

BOT/VI/CC/21
2020(CBCS)(6 Semester)
BOTANY
ELEVENTH PAPER
(PLANT METABOLISM, BIOCHEMISTRY, THERMODYNAMICS)

MULTIPLE CHOICE QUESTIONS

1. Starch is made up of two components
 - (a) Lipids and Protein
 - (b) Cellulose and D-glucose
 - (c) Amylose and Amylopectin
 - (d) Amylose and 1-4 glucosidic bond
2. Cellulose is a major component of
 - (a) Wood
 - (b) Fruit
 - (c) Leaves
 - (d) Flowers
3. The replication of lagging strand generates small polynucleotide fragments called as
 - (a) Leading strand
 - (b) Okazaki fragment
 - (c) Origin
 - (d) Replication fork
74. The precursor for the biosynthesis of serine and glycine is
 - (a) 3-phosphoglycerate
 - (b) 3-phosphohydroxy pyruvate

- (c) phosphoglycolic acid
 - (d) alpha ketoglutaric acid
5. The electron donors in the biological Nitrogen fixation process are
- (a) Acetyl-COA and Citric acid
 - (b) Acetyl COA and NADPH
 - (c) Pyruvic acid and Acetyl COA
 - (d) Pyruvic acid and NADPH
6. Which of the following enzyme is not a requirement of protein synthesis?
- (a) Amino-acyl tRNA synthetase
 - (b) Translocase
 - (c) Methionyl transferase
 - (d) Topoisomerase
7. Chemical bond involve in primary structure of protein is
- (a) Peptide bond
 - (b) Hydrophobic bond
 - (c) Hydrogen bond
 - (d) Ionic bond
8. Lock and Key theory is proposed by
- (a) Emil Fisher
 - (b) Blackman
 - (c) Kuchne
 - (d) Koshland
9. Co-enzyme is
- (a) Organic or Inorganic group that is essential for enzyme activity
 - (b) Non-protein organic substance loosely attached to enzymes

- (c) Same enzyme found in different organs or tissue
 - (d) All of the above
10. Allosteric site is specific for its
- (a) Modulator
 - (b) Substrate
 - (c) Both a and b
 - (d) None of the above
11. The only plant hormone which occurs in the form of gas is
- (a) Ethylene
 - (b) Auxin
 - (c) Gibberellin
 - (d) Cytokinin
12. The main pathway of gibberellin has been worked out as
- (a) *Cannabis sativa*
 - (b) *Phoenic dactylifera*
 - (c) *Gibberella fugikuroi*
 - (d) *Gibberela caudatus*
13. The plant hormone responsible for promotion of cell division
- (a) Gibberellin
 - (b) Cytokinin
 - (c) Auxin
 - (d) Abscissic acid
14. Which element is essential for IAA synthesis?
- (a) Zinc
 - (b) Iron

- (c) Sodium
 - (d) Calcium
15. Name the stress hormone in plant that causes closure of stomata
- (a) Abscissic acid
 - (b) Cytokinin
 - (c) Gibberellin
 - (d) Auxin
16. The first stable product of dark reaction of photosynthesis is
- (a) Ribulose 1,5-diphosphate
 - (b) Oxaloacetic acid
 - (c) 3-phosphoglyceric acid
 - (d) 3-phosphoglyceraldehyde
17. In which of the following the electron expelled from chlorophyll molecule is cycled back?
- (a) Non-cyclic electron transport and photophosphorylation
 - (b) Cyclic electron transport and photophosphorylation
 - (c) Action spectrum
 - (d) Phycobilins
18. P_{700} and P_{680} respectively constitute reaction or trap centre for
- (a) Pigment system II and I
 - (b) Pigment system I and II
 - (c) Both a and b
 - (d) None of the above
19. The phenomenon of inhibition of photosynthesis by O_2 was first discovered by
- (a) Sachs

- (b) Senebiere
 - (c) Blackman
 - (d) Warburg
20. Pentose-phosphate pathway is also known as
- (a) Warburg-Dicken's pathway
 - (b) EMP pathway
 - (c) Direct oxidation pathway
 - (d) Both a and c
21. Change in enthalpy of a system is the heat supplied at
- (a) Constant Pressure
 - (b) Constant Temperature
 - (c) Constant Volume
 - (d) Constant entropy
22. An increase in enthalpy leads to an increase in
- (a) Pressure
 - (b) Volume
 - (c) Internal energy
 - (d) Mass
23. Which statement is incorrect?
- (a) At decreased in pressure, volume increases
 - (b) The thermodynamic symbol for entropy is S
 - (c) Gibbs free energy is a state function.
 - (d) For an endothermic process, ΔH is negative
24. When the heat transfer into a system is more than the work transfer out of the system, then
- (a) The internal energy of the system remains constant

- (b) The internal energy of the system decreases
 - (c) The internal energy of the system increases
 - (d) None of the above
25. Exothermic enthalpy changes are shown as
- (a) Negative values
 - (b) Positive values
 - (c) Neutral
 - (d) Constant

FILL IN THE BLANKS:

1. The first step in the synthesis of pyrimidine is the formation of _____ from ammonia on amide, CO_2 and ATP.
2. The differentiated form of bacteria in the nodule formation during the biological Nitrogen fixation is called _____.
3. The lagging strand is oriented in the _____ direction away from the replication fork.
4. Two or more slightly different molecular forms of the same enzyme are called _____.
5. The genetic information in DNA is transferred to a complementary sequence of RNA and the process is called _____.
6. Co-enzymes have low _____ weight.
7. Gibberellin are formed from _____.
8. The primary precursor of IAA in plants is _____.
9. Synthesis of ABA occurs in _____.
10. The metabolic pathway for photorespiration, in which sugars are oxidized to CO_2 in the light is called _____.
11. _____ is a wasteful pathway that competes with the Calvin cycle.
12. _____ is a complex machinery consisting of several large protein-pigment complexes whose components are encoded by both nuclear and chloroplast genes.
13. Total amount of energy in the universe is _____.
14. Second law of thermodynamics define _____.
15. The change in enthalpy when 1 mole of the compound formed under standard condition is called _____.

Key Answer

MULTIPLE CHOICE QUESTIONS

1-c, 2-a, 3-b, 4-a, 5-d, 6-d, 7-a, 8-a, 9-b, 10-a, 11-a, 12-c, 13-b, 14-a, 15-a, 16-c, 17-b, 18-b, 19-d, 20-d, 21-a, 22-c, 23-d, 24-c, 25-a.

FILL IN THE BLANKS

1-carbomoyl phosphate,

2-Bacteroids,

3 -5'-3',

4-Isoenzyme,

5-Transcription,

6-Molecular,

7-acetyl-CoA,

8-Tryptophan,

9-Chloroplasts,

10-C₂ cycle,

11-Photorespiration,

12-Photosynthetic apparatus,

13-Constant,

14-Entropy,

15-Formation.