4. III and IV**

12. Find out the correct descending order with reference to their number of carbons in the substrate

I : PGA **II. Erythrose phosphate**

III. Sedoheptulose phosphate **IV. Ribose phosphate**

1. I, III, IV, II **2. III, IV, II, I** **3. III,IV, I, II** **4. I, II, III, IV**

13. Assertion (A) : Action spectrum of photosynthesis compares well with the absorption spectrum of chlorophyll.
Reason (R) : Chlorophyll is the only pigment which can absorb and convert light energy into chemical energy

1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

14. Assertion (A) : Photosynthesis is considered as an reduction and oxidation process.
Reason (R) : Step by step transport of electrons involve oxidation of substance with reduction of another substance in non-cyclic and cyclic electron transport

1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

15. Read the following statements and pick out correct :

I. Chlorophyll pigments absorb blue and red wavelengths
II. Chlorophyll pigments absorb blue wavelength
III. Carotenoids absorb blue light only
IV. Carotenoids absorb blue and red light

1. I along is correct
2. III alone is correct
3. II and III are correct
4. I and III are correct

16. Pick out the wrong statements :

I. Thylakoids are impermeable to and other ions
II. The ratio of Chl-a and Chl-b in PSI is 4 : 1 and in PS II is 1 : 1
III. P680 gets from water through Tyrosine
IV. The transfer of from to is called cyclic electron transport

1. II and III **2. I, III and IV** **3. IV alone** **4. III and IV**

17. Water soluble accessory light harvesting pigments are present in

1. Bacteria
ii. Cyanobacteria
iii. Red algae
iv. Cholorophyceae

1. i **2. ii & iii** **3. i, ii & iii** **4. ii,iv**

18. ^{14}C used by

i. Ruben & Kamem **ii. Calvin** **iii. Emerson** **iv. Kortschak**

1. i & iv **2. iii & iv** **3. i & ii** **4. ii & iv**

19. Assertion (A) : At low level of concentration, increase in the light intensity proportionately increases the rate of photosynthesis upto a particular point. This relation is not seen at higher concentration.
Reason (R) : The rate of photosynthesis increases proportionately upto 800 units of light intensity, beyond which any further increase of light intensity does not increase the rate of photosynthesis
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

20. Assertion (A) : The photosynthetic rate decreases with decreasing water availability in the soil.
Reason (R) : Water stress will affect the colloidal structure of protoplasm. Enzymatic efficiency is impaired by dehydration of the protoplasm.
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

21. Assertion (A) : The overall process of photosynthesis is the oxidation of water to produce and , followed by the reduction of to carbohydrates.
Reason (R) : Photosynthesis is regarded as the primary and basic metabolic process of the biosphere.
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

22. Read the table

Character		
i. Initial acceptor	RuBP	PEP
ii. Regenerated compound		PEP RuBP
iii. Kranz anatomy	absent	Present
iv. First formed stable compound	PGA	Pyruvic acid

Which two characters are correctly seen in 2 kinds of plants

1. ii & iii **2. i & iii** **3. iii & iv** **4. i alone correct**

23. Read the table

Reaction	Grana	Stroma
i. Oxidation of water	+	-
ii. Carboxylation	+	-
iii. Light reaction	+	-
iv. Reduction of	+	-

(+ = occurs)
(- = do not occurs)

Which of the above 2 reactions are shown correct place of occurrence

1. i & iii **2. ii & iii** **3. i & iv** **4. ii & iv**

24. Read the following hints :

List I	List II
A. Lumen	I.Reduction of
B. Grana	II. Photorespiration
C. Peroxisome	III. Photolysis of water
D. Stroma	IV. Food storage
	V. Light reactions false but R is true

	A	B	C	D
1.	III	V	II	I
2.	III	II	V	I
3.	I	II	IV	V
4.	III	V	I	II

25. Read the following lists:

List I	List II
A. Chlorophyll-b	I. Photosynthetic bacteria
B. Chlorophyll -c	II. All photosynthetic organisms
C. Chlorophyll -d	III.Rhodophyceae
D. Chlorophyll-a	V.Chlorophyceae

The correct match is

	A	B	C	D
1.	V	II	III	IV
2.	I	II	III	IV
3.	V	IV	III	II
4.	V	IV	II	I

26. Arrange the following chemical compounds formed in dark reaction on the basis of their formation from beginning to the end of it.

i. Fructose-1,6-diphosphate **ii. Phosphoglyceric acid**
iii. Dihydroxy acetone phosphate **iv. Ribulose biphosphate**

1. ii,iii,i,iv **2. i,iii,ii,iv** **3. i,ii,iii,iv** **4. iv,iii,ii,i**

27. Assertion (A) : Evolution of oxygen does not occur in bacterial photosynthesis
Reason (R) : In autotrophic bacteria the hydrogen donor is instead of water.
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

28. Assertion (A) : NADPH and ATP are together called assimilatory power.
Reason (R) : During dark reaction, there is formation of carbohydrates from by utilizing NADPH and ATP.
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

29. Assertion (A) : Blue light has more energetic photons than the red light.
Reason (R) : The energy in each photon is inversely proportional to the wavelength.
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

30. Assertion (A) : Carotenoids and phycobilins are called accessory pigments.
Reason (R) : Radiant energy trapped by carotenoids and phycobilins can not be directly used in photosynthesis.
1. Both A and R are true and R is correct explanation of A
2. Both A and R are true and but R is not correct explanation of A
3. A is true but R is false
4. A is false but R is true

ANSWER KEY

Que.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Ans.	3	3	2	3	3	2	4	4	3	4
Que.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ans.	1	2	4	1	4	4	2	4	1	1
Que.	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Ans.	2	2	1	1	3	1	1	2	1	2