

# National Testing Agency

<b>Question Paper Name :</b>	Plant Biochemistry and Plant Biotechnology 29th August 2021 Shift 1
<b>Subject Name :</b>	Plant biochemistry and plant biotechnology
<b>Creation Date :</b>	2021-08-29 13:53:46
<b>Duration :</b>	180
<b>Total Marks :</b>	100
<b>Display Marks:</b>	Yes

## Plant Biochemistry and Plant Biotechnology

<b>Group Number :</b>	1
<b>Group Id :</b>	603489277
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	120
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	100
<b>Is this Group for Examiner? :</b>	No

## Plant Biochemistry and Plant Biotechnology-1

<b>Section Id :</b>	603489407
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

<b>Number of Questions :</b>	50
<b>Number of Questions to be attempted :</b>	50
<b>Section Marks :</b>	100
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	603489736
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 60348919418 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is NOT a property of the enzyme nitrogenase?

1. It catalyzes the conversion of atmospheric nitrogen ( $N_2$ ) in the soil to ammonia ( $NH_3$ )
2. It synthesizes carbamoyl phosphate using  $NH_3$
3. It has 2 components: a Mo-Fe protein (molybdoferredoxin) component and an Fe-protein (azoferreredoxin) component
4. It is sensitive to  $O_2$

**Options :**

60348972985. 1

60348972986. 2

60348972987. 3

60348972988. 4

**Question Number : 2 Question Id : 60348919419 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Choose the INCORRECT statement about callus cultures.

1. Callus cultures can be used to initiate cell suspension cultures
2. Callus cultures provide useful alternative sources to obtain commercially important secondary metabolites
3. Callus can be used to produce genetically stable clones in micropropagation
4. Callus tissue can be used to regenerate whole plants by inducing organogenesis or somatic embryogenesis

**Options :**

60348972989. 1

60348972990. 2

60348972991. 3

60348972992. 4

**Question Number : 3 Question Id : 60348919420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following culture technique is not considered an efficient method to isolate single cells?

1. Filter paper raft-nurse tissue technique
2. Micro chamber technique
3. Bergman's plating technique
4. Thin layer liquid medium culture technique

**Options :**

60348972993. 1

60348972994. 2

60348972995. 3

60348972996. 4

**Question Number : 4 Question Id : 60348919421 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Select the property which gives 2,3,5-triphenyl tetrazoliumchloride (TTC) its ability to check cell viability.

1. It stains the living cells red
2. It stains the dead cells red
3. It stains only the medium red
4. It stains both the living and dead cells red

**Options :**

60348972997. 1

60348972998. 2

60348972999. 3

60348973000. 4

**Question Number : 5 Question Id : 60348919422 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following method is NOT suitable for synchronisation of cell suspension cultures?

1. Providing low temperature shocks in combination with nutrient starvation
2. Using a DNA synthesis inhibitor that blocks the cell cycle
3. Supplying with auxins and cytokinins in the medium
4. Selecting the cells on the basis of size of cell aggregates

**Options :**

60348973001. 1

60348973002. 2

60348973003. 3

60348973004. 4

**Question Number : 6 Question Id : 60348919423 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The uptake of nitrate ions by plants from the soil is accomplished by which of the following mechanism?

1. Indirect active transport
2. Simple diffusion
3. Facilitated diffusion
4. Active transport

**Options :**

60348973005. 1

60348973006. 2

60348973007. 3

60348973008. 4

**Question Number : 7 Question Id : 60348919424 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The size of the direct repeat flanking the T-region or T-DNA of Ti-plasmid is .....

1. 10bp
2. 15bp
3. 20bp
4. 25 bp

**Options :**

60348973009. 1

60348973010. 2

60348973011. 3

60348973012. 4

**Question Number : 8 Question Id : 60348919425 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which is NOT a characteristic of hairy root cultures?

1. Ability to grow in phytohormone-free medium
2. Presence of geotropism
3. Presence of profuse root hairs
4. Fast growing with high growth rate

**Options :**

60348973013. 1

60348973014. 2

60348973015. 3

60348973016. 4

**Question Number : 9 Question Id : 60348919426 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Batch cultures show which of the following features?

1. No depletion of medium occurs
2. Loading of medium only at the beginning
3. Continuous replacement of medium
4. Continuous removal and replacement of cellular wastes

**Options :**

60348973017. 1

60348973018. 2

60348973019. 3

60348973020. 4

**Question Number : 10 Question Id : 60348919427 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Choose the correct order of steps occurring during assimilation of nitrogen by plants.

1. Fixation of nitrogen to form ammonia, conversion of ammonia to ammonium ions
2. Uptake of nitrate, reduction of nitrate to ammonia and synthesis of amino acids using ammonia
3. Breaking down of amino acids producing ammonia, conversion of ammonia to nitrogen
4. Reduction of ammonia to nitrite, reduction of nitrite to nitrate and conversion of nitrate to nitrogen

**Options :**

60348973021. 1

60348973022. 2

60348973023. 3

60348973024. 4

**Question Number : 11 Question Id : 60348919428 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is a non- PCR based markers technique for DNA profiling?

1. Random amplified of polymorphic DNA (RAPD)
2. Inter simple sequence repeat (ISSR)
3. Restriction fragment length polymorphism (RFLP)
4. Amplified fragment length polymorphism (AFLP)

**Options :**

60348973025. 1

60348973026. 2

60348973027. 3

60348973028. 4

**Question Number : 12 Question Id : 60348919429 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

One mechanism by which plants can reduce the toxicity of trace elements is by.....

1. increasing the amount of trace elements
2. decreasing the amount of trace elements
3. chelating ions of trace elements with phytochelatin
4. removing the trace elements

**Options :**

60348973029. 1

60348973030. 2

60348973031. 3

60348973032. 4

**Question Number : 13 Question Id : 60348919430 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the method of preserving plant germplasm by storing in liquid nitrogen at  $-196^{\circ}\text{C}$  called?

1. Seed bank
2. Ice preservation
3. Cryopreservation
4. Gene bank

**Options :**

60348973033. 1

60348973034. 2

60348973035. 3

60348973036. 4

**Question Number : 14 Question Id : 60348919431 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Where does photolysis of water takes place during photosynthesis?

1. Grana
2. Stroma
3. Thylakoid lumen
4. Outer membrane

**Options :**

60348973037. 1

60348973038. 2

60348973039. 3

60348973040. 4

**Question Number : 15 Question Id : 60348919432 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Which of the following statement is NOT a property of the enzyme nitrite reductase?

1. It is a metalloflavoprotein
2. NADH, NADPH or FAD serves as its electron donor
3. Its activity is stimulated by light
4. It is induced by the presence of nitrate

**Options :**

60348973041. 1

60348973042. 2

60348973043. 3

60348973044. 4

**Question Number : 16 Question Id : 60348919433 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If the thylakoid membrane is ruptured, which of the following process will be affected the most?

1. Splitting of water
2. Flow of electrons from photosystem II to photosystem I
3. Synthesis of ATP
4. Reduction of NADP+

**Options :**

60348973045. 1

60348973046. 2

60348973047. 3

60348973048. 4

**Question Number : 17 Question Id : 60348919434 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The amino acid acting as a precursor for auxin biosynthesis is .....

1. Serine
2. Tryptophan
3. Tyrosine
4. Valine

**Options :**

60348973049. 1

60348973050. 2

60348973051. 3

60348973052. 4

**Question Number : 18 Question Id : 60348919435 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How many isoprene units are there in sesquiterpenes?

1. One
2. Two
3. Three
4. Four

**Options :**

60348973053. 1

60348973054. 2

60348973055. 3

60348973056. 4

**Question Number : 19 Question Id : 60348919436 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is a byproduct of CO<sub>2</sub> fixation in C<sub>4</sub> plants?

1. Alpha-ketoglutarate
2. Oxaloacetate
3. Malate
4. Pyruvate

**Options :**

60348973057. 1

60348973058. 2

60348973059. 3

60348973060. 4

**Question Number : 20 Question Id : 60348919437 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The locus considered to be the most important for the induction of hairy root is .....

1. rolA
2. rolB
3. rolC
4. rol D

**Options :**

60348973061. 1

60348973062. 2

60348973063. 3

60348973064. 4

**Question Number : 21 Question Id : 60348919438 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Select the enzyme that is NOT involved in the pathway for reduction of sulphate to sulphide.

1. ATP sulfurylase
2. Adenosine 5'-phosphosulfate (APS) reductase
3. Sulphite reductase
4. O-acetylserine (OAS) thiol-lyase

**Options :**

60348973065. 1

60348973066. 2

60348973067. 3

60348973068. 4

**Question Number : 22 Question Id : 60348919439 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The optimum pH range suitable for in vitro growth of explants is .....

1. 3.0 - 4.0
2. 4.0 - 5.0
3. 5.0- 6.0
4. 6.0-7.0

**Options :**

60348973069. 1

60348973070. 2

60348973071. 3

60348973072. 4

**Question Number : 23 Question Id : 60348919440 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following are products of light reactions of photosynthesis that are utilized in the Calvin cycle?

1. CO<sub>2</sub> and glucose
2. H<sub>2</sub>O and O<sub>2</sub>
3. ADP, Pi and NADP<sup>+</sup>
4. ATP and NADPH

**Options :**

60348973073. 1

60348973074. 2

60348973075. 3

60348973076. 4

**Question Number : 24 Question Id : 60348919441 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Gibberellin is transported to different parts of the plant through which of the following:-

1. Phloem
2. Tracheary element
3. Xylem
4. Aleuron layer

**Options :**

60348973077. 1

60348973078. 2

60348973079. 3

60348973080. 4

**Question Number : 25 Question Id : 60348919442 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In situ conservation of national genetic resources can be achieved by establishing which of the following options?

1. National park
2. Wildlife sanctuary
3. Biosphere reserve
4. All of the above options

**Options :**

60348973081. 1

60348973082. 2

60348973083. 3

60348973084. 4

**Question Number : 26 Question Id : 60348919443 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Beta-carotene belongs to which of the following classes of terpenes?

1. Diterpenes
2. Triterpenes
3. Tetraterpenes
4. Polyterpenes

**Options :**

60348973085. 1

60348973086. 2

60348973087. 3

60348973088. 4

**Question Number : 27 Question Id : 60348919444 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following organism can carry out oxidization of ammonia?

1. Nitrobacter
2. Nitrosobacter
3. Nitrosococcus
4. Rhizobium

**Options :**

60348973089. 1

60348973090. 2

60348973091. 3

60348973092. 4

**Question Number : 28 Question Id : 60348919445 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The transport of sulphate ions across the plasma membrane of root cells during its uptake from the soil occurs through which of the following?

1. A proton/sulphate co-transporter
2. A sodium/sulphate symporter
3. Proton/sulphate antiporter
4. A sulphate channel

**Options :**

60348973093. 1

60348973094. 2

60348973095. 3

60348973096. 4

**Question Number : 29 Question Id : 60348919446 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Choose the correct statement.

1. Embryoids are the embryos of plants
2. Callus is the disorganized mass of cells formed in vitro condition
3. Totipotency is the ability of plant organ to regenerate whole organism
4. Explants are plant seeds used for reproduction

**Options :**

60348973097. 1

60348973098. 2

60348973099. 3

60348973100. 4

**Question Number : 30 Question Id : 60348919447 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which one is NOT a plant-derived elicitor?

1. Cellulose
2. Chitin
3. Pectin
4. Pectic acid

**Options :**

60348973101. 1

60348973102. 2

60348973103. 3

60348973104. 4

**Question Number : 31 Question Id : 60348919448 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Choose the most appropriate function of photosystem I from the following.

1. Harvesting of light energy
2. Receiving electrons from plastocyanin
3. Acting as P680 reaction-centre chlorophyll
4. Passing electrons to plastoquinone

**Options :**

60348973105. 1

60348973106. 2

60348973107. 3

60348973108. 4

**Question Number : 32 Question Id : 60348919449 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which group represents a large and structurally diverse group of nitrogen containing secondary metabolites found in plants?

1. Cyanogenic glucosides
2. Alkaloids
3. Glutathione
4. Stilbenes

**Options :**

60348973109. 1

60348973110. 2

60348973111. 3

60348973112. 4

**Question Number : 33 Question Id : 60348919450 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Most biodiversity hot spots are distributed in which type of region?

1. Dry shrublands
2. Mountainous region
3. Tropical forests
4. Wetlands

**Options :**

60348973113. 1

60348973114. 2

60348973115. 3

60348973116. 4

**Question Number : 34 Question Id : 60348919451 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The reason for the ability of hairy roots to grow in hormone free medium is due to .....

1. the presence of T DNA of *A. rhizogenes* with auxin and cytokinin genes
2. the non-requirement of hormones for root growth
3. the replacement of hairy roots hormone function by other metabolites
4. unknown reasons

**Options :**

60348973117. 1

60348973118. 2

60348973119. 3

60348973120. 4

**Question Number : 35 Question Id : 60348919452 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the given options represent the most appropriate effect of photoinhibition in plants?

1. Production of reactive oxygen species
2. Oxidative damage of the cellular molecules
3. Death of the cell
4. All of the above options

**Options :**

60348973121. 1

60348973122. 2

60348973123. 3

60348973124. 4

**Question Number : 36 Question Id : 60348919453 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is NOT an impact of high temperature stress in plants?

1. Increase in membrane fluidity of the cell
2. Leakage of ions and loss of three dimensional structure of membrane protein
3. Inhibition of rate of photosynthesis
4. Physical destruction of membrane and cellular dehydration

**Options :**

60348973125. 1

60348973126. 2

60348973127. 3

60348973128. 4

**Question Number : 37 Question Id : 60348919454 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following property about the direct repeats flanking T-DNA is NOT correct?

1. The repeats are important for integration of T-DNA
2. The intact repeats are integrated to the plant genome
3. The repeats are conserved between nopaline and octopine Ti-plasmids
4. All of the above options

**Options :**

60348973129. 1

60348973130. 2

60348973131. 3

60348973132. 4

**Question Number : 38 Question Id : 60348919455 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Auxins are used in plant tissue culture mainly for .....

1. induction of adventitious root
2. induction of adventitious shoot
3. induction of somatic embryo
4. shoot elongation

**Options :**

60348973133. 1

60348973134. 2

60348973135. 3

60348973136. 4

**Question Number : 39 Question Id : 60348919456 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If you want to use a plant tissue culture as a chemical factory for production of vitamins, which of the following culture system will you choose?

1. Anther culture
2. Callus culture
3. Organ culture
4. Cell suspension culture

**Options :**

60348973137. 1

60348973138. 2

60348973139. 3

60348973140. 4

**Question Number : 40 Question Id : 60348919457 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The plastid genome contain .....

1. genes for respiratory process only
2. genes for photosynthetic process only
3. genes for ribosomes only
4. genes for photosynthetic reactions and ribosomes

**Options :**

60348973141. 1

60348973142. 2

60348973143. 3

60348973144. 4

**Question Number : 41 Question Id : 60348919458 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Phytochrome is involved in which of the following process?

1. Phototropism
2. Photorespiration
3. Photoperiodism
4. Geotropism

**Options :**

60348973145. 1

60348973146. 2

60348973147. 3

60348973148. 4

**Question Number : 42 Question Id : 60348919459 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Reduction of NADP<sup>+</sup> to NADPH occurs during .....

1. Photolysis of water
2. Chemiosmosis
3. Calvin cycle
4. Noncyclic photophosphorylation

**Options :**

60348973149. 1

60348973150. 2

60348973151. 3

60348973152. 4

**Question Number : 43 Question Id : 60348919460 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Kranz anatomy is a typical feature in which of the following type of plants?

1. C2 plants
2. C3 plants
3. C4 plants
4. CAM plants

**Options :**

60348973153. 1

60348973154. 2

60348973155. 3

60348973156. 4

**Question Number : 44 Question Id : 60348919461 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which plant hormone promotes apical dominance?

1. IAA
2. ABA
3. GA
4. Florigen

**Options :**

60348973157. 1

60348973158. 2

60348973159. 3

60348973160. 4

**Question Number : 45 Question Id : 60348919462 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Ferredoxin is cross-linked to which of the following?

1. PS I
2. PS II
3. Both PS I and PS II
4. P680

**Options :**

60348973161. 1

60348973162. 2

60348973163. 3

60348973164. 4

**Question Number : 46 Question Id : 60348919463 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are cybrids?

1. Cytoplasmic hybrids
2. Cytological hybrids
3. Hybrid plants produced by cross pollination
4. Nuclear hybrids

**Options :**

60348973165. 1

60348973166. 2

60348973167. 3

60348973168. 4

**Question Number : 47 Question Id : 60348919464 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Fusion of isolated protoplasts can be induced by using which of the following fusogens?

1. PEG
2. Ca<sup>++</sup>
3. NaNO<sub>3</sub>
4. All of the above

**Options :**

60348973169. 1

60348973170. 2

60348973171. 3

60348973172. 4

**Question Number : 48 Question Id : 60348919465 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In which of the compartments of C<sub>4</sub> plants chloroplasts does Calvin cycle operates?

1. Grana of bundle sheath chloroplasts
2. Grana of mesophyll chloroplasts
3. Stroma of bundle sheath chloroplasts
4. Stroma of mesophyll chloroplasts

**Options :**

60348973173. 1

60348973174. 2

60348973175. 3

60348973176. 4

**Question Number : 49 Question Id : 60348919466 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements proves that mitochondria and chloroplasts are semi autonomous bodies?

1. They contain DNA and ribosomes
2. They contain protein
3. They are essential for respiration and photosynthesis
4. None of the above

**Options :**

60348973177. 1

60348973178. 2

60348973179. 3

60348973180. 4

**Question Number : 50 Question Id : 60348919467 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The sole source of sugar and nitrogen used by *Agrobacterium rhizogenes* for further growth inside host cell is provided by which of the following?

1. Auxins
2. Cytokinins
3. Opines
4. Tryptophan

**Options :**

60348973181. 1

60348973182. 2

60348973183. 3

60348973184. 4