

QB365 Question Bank Software Study Materials

Bio - Botany - Photosynthesis 50 Important 1 Marks Questions With Answers (Book Back and Creative)

11th Standard

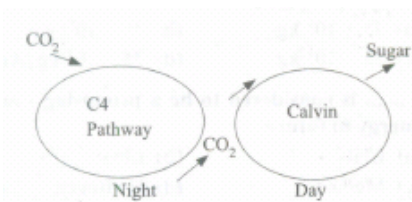
Biology

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

- 1) **Assertion (A):** Increase in proton gradient inside lumen responsible for ATP synthesis
Reason (R): Oxygen evolving complex of PS I located on thylakoid membrane facing Stroma, releases H^+ ions
- (a) Both Assertion and Reason are True. **(b) Assertion is True and Reason is False.**
(c) Reason is True and Assertion is False. (d) Both Assertion and Reason are False.
- 2) Which chlorophyll molecule does not have a phytol tail?
(a) Chl - a (b) Chl - b **(c) Chl - c** (d) Chl - d
- 3) The correct sequence of flow of electrons in the light reaction is _____.
(a) PS II, plastoquinone, cytochrome, PS I, ferredoxin. (b) PS I, plastoquinone, cytochrome, PS II ferredoxin.
(c) PS II, ferredoxin, plastoquinone, cytochrome, PS I. (d) PS II, plastoquinone, cytochrome, PS II, ferredoxin.
- 4) For every CO_2 molecule entering the C_3 cycle, the number of ATP & NADPH required _____.
(a) 2ATP + 2NADPH (b) 2ATP + 3NADPH **(c) 3ATP + 2NADPH** (d) 3ATP + 3NADPH
- 5) Identify true statement regarding light reaction of photosynthesis.
(a) Splitting of water molecule is associate with PS I. **(b) PS I and PS II involved in the formation of NADPH + H^+**
(c) The reaction center of PS I is Chlorophyll a with absorption peak at 680 nm.
(d) The reaction center of PS II is Chlorophyll a with absorption peak at 700 nm.
- 6) Select the correct pair
I. Chlorophyll a - Pyrrole II carbon 3 attached to aldehyde group
II. Chlorophyll b - Resemble Chlorophyll a, lacks Mg
III. Pheophytin - Pyrrole II Carbon 3 attached to Methyl group
IV. Phycobilin . Have neither Mg nor Phytol chain
(a) I, II, III are correct **(b) IV only correct** (c) II only correct (d) I only correct
- 7) A plant growing in a tree as epiphyte accumulates malic acid in dark and cells contains large storage vacuoles. Identify the of type of pathway that takes place in this plant.
(a) C_4 pathway (b) Glycolate Metabolic pathway (c) Di carboxylic acid pathway **(d) CAM pathway**
- 8) Statement
I. RUBISCO has the most abundant protein on the earth.
II. RUBISCO has low affinity for CO_2 and O_2 and high affinity for RUBP
III. RUBISCO is also called diffraction I protein
IV. RUBISCO is also called fraction I protein
(a) I only correct (b) II and III incorrect (c) II and IV correct (d) III only incorrect
- 9) The photosynthetic pathway is represented in a schematic representation. Mark the correct option.



- (a) It represents cactus plants where A occurs in the mesophyll & B in the bundle sheath cells
 (b) It represents sugarcane plants where A occurs in the mesophyll & B in the bundle sheath cells
 (c) It represents pineapple plants where both A & B occur in the mesophyll cells
(d) It represents maize plants where A & B are separated only temporarily
- 10) The correct sequence of flow of electrons in the light reaction is _____
(a) PS II, plastoquinone, cytochrome, PSI, ferredoxin (b) PS I, plastoquinone, cytochrome, PS II ferredoxin
 (c) PS II, ferredoxin, plastoquinone, cytochrome, PSI (d) PS I, plastoquinone, cytochrome, PS II ferredoxin
- 11) Identify incorrect pair regarding C₄ cycle.
 (a) Initial carboxylation - mesophyll cells (b) Primary CO₂ acceptor - PEP (c) First product - OAA
(d) Bundle sheath cells - with granum
- 12) Law of limiting factors was proposed by _____.
 (a) Calvin (b) Huber **(c) Blackman** (d) Von Maye
- 13) Photosynthetic organisms use only _____ of incident solar light on earth
(a) 0.2 % (b) 0.4 % (c) 2 % (d) 5 %
- 14) Identify the wrong statement:
 (i) Chloroplasts contain 80s Ribosomes
 (ii) Chloroplasts contain DNA.
 (iii) Stromal lamellae has only PSI.
 (iv) 5-30 grana are found in thylakoids
 (a) i and iii (b) all the four (c) ii only **(d) i an iv**
- 15) All carotenoid pigments have _____ carbon atoms.
 (a) 30 **(b) 40** (c) 50 (d) 20
- 16) The term quantosome was coined by _____.
 (a) Emerson (b) Warburg (c) Steinman Park **(d) Beggins**
- 17) Red Drop experiment was done using _____.
 (a) Plant **(b) Chlorella** (c) Bacteria (d) Virus
- 18) RUBISCO constitutes _____ of chloroplast protein.
 (a) 17% (b) 20% **(c) 16%** (d) 21 %
- 19) Dicarboxylic Acid pathway refers to _____
 (a) C₃ pathway **(b) C₄ pathway** (c) C₂ pathway (d) CAM
- 20) During dark respiration the end products are _____
 (a) O₂ and H₂O (b) H₂O only (c) CO₂ **(d) CO₂ and water**
- 21) Identify Wrongly matched pair.
 (a) O₂ and H₂O **(b) H₂O only** (c) CO₂ (d) CO₂ and water
- 22) Complete the following.
 $PEP + CO_2 \xrightarrow{A} B$. Identify A and B
(a) A - PEP carboxylase (b) A- RUBP carboxylase (c) A - Transferase (d) A - PEP carboxylase
B - Oxaloacetic acid B - Oxaloacetic acid B - Oxaloacetic acid B - Succinic acid
- 23) Kranz anatomy is characteristic of _____ plants.

- (a) C₃ (b) C₂ **(c) C₄** (d) C₃ and C₄
- 24) Glyceraldehyde 3 phosphate is an isomer of _____
 (a) RUBP (b) OAA **(c) DHAP** (d) DPIP
- 25) Identify the process that does not occur in Non cyclic photophosphorylation.
 (a) Photolysis of water (b) PSI and PSII are involved **(c) Electrons are cycled back**
 (d) ATP and NADPH + H⁺ are synthesized
- 26) The process of photosynthesis helps to fix _____ of carbon every year
 (a) 75 x 10¹⁰kg (b) 75 x 10⁸kg **(c) 75 x 10¹²kg** (d) 75 x 10¹⁸kg
- 27) Pheophytin resembles chlorophyll except that it lacks_____.
 (a) Fe **(b) Mg** (c) pyrrole (d) Nitrogen
- 28) The term Quantasome was coined by _____.
 (a) Steinman (b) Emerson **(c) Park and Biggins** (d) Hatch and Slack
- 29) The quantum yield for reduction of one CO₂ molecule is_____.
 (a) 14% (b) 10% **(c) 12%** (d) 8%
- 30) Identify the wrong statement
 (a) Emerson conducted experiment in chlorella (b) He used monochromatic light
 (c) He plotted a graph for O₂ yield at various wavelengths of light.
(d) He found that the yield suddenly dropped in the region above 780nm
- 31) 1 complete light reaction involves _____ quanta of light.
 (a) 50 (b) 46 **(c) 48** (d) 40
- 32) _____ is the first stable product of C₃ cycle.
 (a) DHAP **(b) PGA** (c) Succinic acid (d) fumaric acid
- 33) An example for non-oxygenic & anaerobic photosynthesis _____.
 (a) Red Sulphur bacteria (b) Blue Sulphur bacteria **(c) Purple Sulphur bacteria** (d) Chlamydomonas
- 34) Inner surface of lamellar membrane of chloroplast consists of small spherical structure called as _____.
 (a) Ribosome (b) Circular DNA (c) Grana **(d) Quantasomes**
- 35) _____ is the primary pigment which acts as a reaction centre.
 (a) Chlorophyll 'b' **(b) Chlorophyll 'a'** (c) Carotenoids (d) Xanthophyll
- 36) Carotene is a _____ of Vitamin A.
(a) Precursor (b) Conduction (c) Responsible (d) Spectrum
- 37) The number of chlorophyll molecules found in one Quantosome is _____.
 (a) 250 (b) 240 (c) 236 **(d) 230**
- 38) The fall in the photosynthetic yield beyond red region of the spectrum is referred as _____.
 (a) Absorption Spectrum (b) Action Spectrum **(c) Emerson's first effect** (d) Electromagnetic waves
- 39) Van Neil discovered a bacterium that releases _____ instead of oxygen during photosynthesis.
 (a) CO₂ (b) SO₂ **(c) Sulphur** (d) Nitrogen

- 40) Find the Correct pair:
 (a) Green Sulphur bacteria - Chlorobium (b) Purple Sulphur bacteria - Rhodospirillum
(c) Purple non-Sulphur bacteria - Rhodopseudomonas (d) Electron donor - Carotenoids
- 41) _____ & _____ are simple type of photosynthetic apparatus found in bacteria.
(a) Chlorosomes & Chromatophores (b) Chromatophores & Chlorosomes (c) Bacteriochlorophyll a & b
 (d) Hydrosulphide & electron donor
- 42) _____ molecules act as reaction centres.
 (a) Chlorophyll 'b' **(b) Chlorophyll 'a'** (c) Xanthophylls (d) Carotenoids
- 43) For every carbon fixed during the dark reactions _____ and _____ are formed/consumed.
 (a) 3 ATP and 3NADPH₂ are formed (b) 2 ATP and 2NADPH₂ are consumed (c) 2 ATP and 3NADPH₂ are formed
(d) 3ATP and 2NADPH₂ are consumed
- 44) C₃ cycle is basically a _____.
(a) CO₂ reducing cycle (b) CO₂ oxidising cycle (c) Photochemical reaction (d) Double Carboxylation cycle
- 45) Minerals involved in photooxidation of water are _____.
(a) Mn, Cl, Ca (b) Mg, Fe, Mn (c) Mn, Fe, Ca (d) N, P, K
- 46) In C₄ plants, C₃ cycle takes place in _____.
 (a) Sclerenchyma (b) Chlorenchyma and hypodermis **(c) Mesophyll cells** (d) Guard cells
- 47) Read the following four statements (A-D).
 a) Both, photophosphorylation and oxidative phosphorylation involve uphill transport of protons across the membrane.
 b) In dicot stems, a new cambium originates from cells of pericycle at the time of secondary growth.
 c) Stamens in flowers of Gloriosa and Petunia are polyandrous.
 d) Symbiotic nitrogen-fixers occur in free-living state also in soil.
 How many of the above statements are right?
(a) Two (b) Three (c) Four (d) One
- 48) CAM helps the plants in _____.
(a) conserving water (b) secondary growth (c) disease resistance (d) reproduction
- 49) Kranz anatomy is observed in _____.
 (a) C₂ plants (b) C₃ plants **(c) C₄ plants** (d) CAM plants
- 50) C₄ plants are more efficient in photosynthesis than C₃ plants due to _____.
 (a) higher leaf area (b) presence of larger number of chloroplasts in the leaf cells (c) presence of thin cuticle
(d) lower rate of photorespiration