

- Q.8. The possible genotypes of endosperms borne on a heterozygous (Rr) plant will be
- (A) RRR, RRr, Rrr, rrr (B) RRr, Rrr
(C) RR, Rr, rr (D) Rr
- Q.9. The amount of chemical energy available to consumers in an ecosystem is best represented by
- (A) Gross primary production (B) Net primary production
(C) Respiration (D) Photosynthesis
- Q.10. Free radical scavenging activity of a medicinally important plant extract can be quantified by
- (A) ABTS (2,2'-azino-bis-(3-ethyl benzothiazoline-6-sulphonic acid)) method
(B) Bradford method
(C) Walkley and Black method
(D) Kjeldahl method

Q.11 – Q.20 carry two marks each.

- Q.11. Identify the **CORRECT** statements from the following

- P. Lenticels are the small pores present on the surface of the stem or branches of woody plants
Q. Glyoxysomes contain chlorophyll molecules in their thylakoid membranes
R. The enzyme ribulose 1, 5 bisphosphate carboxylase is otherwise known as carboxydehydratase
S. 18 ATP and 12 NADPH molecules are utilized for fixing 6 molecules of CO₂ in the dark reaction of photosynthesis

- (A) P, Q (B) P, R (C) Q, R (D) P, S

- Q.12. Match the following

Group I

- P. Sorghum
Q. Castor
R. Mushroom
S. Cotton

Group II

1. Gossypol
2. Strychnine
3. Dhurrin
4. Bungarotoxin
5. Ricin
6. α-Amanitin

Group III

- i. Protein
ii. Glycosidic conjugate
iii. Alkaloid
iv. Polyphenol
v. Lipid
vi. Cyclic peptide

- (A) P-3-ii, Q-5-i, R-6-vi, S-1-iv (B) P-2-iii, Q-4-iv, R-1-ii, S-6-v
(C) P-2-vi, Q-5-v, R-1-iv, S-6-ii (D) P-2-i, Q-3-iii, R-4-iv, S-1-v

Q.13. Identify the correct match

Group I (Anther)



Q



Group II (Type of fixation)

- 1 Basified
- 2 Longitudinal
- 3 Dorsifixed
- 4 Adenate
- 5 Porous
- 6 Versatile



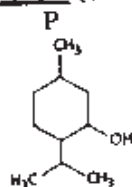
S



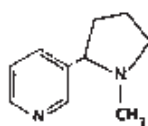
- (A) P-1, Q-4, R-6, S-3 (B) P-2, Q-3, R-5, S-6 (C) P-1, Q-2, R-6, S-5 (D) P-4, Q-3, R-5, S-6

Q.14. From the structures given below, identify the compounds

Group I (Structure)



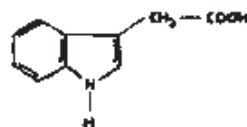
Q



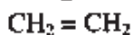
Group II (Compound)

- 1 Ethylene
- 2 Indole butyric acid
- 3 Nicotine
- 4 Indole acetic acid
- 5 Gibberellic acid
- 6 Menthol

R



S



- (A) P-6, Q-3, R-4, S-1 (B) P-5, Q-2, R-3, S-1 (C) P-4, Q-3, R-2, S-6 (D) P-1, Q-2, R-5, S-6

Q.15. Regarding the relationships between two organisms in an ecosystem, match the following

Group I (Relationship)

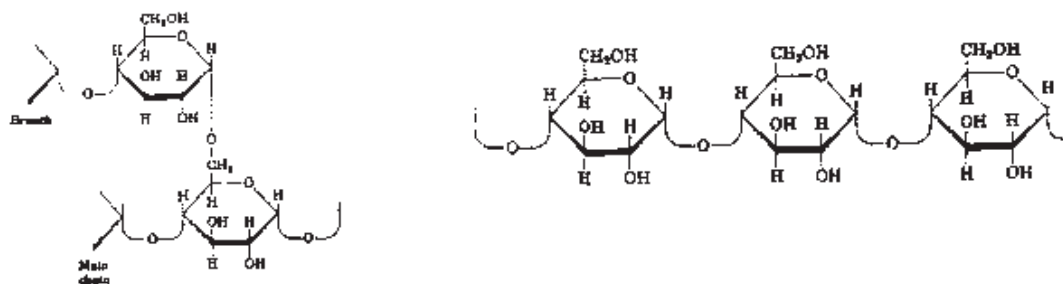
- P. Commensalism
Q. Mutualism
R. Parasitism
S. Amensalism

Group II (Definition)

- 1 Both organisms are benefited
- 2 One impeding the success of the other
- 3 One organism benefits but the other is unaffected
- 4 One benefited, other is harmed

- (A) P-1, Q-2, R-3, S-4 (B) P-2, Q-3, R-4, S-1 (C) P-3, Q-1, R-4, S-2 (D) P-1, Q-4, R-3, S-2

Q.16. Name the structures given below in the order of their appearance and identify corresponding glycosidic linkages



- (A) Amylose, Cellulose; ($\alpha 1\rightarrow 4$), ($\beta 1\rightarrow 6$)
 (B) Cellulose, Dextran; ($\beta 2\rightarrow 4$), ($\alpha 3\rightarrow 6$)
 (C) Starch, Cellulose; ($\alpha 1\rightarrow 6$), ($\alpha 1\rightarrow 4$)
 (D) Amylopectin, Amylose; ($\alpha 1\rightarrow 6$), ($\alpha 1\rightarrow 4$)

Q.17. Identify the **CORRECT** statements

In *Arabidopsis*, vernalization is associated with

- P. Chromatin modification at the *FLC* (*FLOWERING LOCUS C*) locus
 Q. Degradation of the FLC protein
 R. Inactivating the FLC protein by post-translational modification
 S. Down-regulation of *FLC* transcript

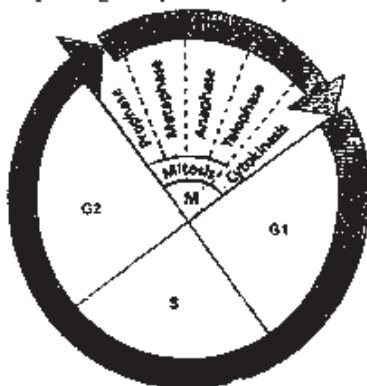
- (A) Q, S (B) P, S (C) P, R (D) Q, R

Q.18. Which of the following statements in plant respiration are **CORRECT**?

- P. The oxidative Pentose Phosphate Pathway can accomplish the oxidation of glucose in the stroma of mitochondria
 Q. ATP is produced in the reaction step of TCA cycle catalyzed by succinyl CoA synthetase
 R. In addition to Cytochrome *c* oxidase, an alternative oxidase enzyme resistant to cyanide reduces oxygen molecule in the electron transport system
 S. In Glyoxylate cycle acetyl CoA reacts with citrate to form α -keto glutarate

- (A) P, R (B) P, Q (C) Q, R (D) Q, S

Q.19. Study the following diagram depicting the plant cell cycle and match the following



Stages of cell cycle	Type of cyclin
P. Late G1-phase	1. Cyclin B
Q. Beginning of S-phase	2. Cyclin E
R. Prior to mitotic phase	3. S-Cyclin
S. Early G1-phase	4. Cyclin D

(A) P-4, Q-3, R-1, S-2 (B) P-2, Q-3, R-1, S-4 (C) P-1, Q-4, R-3, S-2 (D) P-3, Q-1, R-2, S-4

Q.20. In the context of plant development, which of the following statements are **CORRECT**?

- P. Cell migration is absent
- Q. Apoptosis plays a major role
- R. Pattern formation continues throughout life
- S. Homeotic changes are caused by mutations in non-homeodomain proteins

(A) P, Q, R (B) Q, R, S (C) P, Q, S (D) P, R, S

END OF SECTION – J