PHOTOSYNTHESIS

1. **Appressed region of thylakoid membrane** is
   1.Surface of the thylakoid that is exposed to stroma
   2.Surface of the thylakoid membrane exposed to lumen
   3.Any surface of the thylakoid membrane exposed to stroma
   4.Only the margins of the grana.
2. **Lumen of the thylakoid is associated with**
   1.ATP formation 2. O_2 evolution
   3. $NADPH_2$ formation 4. CO_2reduction.
3. **Photosynthetically active pigments in a plant cell is/are**
   A. chlorophylls B. carotenoids
   C. phycobilins D. phytochromes
   E. riboflavin F. anthocyanins
   1. A & B 2. A B C & D
   3. A B & C 4.A B D E & F
4. **True statements regarding chlorophylls**
   A. chlorophylls are photosynthetic pigments B. molecular weight of chl b is more
   C. chl a is blue green in colour. D. chl a is absent in algae.
   1. A B & C 2. B C & D 3. A B & D 4. B C & D
5. **Assertion (A): Radiant energy can be trapped only by chl a**
   Reason (R): All the pigments transfer energy to chl a
   1.Both A & R are true R is the correct explanation of A
   2. Both A & R are true R is not the correct explanation of A
   3.A is true but R is wrong 4. A is wrong but R is true
6. **Pentose sugars formed in Calvin's cycle**
   A. glyceraldehyde phosphate B. xylulose
   C. Erythrose D. ribulose E. ribose
   F. sedoheptulose
   1. A B & E 2. B C D & F 3. B D & E 4. D & E
7. **Reaction centre of PS II is**
   1. chl a 680 2. Chl a 700 3. Chl b 630 4. Chl a 630
8. **'Red drop ' is**
   1. low efficiency of red light in photosynthesis
   2. Decrease in photosynthesis in higher wavelengths of red light
   3. Non evolution of oxygen in red light
   4. Presence of two photosystems
9. **Dark reactions in photosynthesis are**
   1. Reactions that takes place in the absence of light
   2. Reactions taking place during night
   3. Reactions that do not require light directly.
   4. Unknown reactions of photosynthesis
10. **Assertion (A): Dark reactions are heat labile.**
    Reason (R): Dark reactions are biochemical reactions
    1. Both A & R are true R is the correct explanation of A
    2. Both A & R are true R is not the correct explanation of A
    3.A is true but R is wrong 4. A is wrong but R is true
11. **Number of water molecules required to reduce 2 CO_2 molecules**
    1. six 2. One 3. Four 4. Two
12. **The enzyme used in CO_2 fixation in mesophyll cells of C_4 plants**

    1.RUBISCO 2. Malate dehydrogenase
    3. Pyruvate kinase 4. PEP corboxylase

13. True statement regarding Hill's reaction

A. experiments are performed in isolated chlorophylls
B. Hill's reagents are reduced
C. Oxygen evolution from water proved beyond doubt.
D. formation of water as a product is proved.

1. only A 2. Only B 3. A B & C 4. B C & D

14. Primary protein that accepts electron from PS II is

1. pheophytin 2. Plastoquinone 3. Plastocyanin 4. Ferrodoxin

15. Match the following

	List I		List II
A	Blackman	I	Two pigment system
B	Hill	II	'Z' scheme of electron movement
C	Emerson	III	Two phases in photosynthesis
D	Hill & Bendall	IV	Red drop
		V	Reduction of CO_2 in photosynthesis

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

16. When the photosystems are exposed to monochromatic light of 700nm

1. oxygen and ATP will form
2. ATP and $NADPH_2$ will form
3. Oxygen and $NADPH_2$ will form
4. only ATP forms.

17. Driving force directly involved in ATP formation is

1. Light 2. Proton motive force
3. Electron movement 4. Photolysis of water

18. Calvin performed his experiments on

1. Chemoautotrophs 2. *Rhodospirillum* 3. *Chlorella* 4. *Porphyridium*

19. True statement regarding RUBISCO is /are

A. Substrate for RUBISCO can be CO_2 or O_2
B. It involves in carboxylation of four carbon compounds
C. It is the most abundant protein in the plant kingdom
D. RUBISCO is present in C_3 plants.

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

20. In Calvin's cycle the number of triose sugars that participate in regeneration of carbon acceptor is/are

1. one 2. Three 3. Four 4. Five

21. How many water molecules might have photolysed in light reaction if just sufficient amount of assimilatory power is produced to reduce only 3 CO_2 molecules

1. six 2. 12 3. Three 4. One

22. Assertion (A): High concentrations of both CO_2 and O_2 inhibits photosynthesis

Reason (R): RUBISCO acts both as carboxylase and oxygenase.

1. Both A & R are true R is the correct explanation of A
2. Both A & R are true R is not the correct explanation of A
3. A is true but R is wrong 4. A is wrong but R is true

23. In light reactions a water molecule can help in the formation of 2 ATP. Any additional ATP produced may be due to

1. Cyclic electron transport 2. Respiration of green pigment
3. Non functioning of PSI 4. Presence of more CF particles

24. In photorespiration hydrogen peroxide formation takes place in the presence of
1. Catalase 2. Glycolic acid oxydase
3. RUBISCO 4. PEP carboxylase

25. Match the following.

	List I		List II
A	Sugarcane	I	C_4 plants
B	PEP carboxylase	II	Mesophyll cells of C_3
C	Kranz	III	CO_2 fixation
D	RUBISCO	IV	Dimorphic chloroplasts
		V	Bundle sheath

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

26. First stable substance formed in mesophyll cells of C_4 plants is
1.PEP 2. OAA 3. Malate 4. OAA or Aspartic acid

27. Blue rings appeared surrounding vascular bundles of a leaf section when subjected to Iodine test for starch. The leaf can belong to
1. *Zea mays* 2. *Oryza sativa*
3. *Sorghum vulgare* 4. *Mangifera*

28. DCMU affects the formation of
1. Oxygen and ATP 2. ATP and $NADPH_2$
3. Only oxygen 4. Only $NADPH_2$

29. Assertion (A): CO_2 compensation point is less in C_4 plants
Reason (R): Peroxysomes are absent in C_4 plants
1. Both A & R are true R is the correct explanation of A
2. Both A & R are true R is not the correct explanation of A
3. A is true but R is wrong 4. A is wrong but R is true

30. β carboxylation pathway is
1.Hatch & Slack pathway 2. Oxidation of lipids
3. Photorespiration 4. Calvin's cycle

31. True statement regarding C_4 pathway
1. pH increases during day time in mesophyll chloroplast
2. $NADPH_2$ formation takes place in bundle sheath cell and utilization in mesophyll cells
3. Starch synthesis takes place in granal chloroplast
4. Photorespiration takes place in mesophyll

32. In cyclic electron transport if 60 protons accumulate in lumen, how many times plastosemiquinone might have reduced to form plastoquinol
1. 30 times 2. 20 times 3. 40 times 4. 60 times

33. Reactive centre of plastocyanin contain
1. Fe 2. Cu 3. Mg 4. Mn

34. At lower levels of CO_2 concentration, the increase in light intensity does not increase rate of photosynthesis. This shows
1. photosynthesis is light saturated.
2. Light has become limiting factor.
3. Both CO_2 and light have become limiting factors.
4. Increase in CO_2 concentration does not increase rate of photosynthesis.

35. Efficiency of photosynthesis during photorespiration is
1. 20% 2 .50% 3. 75% 4. 90%

36. The condition of the seedlings, grown in the absence of light is called
1. chlorosis 2. Triple response 3. Necrosis 4 .etiolation

37. In Calvin's cycle ATP is used in phosphorylation of

1.PGA
2. Ribulose 5 phosphate
3. Ribulose 1,5 bisphosphate
4. PGA and Ribulose 5 phosphate

38. During sun light starch formation takes place in

1. cytosol
2. Chloroplast
3. Both in cytosol and chloroplast
4. In the phloem

39. in Calvin's cycle transketolase mediates reaction between

1. aldehyde and ketones
2. Two aldehydes
3. Two ketones
4. Any two sugars

40. Difference between chl a and chl b is

1. colour
2. Colour and mol wt
3. Absorption of radiant energy
4. Colour, mol wt and radiant energy

Photosynthesis-I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	**2**	**3**	**1**	**4**	**3**	**1**	**2**	**3**	**1**	**3**	**4**	**2**	**1**	**3**	**4**	**2**	**3**	**2**	**4**
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	**2**	**1**	**2**	**2**	**4**	**1**	**2**	**3**	**1**	**1**	**1**	**2**	**1**	**3**	**4**	**4**	**2**	**1**	**4**