

# National Testing Agency

<b>Question Paper Name :</b>	Plant Physiology and Crop Physiology 23rd Sep 2020 Shift 2 Set 2
<b>Subject Name :</b>	Plant Physiology and Crop Physiology
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<b>Display Marks:</b>	Yes
<b>Share Answer Key With Delivery Engine :</b>	Yes
<b>Actual Answer Key :</b>	Yes

## Plant Physiology and Crop Physiology

<b>Group Number :</b>	1
<b>Group Id :</b>	71087011
<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>	480
<b>Is this Group for Examiner? :</b>	No

## Part A General Knowledge

<b>Section Id :</b>	71087031
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

<b>Number of Questions :</b>	20
<b>Number of Questions to be attempted :</b>	20
<b>Section Marks :</b>	80
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	Yes
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	71087031
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 7108701261 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which one of the following crops is a commercial crop in Punjab and Haryana but is a subsistence crop in Orissa?

1. Tea
2. Cotton
3. Rubber
4. Rice

**Options :**

- 7108705041. 1
- 7108705042. 2
- 7108705043. 3
- 7108705044. 4

**Question Number : 2 Question Id : 7108701262 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which of the following are the two most important wheat-growing zones of the country?

- A. Ganga-Satluj plains in the north-west
- B. Deltaic regions
- C. Black soil region of the Deccan
- D. Plains of north-east

Choose the **correct** answer from the options below:

- 1. Only A and B
- 2. Only B and C
- 3. Only C and D
- 4. Only A and C

**Options :**

- 7108705045. 1
- 7108705046. 2
- 7108705047. 3
- 7108705048. 4

**Question Number : 3 Question Id : 7108701263 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Indian agriculture is typically characterized as

- 1. Land surplus, labour scarce economy
- 2. Land surplus, labour surplus economy
- 3. Land scarce, labour surplus economy
- 4. Land scarce, labour scarce economy

**Options :**

- 7108705049. 1



7108705050. 2

7108705051. 3

7108705052. 4

**Question Number : 4 Question Id : 7108701264 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which one of the following countries is the main rival of India in tea export?

1. China
2. Japan
3. Germany
4. Sri Lanka

**Options :**

7108705053. 1

7108705054. 2

7108705055. 3

7108705056. 4

**Question Number : 5 Question Id : 7108701265 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**



Given below are two statements

**Statement A:** MSP is declared by the government every year to provide incentives to the farmers for raising the production of crops.

**Statement B:** Buffer stock is created to distribute food grains in the deficit areas and among the poorer strata of the society at the lower price than the market price.

In light of the above statements, choose the **most appropriate** answer from the options given below

1. Both Statement A and Statement B are correct
2. Both Statement A and Statement B are incorrect
3. Statement A is correct but Statement B is incorrect
4. Statement A is incorrect but Statement B is correct

**Options :**

- 7108705057. 1
- 7108705058. 2
- 7108705059. 3
- 7108705060. 4

**Question Number : 6 Question Id : 7108701266 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which one of the following is a global association of nations of the world to help cooperation in international law, security, economic development and social equity?

1. United Nations Organization
2. International Monetary Fund
3. World Bank
4. World Health Organization

**Options :**

- 7108705061. 1
- 7108705062. 2
- 7108705063. 3
- 7108705064. 4

**Question Number : 7 Question Id : 7108701267 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Under the Ganga Action Plan Phase II, pollution abatement works are being taken up in how many towns?

- 1. 57
- 2. 65
- 3. 52
- 4. 69

**Options :**

- 7108705065. 1
- 7108705066. 2
- 7108705067. 3
- 7108705068. 4

**Question Number : 8 Question Id : 7108701268 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following statements is **incorrect**?

- 1. The highest number of pigs in the world are found in India
- 2. Utter Pradesh provides largest amount of pork
- 3. Assam has the largest number of pork producing pigs
- 4. Pork constitutes about 7.6% of the total meat produced in India

**Options :**

7108705069. 1

7108705070. 2

7108705071. 3

7108705072. 4

**Question Number : 9 Question Id : 7108701269 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which type of N-fertilizer is suitable for water-logged soils?

1. Zinc Phosphate
2. Ammonium Sulphate
3. Calcium
4. Potassium Nitrate

**Options :**

7108705073. 1

7108705074. 2

7108705075. 3

7108705076. 4

**Question Number : 10 Question Id : 7108701270 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The famous Bailadila range of hills in the Bastar district of Chhattisgarh is famous for its

1. Bauxite deposits
2. Manganese deposits
3. Copper deposits
4. High-grade haematite deposits

**Options :**

7108705077. 1



7108705078. 2

7108705079. 3

7108705080. 4

**Question Number : 11 Question Id : 7108701271 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

A farmer wishes to start a 100 sq. m rectangular vegetable garden. Since he has only 30m barbed wire, he fences three sides of the garden letting his house compound wall act as the fourth side fencing. What is the dimension of the garden?

1. 15 m x 6.67m
2. 20 m x 5 m
3. 30 m x 3.33 m
4. 40 m x 2.5 m

**Options :**

7108705081. 1

7108705082. 2

7108705083. 3

7108705084. 4

**Question Number : 12 Question Id : 7108701272 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

In which one of the following industries, the consumption of natural rubber is the largest?

1. Auto tyres and tubes
2. Footwear
3. Dipped goods
4. Latex foam

**Options :**

7108705085. 1  
7108705086. 2  
7108705087. 3  
7108705088. 4

**Question Number : 13 Question Id : 7108701273 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which one of the following countries was the partner country of 34<sup>th</sup> Surajkund International Crafts Fair held in Haryana?

1. China
2. Nepal
3. Bhutan
4. Uzbekistan

**Options :**

7108705089. 1  
7108705090. 2  
7108705091. 3  
7108705092. 4

**Question Number : 14 Question Id : 7108701274 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Nobel laureate Abhijit Vinayak Banerjee was conferred the honorary Doctor of Letters (D. Litt.) by which University?

1. University of Delhi
2. University of Kolkata
3. University of Mumbai
4. University of Hyderabad

**Options :**

- 7108705093. 1
- 7108705094. 2
- 7108705095. 3
- 7108705096. 4

**Question Number : 15 Question Id : 7108701275 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Where is the headquarters of European Union?

- 1. Geneva, Switzerland
- 2. Washington D.C., USA
- 3. New York, US
- 4. Brussels, Belgium

**Options :**

- 7108705097. 1
- 7108705098. 2
- 7108705099. 3
- 7108705100. 4

**Question Number : 16 Question Id : 7108701276 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which of the following would be deficient if one finds high somatic cell count in the cow's milk?

- 1. Butterfat
- 2. Whey protein
- 3. Casein
- 4. Trace minerals



**Options :**

- 7108705101. 1
- 7108705102. 2
- 7108705103. 3
- 7108705104. 4

**Question Number : 17 Question Id : 7108701277 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Who was the first administrator-statesman to attempt planning as a means for economic development?

- 1. C. Rajagopalachari
- 2. V. T. Krishnamachari
- 3. M. Viswesvarayya
- 4. Sir C. P. Ramaswami Aiyar

**Options :**

- 7108705105. 1
- 7108705106. 2
- 7108705107. 3
- 7108705108. 4

**Question Number : 18 Question Id : 7108701278 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Amazon rainforest span over nine countries. In August 2019, in which country did a deadly fire broke out in the Amazon forest?

- 1. Brazil
- 2. Venezuela
- 3. Colombia
- 4. Argentina

**Options :**

- 7108705109. 1
- 7108705110. 2
- 7108705111. 3
- 7108705112. 4

**Question Number : 19 Question Id : 7108701279 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Economic liberalization in India started with

- 1. Sustainable changes in industrial licensing policy
- 2. The convertibility of the Indian Rupee
- 3. Significant reduction of tax rates
- 4. Changes in procedural formalities for FDI

**Options :**

- 7108705113. 1
- 7108705114. 2
- 7108705115. 3
- 7108705116. 4

**Question Number : 20 Question Id : 7108701280 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The term 'Delimitation' which was in news recently is associated with which process?

- 1. Fixing the limit of Income tax
- 2. Fixing limits of Affordable housing
- 3. Fixing limits of Territorial constituencies
- 4. Fixing limits of Chairpersons salary

**Options :**

- 7108705117. 1

7108705118. 2  
7108705119. 3  
7108705120. 4

## Part B Core Crop Sciences-III

<b>Section Id :</b>	71087032
<b>Section Number :</b>	2
<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>	200
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	Yes
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	71087032
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 21 Question Id : 7108701281 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The translation process occurs in association with which one of the following?

1. Plastids
2. ER
3. Mitochondria
4. Ribosome and RNA

**Options :**

7108705121. 1  
7108705122. 2



7108705123. 3

7108705124. 4

**Question Number : 22 Question Id : 7108701282 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

E. R. Sears produced 21 monosomics in which one of the following wheat varieties?

1. Einkorn
2. Chinese spring
3. Khorasan
4. Red spring

**Options :**

7108705125. 1

7108705126. 2

7108705127. 3

7108705128. 4

**Question Number : 23 Question Id : 7108701283 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Name the small cDNA sequence that represents a unique segment of an active gene

1. SNPs
2. snRNAs
3. ESTs
4. Contigs

**Options :**

7108705129. 1

7108705130. 2

7108705131. 3

7108705132. 4

**Question Number : 24 Question Id : 7108701284 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following species of *Cajanus* is used to introgress salt tolerance in the cultivated species of *Cajanus*?

1. *Cajanus scaraboides*
2. *Cajanus lanceolatus*
3. *Cajanus platicarpus*
4. *Cajanus albicans*

**Options :**

- 7108705133. 1
- 7108705134. 2
- 7108705135. 3
- 7108705136. 4

**Question Number : 25 Question Id : 7108701285 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Under IPR, what protects the intellectual property created by inventors ?

1. Copy right
2. Patents
3. Trade marks
4. Registered design

**Options :**

- 7108705137. 1
- 7108705138. 2
- 7108705139. 3
- 7108705140. 4

**Question Number : 26 Question Id : 7108701286 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The world's most inventory of the global conservation status of biological species is being maintained by

1. WWF
2. IUCN
3. MAB
4. IBWL

**Options :**

- 7108705141. 1
- 7108705142. 2
- 7108705143. 3
- 7108705144. 4

**Question Number : 27 Question Id : 7108701287 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**



Match **List I** with **List II**

List I	List II
A: Pod corn	I: <i>Zea mays</i> var. <i>everta</i>
B: Pop corn	II: <i>Zea mays</i> var. <i>ceratina</i>
C: Wax corn	III: <i>Zea mays</i> var. <i>tunicata</i>
D: Flint corn	IV: <i>Zea mays</i> var. <i>indurata</i>

Choose the **correct** answer from the options given below :

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

**Options :**

- 7108705145. 1
- 7108705146. 2
- 7108705147. 3
- 7108705148. 4

**Question Number : 28 Question Id : 7108701288 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Match **List I** with **List II**

<b>List I</b>	<b>List II</b>
(Species)	(Chromosome number)
A: <i>Linum usitatissimum</i>	I: $n = 18$
B: <i>Cicer arietinum</i>	II: $n = 7$
C: <i>Brassica nigra</i>	III: $n = 8$
D: <i>Lens esculenta</i>	IV: $n = 15$

Choose the **correct** answer from the option given below :

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

**Options :**

7108705149. 1  
7108705150. 2  
7108705151. 3  
7108705152. 4

**Question Number : 29 Question Id : 7108701289 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Match **List I** with **List II**

<b>List I</b>	<b>List II</b>
(Crop)	(Isolation distance for certified seed production)
A: Hybrid rice	I: 400 m
B: Johnson Grass	II: 800 m
C: Sesame	III: 100 m
D: Carrot	IV: 50 m

Choose the **correct** answer from the options given below :

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

**Options :**

7108705153. 1  
7108705154. 2  
7108705155. 3  
7108705156. 4

**Question Number : 30 Question Id : 7108701290 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**



Adventive embryony is an example of

1. Vegetative propagation
2. Amphimixis
3. Agamospermy
4. Parthinogamy

**Options :**

- 7108705157. 1
- 7108705158. 2
- 7108705159. 3
- 7108705160. 4

**Question Number : 31 Question Id : 7108701291 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Loss in vigour due to inbreeding is more visible in

1. Self-pollinated species
2. Cross-pollinated species
3. Apomictic species
4. Monoecious species.

**Options :**

- 7108705161. 1
- 7108705162. 2
- 7108705163. 3
- 7108705164. 4

**Question Number : 32 Question Id : 7108701292 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

If two individuals with a genotype AaBb are crossed, what proportion of the offsprings will be of genotype aabb?

1.  $\frac{1}{2}$
2.  $\frac{1}{4}$
3.  $\frac{1}{8}$
4.  $\frac{1}{16}$

**Options :**

- 7108705165. 1
- 7108705166. 2
- 7108705167. 3
- 7108705168. 4

**Question Number : 33 Question Id : 7108701293 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Requirements for Marker Assisted Backcross Breeding are

- A. High heritability
- B. Tightly linked marker with target gene
- C. Flanking markers
- D. Multi-location trial

Choose the **correct** answer from the options given below :

1. A, D and E only
2. B, C and D only
3. B, D and E only
4. A, B and C only

**Options :**

7108705169. 1  
7108705170. 2  
7108705171. 3  
7108705172. 4

**Question Number : 34 Question Id : 7108701294 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Chi-square test has the following applications

- A. Test of segregation
- B. Selection of genotype
- C. Detection of genotype
- D. Developing ANOVA table

Choose the **correct** answer from the options given below :

- 1. B, D and E only
- 2. A, C and E only
- 3. B, C and D only
- 4. A, C and D only

**Options :**

7108705173. 1  
7108705174. 2  
7108705175. 3  
7108705176. 4

**Question Number : 35 Question Id : 7108701295 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



Requirements for AFLP marker are

- A. Random primers
- B. Restriction enzymes
- C. Adaptors
- D. PCR
- E. Short sequence repeats

Choose the **correct** answer from the options given below :

- 1. B, C and D only
- 2. A, B and E only
- 3. B, D and E only
- 4. A, B and C only

**Options :**

- 7108705177. 1
- 7108705178. 2
- 7108705179. 3
- 7108705180. 4

**Question Number : 36 Question Id : 7108701296 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

For breeding high-quality chapati wheat in India we prefer

- A. Soft wheat
- B. Hard wheat
- C. *Triticum aestivum*
- D. *Triticum durum*
- E. *Triticum dicoccum*

Choose the **correct** answer from the options given below :

- 1. A and C only
- 2. B and D only
- 3. B and C only
- 4. A and E only

**Options :**

- 7108705181. 1
- 7108705182. 2
- 7108705183. 3
- 7108705184. 4

**Question Number : 37 Question Id : 7108701297 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Evidence for DNA as genetic material was obtained in which of the following experiments?

- A. Avery, McLeod and McCarty experiment
- B. Griffith Experiment
- C. Conrat and Singer experiment
- D. Watson and Crick experiment
- E. Hershey and Chase experiment

Choose the **correct** answer from the options given below :

- 1. A and B only
- 2. A and E only
- 3. B and D only
- 4. C and D only

**Options :**

- 7108705185. 1
- 7108705186. 2
- 7108705187. 3
- 7108705188. 4

**Question Number : 38 Question Id : 7108701298 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**



A population consisted of the following genotypes in the given numbers

160-Heterozygotes

20-Homozygous recessive

320-Homozygous dominants

What would be the frequency of dominant allele?

1. 10%
2. 40%
3. 32%
4. 80%

**Options :**

- 7108705189. 1
- 7108705190. 2
- 7108705191. 3
- 7108705192. 4

**Question Number : 39 Question Id : 7108701299 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The non-random association of alleles at different loci in a given population is referred to as

1. Linkage disequilibrium
2. Linkage equilibrium
3. Mendelian population
4. QTL analysis

**Options :**

- 7108705193. 1
- 7108705194. 2
- 7108705195. 3

7108705196. 4

**Question Number : 40 Question Id : 7108701300 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Non-Mendelian inheritance includes

1. Maternal effect only
2. Maternal effect and epigenetic inheritance only
3. Epigenetic and extranuclear inheritance only
4. Maternal effect, Epigenetic and extranuclear inheritance only

**Options :**

- 7108705197. 1
- 7108705198. 2
- 7108705199. 3
- 7108705200. 4

**Question Number : 41 Question Id : 7108701301 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Morgan discovered linkage when studying two genes in which of the following in Drosophila?

1. X-chromosome
2. Y-chromosome
3. Autosomes
4. Cytoplasm

**Options :**

- 7108705201. 1
- 7108705202. 2
- 7108705203. 3
- 7108705204. 4

**Question Number : 42 Question Id : 7108701302 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Kary Banks Mullis invented PCR and received Nobel Prize in

1. Physics
2. Chemistry
3. Biology
4. Medicine

**Options :**

- 7108705205. 1
- 7108705206. 2
- 7108705207. 3
- 7108705208. 4

**Question Number : 43 Question Id : 7108701303 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Antibiotic resistance genes are mostly used as what kind of markers?

1. Selectable
2. Scorable
3. Countable
4. Molecular

**Options :**

- 7108705209. 1
- 7108705210. 2
- 7108705211. 3
- 7108705212. 4

**Question Number : 44 Question Id : 7108701304 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**



Expanded form of RAPD is

1. Randomly Amplified Polymorphic DNA
2. Random Amplification of Polymorphic DNA
3. Randomly Amplification of Polymorphic DNA
4. Random Amplified Polymorphic DNA

**Options :**

- 7108705213. 1
- 7108705214. 2
- 7108705215. 3
- 7108705216. 4

**Question Number : 45 Question Id : 7108701305 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Hybrid between plasmid and phage lambda chromosome are known as

1. Plasmid vector
2. Cosmid vector
3. Fosmid vector
4. Binary vector

**Options :**

- 7108705217. 1
- 7108705218. 2
- 7108705219. 3
- 7108705220. 4

**Question Number : 46 Question Id : 7108701306 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

DUS testing is necessary for

- A. Certification of a variety
- B. Release and notification of a variety
- C. Protection of a variety

Select the **most appropriate** answer from the options given below:

- 1. A only
- 2. B only
- 3. C only
- 4. A, B and C

**Options :**

- 7108705221. 1
- 7108705222. 2
- 7108705223. 3
- 7108705224. 4

**Question Number : 47 Question Id : 7108701307 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

CSTL is located at

- 1. New Delhi
- 2. Lucknow
- 3. Patna
- 4. Varanasi

**Options :**

- 7108705225. 1
- 7108705226. 2
- 7108705227. 3

7108705228. 4

**Question Number : 48 Question Id : 7108701308 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Two line system of hybrid seed production is possible in

1. CMS
2. GMS
3. TGMS
4. CGMS

**Options :**

7108705229. 1  
7108705230. 2  
7108705231. 3  
7108705232. 4

**Question Number : 49 Question Id : 7108701309 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Seed multiplication ratio of paddy is

1. 1:60
2. 1:80
3. 1:40
4. 1:100

**Options :**

7108705233. 1  
7108705234. 2  
7108705235. 3  
7108705236. 4



**Question Number : 50 Question Id : 7108701310 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which of the following are certified classes of seeds under the Seeds Act?

- A. Breeder Seed
- B. Foundation Seed
- C. Certified Seed
- D. Nucleus Seed
- E. Quality declared seed

Choose the **correct** answer from the options given below

- 1. A and D only
- 2. B and C only
- 3. D and E only
- 4. E and C only

**Options :**

- 7108705237. 1
- 7108705238. 2
- 7108705239. 3
- 7108705240. 4

**Question Number : 51 Question Id : 7108701311 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Cross pollinated crop

- A. Sunflower
- B. Cabbage
- C. Chow-Chow
- D. Groundnut
- E. Moth Bean

Choose the **correct** answer from the options given below

1. A, B, C only
2. B, C, D only
3. E, A, B only
4. D, E, A only

**Options :**

- 7108705241. 1
- 7108705242. 2
- 7108705243. 3
- 7108705244. 4

**Question Number : 52 Question Id : 7108701312 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Grow-out test for seed certification is compulsory in hybrids of

- A. Tomato
- B. Brinjal
- C. Castor
- D. Maize
- E. Pearl millet

Choose the **correct** answer from the options given below

1. A, B and C only
2. D, E and A only
3. D, A and C only
4. A, B, C, D and E only

**Options :**

- 7108705245. 1
- 7108705246. 2
- 7108705247. 3
- 7108705248. 4

**Question Number : 53 Question Id : 7108701313 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Provision of 'Seed Register' is provided in

1. Seed Bill
2. PPV & FR Act
3. Seed Control Order
4. Seeds Act

**Options :**

- 7108705249. 1
- 7108705250. 2
- 7108705251. 3



7108705252. 4

**Question Number : 54 Question Id : 7108701314 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following rules are followed by ISTA for determining seed viability of a seed lot?

1. Four replications of 100 seeds each
2. Three replications of 50 seeds each
3. Four replications of 50 seeds each
4. Three replications of 100 seeds each

**Options :**

7108705253. 1

7108705254. 2

7108705255. 3

7108705256. 4

**Question Number : 55 Question Id : 7108701315 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

To break the dormancy and to enhance germination in orthodox seeds, the chemical stimuli used is

1. Sulphuric acid
2. Potassium nitrate
3. TTC
4. Formazane

**Options :**

7108705257. 1

7108705258. 2

7108705259. 3

7108705260. 4

**Question Number : 56 Question Id : 7108701316 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The Germination Value (GV) of tree seeds is calculated using the formula

1.  $GV = PV \times MDG$
2.  $GV = T \times PV$
3.  $GV = PV \times B$
4.  $GV = MDG \times T$

**Options :**

- 7108705261. 1
- 7108705262. 2
- 7108705263. 3
- 7108705264. 4

**Question Number : 57 Question Id : 7108701317 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Loose smut is the seed borne disease in

1. Paddy
2. Wheat
3. Maize
4. Sorghum

**Options :**

- 7108705265. 1
- 7108705266. 2
- 7108705267. 3
- 7108705268. 4

**Question Number : 58 Question Id : 7108701318 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Leaf spot is the seed borne disease in

1. Sesame
2. Groundnut
3. Castor
4. Linseed

**Options :**

7108705269. 1  
7108705270. 2  
7108705271. 3  
7108705272. 4

**Question Number : 59 Question Id : 7108701319 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Given below are two statements:

**Statement I:** Under the PPV&FR Act, a variety with Bt-gene can be registered

**Statement II:** Under the PPV&FR Act, a variety with RIP-gene (Ribosomal Inhibitory Protein) can be registered

In light of the above statements, choose the **most appropriate** answer from the options given below

1. Both Statement I and Statement II are correct
2. Both Statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

**Options :**

7108705273. 1



7108705274. 2

7108705275. 3

7108705276. 4

**Question Number : 60 Question Id : 7108701320 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

According to India's Patent Law, a patent has a time limit of

1. 15 years
2. 20 years
3. 7 years
4. 9 years

**Options :**

7108705277. 1

7108705278. 2

7108705279. 3

7108705280. 4

**Question Number : 61 Question Id : 7108701321 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Name the global initiative which is aimed at to establish a multilateral system of access and benefit sharing of Plant Genetic Resources through SMTA

1. Bioversity International
2. Commission on Genetic Resources for Food and Agriculture
3. Global Plan of Action
4. International Treaty for PGRFA

**Options :**

7108705281. 1

7108705282. 2

7108705283. 3

7108705284. 4

**Question Number : 62 Question Id : 7108701322 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The most successful technique to conserve pollen grains of plant species is

1. Organic solvent method
2. Desiccation freeze drying
3. Cryopreservation
4. Low temperature storage (-20<sup>0</sup> C)

**Options :**

7108705285. 1

7108705286. 2

7108705287. 3

7108705288. 4

**Question Number : 63 Question Id : 7108701323 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

While breeding for abiotic resistance in legumes, drought tolerance and heat tolerance traits can be obtained from which one of the following *Vigna species*?

1. *Vigna radiate*
2. *Vigna aconitifolia*
3. *Vigna riukuensis*
4. *Vigna tenucauli*

**Options :**

7108705289. 1

7108705290. 2

7108705291. 3

7108705292. 4

**Question Number : 64 Question Id : 7108701324 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which one of the following crops is a rich source of calcium, iron and niacin?

1. Finger millet
2. Chickpea
3. Lima bean
4. Redgram

**Options :**

7108705293. 1  
7108705294. 2  
7108705295. 3  
7108705296. 4

**Question Number : 65 Question Id : 7108701325 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Among the edible legume plants, which one of the following legumes possesses glandular hairs and secretes oxalic and malic acids?

1. *Vicia faba*
2. *Cajanus cajan*
3. *Vigna mungo*
4. *Cicer arietinum*

**Options :**

7108705297. 1  
7108705298. 2  
7108705299. 3  
7108705300. 4



**Question Number : 66 Question Id : 7108701326 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which part of *Elaeis guineensis* fruit contains the maximum amount of oil?

1. Mesocarp
2. Endocarp
3. Endosperm
4. Exocarp

**Options :**

- 7108705301. 1
- 7108705302. 2
- 7108705303. 3
- 7108705304. 4

**Question Number : 67 Question Id : 7108701327 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Under the **ITPGRFA**, the specified number of food and fodder crops which can be exchanged when executing **SMTA** is

1. 95 food crops and 35 fodder crops
2. 24 food crops and 15 fodder crops
3. 132 food crops and 29 fodder crops
4. 35 food crops and 29 fodder crops

**Options :**

- 7108705305. 1
- 7108705306. 2
- 7108705307. 3
- 7108705308. 4

**Question Number : 68 Question Id : 7108701328 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Among the following types of rice, which form of rice possesses more of dextrin in its endosperm?

1. Wild rice
2. Glutinous rice
3. Parboiled rice
4. Hand pound rice

**Options :**

- 7108705309. 1
- 7108705310. 2
- 7108705311. 3
- 7108705312. 4

**Question Number : 69 Question Id : 7108701329 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Name the tool which is used to assess the plant genetic diversity which reduces the large set of variables into a smaller set of 'artificial / uncorrelated' variables.

1. Cluster analysis
2. PCA
3. Mahalanobis  $D^2$  analysis
4. Cladogram

**Options :**

- 7108705313. 1
- 7108705314. 2
- 7108705315. 3
- 7108705316. 4

**Question Number : 70 Question Id : 7108701330 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

In which of the following crops species, allogamy is effected by the process called 'tripping'?

1. *Medicago sativa*
2. *Clitoria ternatea*
3. *Desmanthus tortuosum*
4. *Macroptelium atropurpureum*

**Options :**

7108705317. 1

7108705318. 2

7108705319. 3

7108705320. 4

## Part C Plant Physiology and Crop Physiology

<b>Section Id :</b>	71087033
<b>Section Number :</b>	3
<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>	200
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	Yes
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	71087033
<b>Question Shuffling Allowed :</b>	Yes



**Question Number : 71 Question Id : 7108701331 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which one of the following responses is NOT induced by phytochrome in plants?

1. Promotion of seed germination in lettuce
2. Promotion of de-etiolation in oat seedling
3. Enhanced rates of chlorophyll accumulation in pine seedlings
4. Enhanced rates of photosynthesis in mature plants of tomato

**Options :**

- 7108705321. 1
- 7108705322. 2
- 7108705323. 3
- 7108705324. 4

**Question Number : 72 Question Id : 7108701332 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The double-membrane-bound organelle that sequesters and engulfs large portions of cytoplasm is termed as

1. Vacuole
2. Autophagosomes
3. Leucoplasts
4. Microbodies

**Options :**

- 7108705325. 1
- 7108705326. 2
- 7108705327. 3
- 7108705328. 4

**Question Number : 73 Question Id : 7108701333 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

In fully wilted plants, cells will be flaccid, and hence the pressure potential will be

1. -0.732 MPa
2. +0.732 MPa
3. +0.0 MPa
4. Same as solute potential

**Options :**

7108705329. 1  
7108705330. 2  
7108705331. 3  
7108705332. 4

**Question Number : 74 Question Id : 7108701334 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The cost of CO<sub>2</sub> concentrating mechanism in C<sub>4</sub> plants, within the bundle sheath cells would be:

1. 2 ATP per CO<sub>2</sub>
2. 3 ATP per CO<sub>2</sub>
3. 4 ATP per CO<sub>2</sub>
4. 5 ATP per CO<sub>2</sub>

**Options :**

7108705333. 1  
7108705334. 2  
7108705335. 3  
7108705336. 4

**Question Number : 75 Question Id : 7108701335 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



Which one of the following statements is incorrect?

1. Starch is synthesized in the chloroplast
2. Starch degradation requires phosphorylation of amylopectin
3. Chloroplast starch is synthesized during the night and degraded during the day
4. Sucrose is the primary photosynthate transported in the phloem

**Options :**

- 7108705337. 1
- 7108705338. 2
- 7108705339. 3
- 7108705340. 4

**Question Number : 76 Question Id : 7108701336 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Xanthophyll cycle is involved in the dissipation of excess light energy in leaves of crop plants.

Which one of the following carotenoids increases at high light?

1. Zeaxanthin
2. Violaxanthin
3. Antheraxanthin
4. Chlorophyll-a

**Options :**

- 7108705341. 1
- 7108705342. 2
- 7108705343. 3
- 7108705344. 4

**Question Number : 77 Question Id : 7108701337 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



The mineral elements which are considered as highly mobile within a plant and have a tendency to re-translocate during deficiencies are:

1. Calcium, Sulfur, Iron
2. Sulfur, Boron, Iron
3. Nitrogen, Potassium, Magnesium
4. Copper, Sulfur, Boron

**Options :**

7108705345. 1  
7108705346. 2  
7108705347. 3  
7108705348. 4

**Question Number : 78 Question Id : 7108701338 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following crop plants exhibits stable carbon isotope discrimination value of about - 28 ‰?

1. Sugarcane
2. Rice
3. Amaranthus
4. Finger millet (Ragi)

**Options :**

7108705349. 1  
7108705350. 2  
7108705351. 3  
7108705352. 4

**Question Number : 79 Question Id : 7108701339 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

During germination of barley seeds, gibberellins are synthesized in:

1. Endosperm
2. Aleurone layer
3. Embryo
4. Scutellum

**Options :**

- 7108705353. 1
- 7108705354. 2
- 7108705355. 3
- 7108705356. 4

**Question Number : 80 Question Id : 7108701340 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following instruments can be used to record photosynthetic gas exchange parameters and transpiration in a non-invasive way?

1. Spectro-radiometer
2. Spectrophotometer
3. Infra-red gas analyzer
4. Isotope-ratio mass spectrometer

**Options :**

- 7108705357. 1
- 7108705358. 2
- 7108705359. 3
- 7108705360. 4

**Question Number : 81 Question Id : 7108701341 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following gene activities is crucial for the maintenance of apical meristem activity in plants?

1. PGP-1
2. PIN-3
3. MONOPTEROS (MP)
4. WUSCHEL (WUS)

**Options :**

- 7108705361. 1
- 7108705362. 2
- 7108705363. 3
- 7108705364. 4

**Question Number : 82 Question Id : 7108701342 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following is used as a herbicide that induces excessive cell expansion and subsequent plant death?

1. Indole-3-acetic acid
2. 2-Methoxy-3-6-dichlorobenzoic acid
3. Indole-3-butyric acid
4. 4-Chloroindole-3-acetic acid

**Options :**

- 7108705365. 1
- 7108705366. 2
- 7108705367. 3
- 7108705368. 4

**Question Number : 83 Question Id : 7108701343 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



Which one of the following chemicals is used to increase the shelf-life of cut flowers?

1. 2-Chloroethyl phosphonic acid
2. 1-Methylcyclopropene
3. 2,4-Dichlorophenoxyacetic acid
4. Thidiazuron

**Options :**

7108705369. 1  
7108705370. 2  
7108705371. 3  
7108705372. 4

**Question Number : 84 Question Id : 7108701344 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The seed coat and embryo can cause dormancy. Embryo dormancy could be due to:

1. Decrease in the ratio of ABA:GA
2. increase in the ratio of ABA:GA
3. Increase in the ratio of  $C_2H_4$ :GA
4. Increase in the ratio of  $C_2H_4$ : ABA

**Options :**

7108705373. 1  
7108705374. 2  
7108705375. 3  
7108705376. 4

**Question Number : 85 Question Id : 7108701345 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

In maize, several viviparous mutants (vp) have been identified in which the seeds germinate directly on the cob. These mutants are deficient in:

1. Cytokinin
2. Ethylene
3. ABA
4. GA

**Options :**

7108705377. 1  
7108705378. 2  
7108705379. 3  
7108705380. 4

**Question Number : 86 Question Id : 7108701346 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

In plants, oxidation of ABA yields:

1. ABA- $\beta$ -D-glucosyl esters
2. Phaseic acid
3. ABA-aldehyde
4. Xanthoxal

**Options :**

7108705381. 1  
7108705382. 2  
7108705383. 3  
7108705384. 4

**Question Number : 87 Question Id : 7108701347 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Commonly accumulated compatible solutes during osmotic adjustments in plants, under drought stress are:

1. Serine and Cysteine
2. Proline and Coumaric acid
3. Proline and sugar alcohols
4. Abscisic acid and Ethylene

**Options :**

- 7108705385. 1
- 7108705386. 2
- 7108705387. 3
- 7108705388. 4

**Question Number : 88 Question Id : 7108701348 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

In the citric acid cycle, pyruvate is completely oxidized to CO<sub>2</sub> in:

1. Cytosol
2. Stroma of plastids
3. Mitochondrial matrix
4. Inner membrane of mitochondria

**Options :**

- 7108705389. 1
- 7108705390. 2
- 7108705391. 3
- 7108705392. 4

**Question Number : 89 Question Id : 7108701349 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



Two major growth parameters used for crop growth analysis are:

1. Plant height and biomass
2. Leaf area and biomass
3. Grain yield and total biomass
4. Plant height and leaf area

**Options :**

- 7108705393. 1
- 7108705394. 2
- 7108705395. 3
- 7108705396. 4

**Question Number : 90 Question Id : 7108701350 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following is considered as a reactive oxygen species that can serve as a secondary messenger in plants?

1.  $H_2O_2$
2.  $H_2O$
3. CO
4.  $CO_2$

**Options :**

- 7108705397. 1
- 7108705398. 2
- 7108705399. 3
- 7108705400. 4

**Question Number : 91 Question Id : 7108701351 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The receptor responsible for brassinosteroid signaling in plants is:

1. BRI-1
2. BIN2
3. BES-1
4. BZR1

**Options :**

- 7108705401. 1
- 7108705402. 2
- 7108705403. 3
- 7108705404. 4

**Question Number : 92 Question Id : 7108701352 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

In rice plants, under wetland conditions, cells are separated by gas-filled spaces to form special tissue called:

1. Hydathodes
2. Aerenchyma
3. Casparian strip
4. Laticiferous tissue

**Options :**

- 7108705405. 1
- 7108705406. 2
- 7108705407. 3
- 7108705408. 4

**Question Number : 93 Question Id : 7108701353 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The ability of any sink to mobilize metabolites is referred to as "sink strength", and the two major factors regulating sink strength are

1. Source size and phloem loading
2. Source activity and phloem un-loading
3. Sink size and sink activity
4. Source size and phloem un-loading

**Options :**

- 7108705409. 1
- 7108705410. 2
- 7108705411. 3
- 7108705412. 4

**Question Number : 94 Question Id : 7108701354 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The "pressure flow" model for phloem transport was proposed by:

1. J. A. Bassham
2. A. Benson
3. Ernst Münch
4. Epstein

**Options :**

- 7108705413. 1
- 7108705414. 2
- 7108705415. 3
- 7108705416. 4

**Question Number : 95 Question Id : 7108701355 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



Dwarf mutants of rice are defective in their abilities to degrade which one of the following proteins, in the presence of GA?

1. GA-20 oxidase protein
2. DELLA-domain protein
3. F-box protein
4. Di-oxygenase protein

**Options :**

- 7108705417. 1
- 7108705418. 2
- 7108705419. 3
- 7108705420. 4

**Question Number : 96 Question Id : 7108701356 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Reduction in quantum yield in  $C_3$  plants with an increase in leaf temperature is due to:

1. Increase in dark respiration
2. Increase in photo-respiration
3. Increase in transpiration
4. Reduction in light absorption

**Options :**

- 7108705421. 1
- 7108705422. 2
- 7108705423. 3
- 7108705424. 4

**Question Number : 97 Question Id : 7108701357 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Match **List I** with **List II**

List I	List II
A. Protein degradation	I. Chaperones
B. Protein phosphorylation	II. Aquaporins
C. Protein folding	III. Protein kinase
D. Membrane water potential	IV. Ubiquitin

Choose the **correct** answer from the options given below:

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

**Options :**

- 7108705425. 1
- 7108705426. 2
- 7108705427. 3
- 7108705428. 4

**Question Number : 98 Question Id : 7108701358 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Top senescence is seen in

1. Rice
2. Sunflower
3. Ginger
4. Ficus

**Options :**

- 7108705429. 1
- 7108705430. 2
- 7108705431. 3

7108705432. 4

**Question Number : 99 Question Id : 7108701359 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Bamboo is an example of

1. Polycarpic perennial
2. Monocarpic annual
3. Monocarpic perennial
4. Polycarpic annual

**Options :**

- 7108705433. 1
- 7108705434. 2
- 7108705435. 3
- 7108705436. 4

**Question Number : 100 Question Id : 7108701360 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The organelles involved in photorespiration are

1. Vacuole, Chloroplast and Mitochondria
2. Chloroplast, Peroxisome and Mitochondria
3. Chloroplast, Oleosome and Mitochondria
4. Glyoxysome, Chloroplast and Mitochondria

**Options :**

- 7108705437. 1
- 7108705438. 2
- 7108705439. 3
- 7108705440. 4



**Question Number : 101 Question Id : 7108701361 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Movement of two substances in the same direction through the plasma-membrane is termed as

1. Proton motive force
2. Active transport
3. Symport
4. Antiport

**Options :**

- 7108705441. 1
- 7108705442. 2
- 7108705443. 3
- 7108705444. 4

**Question Number : 102 Question Id : 7108701362 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The reaction " $\text{NO}_3^- + \text{NADPH} + \text{H}^+ + 2\text{e}^- \rightarrow \text{NO}_2^- + \text{NADP}^+ + \text{H}_2\text{O}$ " is catalyzed by

1. Nitrite reductase
2. Nitrate reductase
3. Glutamine Synthetase
4. Glutamate Synthase

**Options :**

- 7108705445. 1
- 7108705446. 2
- 7108705447. 3
- 7108705448. 4

**Question Number : 103 Question Id : 7108701363 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Mitochondrial electron transport chain catalyzes the flow of electrons from NADH to O<sub>2</sub>. The ideal sequence of electron flow would be

1. Complex I → Ubiquinone → Complex III → Complex IV → O<sub>2</sub>
2. Complex I → Complex II → Complex III → O<sub>2</sub>
3. Complex I → Ubiquinone → Complex II → Complex IV → O<sub>2</sub>
4. Complex I → Complex II → Complex III → Complex IV → O<sub>2</sub>

**Options :**

- 7108705449. 1
- 7108705450. 2
- 7108705451. 3
- 7108705452. 4

**Question Number : 104 Question Id : 7108701364 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The most widespread group of flavonoids which is responsible for diverse colours observed in plant parts is:

1. Terpenes
2. Anthocyanin
3. Phenolic compounds
4. Pyrethroids

**Options :**

- 7108705453. 1
- 7108705454. 2
- 7108705455. 3
- 7108705456. 4

**Question Number : 105 Question Id : 7108701365 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**



**Correct Marks : 4 Wrong Marks : 1**

Signal or a single encounter with a pathogen can increase the resistance to future infection, and this phenomenon is termed as:

1. Programmed Cell Death (PCD)
2. Hypersensitive Response (HR)
3. Systemic Acquired Resistance (SAR)
4. Apoptosis

**Options :**

- 7108705457. 1
- 7108705458. 2
- 7108705459. 3
- 7108705460. 4

**Question Number : 106 Question Id : 7108701366 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following is the first stage of embryogenesis?

1. Globular stage
2. Zygotic stage
3. Heart stage
4. Torpedo stage

**Options :**

- 7108705461. 1
- 7108705462. 2
- 7108705463. 3
- 7108705464. 4

**Question Number : 107 Question Id : 7108701367 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



The physiologically active form of phytochrome is:

1. P<sub>fr</sub>- form without Apoprotein
2. P<sub>r</sub>-form without Apoprotein
3. P<sub>r</sub>-form
4. P<sub>fr</sub>-form

**Options :**

- 7108705465. 1
- 7108705466. 2
- 7108705467. 3
- 7108705468. 4

**Question Number : 108 Question Id : 7108701368 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The genes that controls floral organ identity are:

1. Flowering locus genes
2. Homeotic genes
3. GAMYB genes
4. SOCI genes

**Options :**

- 7108705469. 1
- 7108705470. 2
- 7108705471. 3
- 7108705472. 4

**Question Number : 109 Question Id : 7108701369 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following hormones can promote fruit set and parthenocarpy, sometimes even when auxin has no effect?

1. Ethylene
2. GA<sub>3</sub>
3. Cytokinin
4. IBA

**Options :**

7108705473. 1  
7108705474. 2  
7108705475. 3  
7108705476. 4

**Question Number : 110 Question Id : 7108701370 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following is NOT a receptor of cytokinin?

1. AHP
2. CRE-1
3. ARR
4. HPT

**Options :**

7108705477. 1  
7108705478. 2  
7108705479. 3  
7108705480. 4

**Question Number : 111 Question Id : 7108701371 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

*Agrobacterium tumefaciens* transformed plant cells/tumour cells can be cultured independently in the absence of hormones because

1. Transformed cells produce required hormones
2. *Agrobacterium* produces required hormones
3. *Agrobacterium* produces required hormones analogues
4. *Agrobacterium* produces opines

**Options :**

- 7108705481. 1
- 7108705482. 2
- 7108705483. 3
- 7108705484. 4

**Question Number : 112 Question Id : 7108701372 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

During photosynthesis, the major points of resistance to the diffusion of CO<sub>2</sub> from outside the leaf to the site of carboxylation are:

1. Boundary layer resistance; stomatal resistance; liquid phase resistance
2. Boundary layer resistance and vascular resistance
3. Stomatal resistance and xylem resistance
4. Intercellular space resistance and vascular resistance

**Options :**

- 7108705485. 1
- 7108705486. 2
- 7108705487. 3
- 7108705488. 4

**Question Number : 113 Question Id : 7108701373 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



The two important parameters required for the assimilation of harvest index in rice are:

1. Leaf area and total biomass
2. Shoot biomass and root biomass
3. Grain yield and total biomass
4. Grain yield and leaf area

**Options :**

- 7108705489. 1
- 7108705490. 2
- 7108705491. 3
- 7108705492. 4

**Question Number : 114 Question Id : 7108701374 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following genes is associated with ion homeostasis during salinity stress in crop plants?

1. HSP70
2. NHX
3. LEA
4. DREB/CBF

**Options :**

- 7108705493. 1
- 7108705494. 2
- 7108705495. 3
- 7108705496. 4

**Question Number : 115 Question Id : 7108701375 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following bio-assays is used to detect/quantify Brassinosteroids?

1. Dwarf rice stem elongation bio-assay
2. Dwarf rice lamina inclination bio-assay
3. Tobacco callus growth bio-assay
4. Coleoptile elongation bioassay

**Options :**

- 7108705497. 1
- 7108705498. 2
- 7108705499. 3
- 7108705500. 4

**Question Number : 116 Question Id : 7108701376 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

The chemical used to reduce stem length and lodging in cereal crops is:

1. Ethrel
2. Cycocel
3. TIBA
4. NAA

**Options :**

- 7108705501. 1
- 7108705502. 2
- 7108705503. 3
- 7108705504. 4

**Question Number : 117 Question Id : 7108701377 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

Which one of the following receptor is NOT an ethylene receptor?

1. ETR1
2. ERS1
3. EIN4
4. ERF1

**Options :**

7108705505. 1  
7108705506. 2  
7108705507. 3  
7108705508. 4

**Question Number : 118 Question Id : 7108701378 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**

A typical Crassulacean Acid Metabolism (CAM) family plant loses

1. 50-100g of H<sub>2</sub>O for every gram of CO<sub>2</sub> fixed
2. 250-300g of H<sub>2</sub>O for every gram of CO<sub>2</sub> fixed
3. 400-500g of H<sub>2</sub>O for every gram of CO<sub>2</sub> fixed
4. 500-800g of H<sub>2</sub>O for every gram of CO<sub>2</sub> fixed

**Options :**

7108705509. 1  
7108705510. 2  
7108705511. 3  
7108705512. 4

**Question Number : 119 Question Id : 7108701379 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 4 Wrong Marks : 1**



Various metabolic processes in plants cycle alternatively go through high- and low-activity phases with a regular periodicity of 24 hours. Which one of the following protein/gene is associated with this type of process?

1. Phytochrome-interacting factor (PIFs)
2. Circadian clock-associated 1 (CCA1)
3. Plethora (PLT)
4. Scarecrow (SCR)

**Options :**

7108705513. 1  
7108705514. 2  
7108705515. 3  
7108705516. 4

**Question Number : 120 Question Id : 7108701380 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Match **List I** with **List II**

List I	List II
A. Nitrogen	I. Constituent of cytochromes (Group 4)
B. Potassium	II. Component of sugar-phosphate (Group 2)
C. Phosphorus	III. Constituent of amino acids (Group 1)
D. Iron	IV. Ion in establishing turgor (Group 3)

Choose the **correct** answer from the options given below

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

**Options :**

7108705517. 1

7108705518. 2

7108705519. 3

7108705520. 4