

PREVIEW QUESTION BANK

Module Name : PLANT BIOTECHNOLOGY-ENG
Exam Date : 14-Jul-2023 Batch : 10:00-12:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	101	<p>Which one of the following monounsaturated fatty acids is not an omega-9 (ω-9) fatty acid?</p> <ol style="list-style-type: none"> 1. Palmitoleic acid (C16:1, Δ^9) 2. Erucic acid (C22:1, Δ^{13}) 3. Elaidic acid (C18:1, Δ^9) 4. Nervonic acid (C24:1, Δ^{15}) <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
2	102	<p>The decreasing order of the numerical values of Molar Extinction Coefficient of following amino acids at 280 nm is:</p> <p>(A). Cysteine</p> <p>(B). Phenylalanine</p> <p>(C). Tyrosine</p> <p>(D). Tryptophan</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (D), (C), (A), (B). 2. (B), (C), (D), (A). 3. (C), (D), (B), (A). 4. (D), (B), (C), (A). <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
3	103		4.0	1.00

Equal volumes of 0.1 M acetic acid and 0.1 M sodium acetate are mixed to form a buffer solution. Considering that the ionization of acetic acid is occurring at dissociation constant of 1.74×10^{-5} , what will be its pKa value? (Given: $\log 1.74 = 0.24$)

1. 5.24
2. 4.76
3. 0.024
4. 0.5

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

4 104

4.0 1.00

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) : The fluorescence of Green Fluorescent Protein (GFP) occurs without the assistance of any helper molecule or prosthetic group.

Reason (R) : Three amino acids-serine, tyrosine and glycine- in the sequence of GFP react between themselves to form a chromophore that imparts light-transducing capability to GFP

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

5 105

4.0 1.00

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

List-I	List-II
Sugar Alcohol	Use/Property
(A). Sorbitol	(I). Constituent of flavin coenzymes
(B). <i>myo</i> -Inositol	(II). Used as a laxative to relieve constipation
(C). Ribitol	(III). Most commonly used osmotic diuretic
(D). Mannitol	(IV). Cyclic sugar alcohol

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

- (A) - (I), (B) - (III), (C) - (II), (D) - (IV)
- (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
- (A) - (II), (B) - (IV), (C) - (I), (D) - (III)
- (A) - (I), (B) - (IV), (C) - (II), (D) - (III)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

6 106

4.0 1.00

The molarity of a buffer solution made up from a weak acid and its conjugate base would be equal to:

- Molar concentration of weak acid only.
- Molar concentration of the conjugate base of the weak acid.
- Sum of the molar concentration of both the weak acid and its conjugate base.
- Net value obtained after deducting the molar concentration of conjugate base from the concentration of weak acid.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

7 107

4.0 1.00

Which of the following patterns is true about the relationship between three pKa values of triprotic phosphoric acid?

- $pK_{a1} < pK_{a2} < pK_{a3}$
- $pK_{a1} > pK_{a2} > pK_{a3}$
- $pK_{a1} = pK_{a2} = pK_{a3}$
- $pK_{a3} = (pK_{a1} + pK_{a2})/2$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

8	108	<p>Which of the following enzymes of Glycolytic pathway has achieved the catalytic perfection in the sense that any increase in its catalytic efficiency would not increase the rate of reaction catalysed by it?</p> <ol style="list-style-type: none"> 1. Hexokinase 2. Pyruvate kinase 3. Triose phosphate isomerase 4. Phosphofructokinase <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

9	109	<p>Non-GM herbicide tolerant rice varieties viz. PB 1979 and PB 1985 have been developed by mutating gene encoding for which one of the following enzymes?</p> <ol style="list-style-type: none"> 1. Acetolactate synthase 2. Glutamine synthetase 3. 5-Enolpyruvylshikimate-3-phosphate (EPSP) synthase 4. Acetoacetate synthase <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

10	110		4.0	1.00
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Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) : Carbohydrates are more efficient storage form of the energy as compared to the triacylglycerols.

Reason (R) : Carbohydrates are more oxidized and hence yield more energy on oxidation.

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. Both (A) and (R) are false.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

11	111	<p>Match List-I with List-II</p> <table border="1"> <thead> <tr> <th>List-I</th> <th>List-II</th> </tr> </thead> <tbody> <tr> <td>Form of the DNA</td> <td>Occurance</td> </tr> <tr> <td>(A). B-DNA</td> <td>(I). Observed <i>in vitro</i> when DNA helix becomes desiccated.</td> </tr> <tr> <td>(B). A-DNA</td> <td>(II). The most common form of DNA found <i>in vivo</i>.</td> </tr> <tr> <td>(C). Z-DNA</td> <td>(III). Triple helical structure formed by polypurine-polypyrimidine stretch of DNA with mirror-repeat symmetry.</td> </tr> <tr> <td>(D). H-DNA</td> <td>(IV). adopted under high salinity conditions in short sequences that alternate pyrimidine and purine.</td> </tr> </tbody> </table> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A) - (II), (B) - (III), (C) - (I), (D) - (IV) 2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV) 3. (A) - (II), (B) - (I), (C) - (IV), (D) - (III) 4. (A) - (II), (B) - (IV), (C) - (I), (D) - (III) <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	List-I	List-II	Form of the DNA	Occurance	(A). B-DNA	(I). Observed <i>in vitro</i> when DNA helix becomes desiccated.	(B). A-DNA	(II). The most common form of DNA found <i>in vivo</i> .	(C). Z-DNA	(III). Triple helical structure formed by polypurine-polypyrimidine stretch of DNA with mirror-repeat symmetry.	(D). H-DNA	(IV). adopted under high salinity conditions in short sequences that alternate pyrimidine and purine.	4.0	1.00
List-I	List-II															
Form of the DNA	Occurance															
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Objective Question

12	112		4.0	1.00
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The absorbance of a solution of an analyte having 75% transmittance would be equal to (Given $\log 5 = 0.6990$ and $\log 3 = 0.4771$):

1. 0.75
2. 0.25
3. 0.125
4. 0.0625

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

13	113	<p>The "Van Deemter equation" describes the elements of band broadening and chromatographic column efficiency in terms of</p> <p>(A). Eddy diffusion of analyte in the column</p> <p>(B). Longitudinal diffusion of analyte in the column</p> <p>(C). Mass transfer of analyte between stationary and mobile phase</p> <p>(D). Flow rate</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A), (B) and (D) only. 2. (A), (B) and (C) only. 3. (A), (B), (C) and (D). 4. (C) and (D) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

14	114		4.0	1.00
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Match **List-I** with **List-II**

List-I	List-II
Name of the Photorespiratory C₂ cycle enzyme	Location of the enzyme
(A). Glycolate oxidase	(I). Mitochondria
(B). Glycine decarboxylase	(II). Peroxisome
(C). Glycerate kinase	(III). Cytosol
(D). NADPH-dependent hydroxypyruvate reductase 2	(IV). Chloroplast

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

- (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
- (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
- (A) - (III), (B) - (I), (C) - (IV), (D) - (III)
- (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

15	115	<p>Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : In the secondary structure of proteins, the parallel β-pleated sheets are less stable than antiparallel β-pleated sheets.</p> <p>Reason (R) : The hydrogen bonds of parallel β-pleated sheets are distorted in comparison to those of antiparallel β-pleated sheets.</p> <p>In light of the above statements, choose the <i>correct</i> answer from the options given below.</p> <ol style="list-style-type: none"> Both (A) and (R) are true and (R) is the correct explanation of (A). Both (A) and (R) are true but (R) is NOT the correct explanation of (A). (A) is true but (R) is false. (A) is false but (R) is true. 	4.0	1.00
		<p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>		

Objective Question

16	116		4.0	1.00
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The sequence for the action of the following enzymes of fatty acid β -oxidation pathway is:

(A). β -hydroxyacyl-CoA dehydrogenase

(B). Thiolase

(C). Enoyl CoA hydratase

(D). Acyl CoA – dehydrogenase

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

1. (A), (B), (C), (D).

2. (B), (C), (A), (D).

3. (D), (C), (A), (B).

4. (C), (B), (D), (A).

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

17 117

When two phosphatidyl glycerol moieties join with each other with the elimination of one glycerol molecule, the resulting phospholipid formed is:

1. Cardiolipin
2. Cephalin
3. Ceramide
4. Ganglioside

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0

1.00

Objective Question

18 118

Fructans are polymers of fructose built upon which one of the following starter units?

1. Glucose
2. Galactose
3. Sucrose
4. Trehalose

A1 : 1

A2 : 2

A3 : 3

4.0

1.00

A4 : 4

Objective Question

19	119	<p>Which of the following enzymes contain an unusual amino acid viz. selenocysteine, at its active site?</p> <ol style="list-style-type: none"> 1. Ascorbate peroxidase 2. Glutathione peroxidase 3. Superoxide dismutase 4. Catalase <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

20	120	<p>Match List-I with List-II</p> <table border="1"> <thead> <tr> <th>List-I</th> <th>List-II</th> </tr> <tr> <th>Name of the enzyme</th> <th>Cofactor</th> </tr> </thead> <tbody> <tr> <td>(A). Nitrogenase</td> <td>(I). Siroheme</td> </tr> <tr> <td>(B). Nitrite reductase</td> <td>(II). Homocitrate</td> </tr> <tr> <td>(C). Serine hydroxymethyl transferase</td> <td>(III). Pyridoxal phosphate</td> </tr> <tr> <td>(D). Acetyl CoA carboxylase</td> <td>(IV). Biotin</td> </tr> </tbody> </table> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A) - (I), (B) - (II), (C) - (IV), (D) - (III) 2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV) 3. (A) - (III), (B) - (II), (C) - (IV), (D) - (I) 4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II) <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	List-I	List-II	Name of the enzyme	Cofactor	(A). Nitrogenase	(I). Siroheme	(B). Nitrite reductase	(II). Homocitrate	(C). Serine hydroxymethyl transferase	(III). Pyridoxal phosphate	(D). Acetyl CoA carboxylase	(IV). Biotin	4.0	1.00
List-I	List-II															
Name of the enzyme	Cofactor															
(A). Nitrogenase	(I). Siroheme															
(B). Nitrite reductase	(II). Homocitrate															
(C). Serine hydroxymethyl transferase	(III). Pyridoxal phosphate															
(D). Acetyl CoA carboxylase	(IV). Biotin															

Objective Question

21	121		4.0	1.00
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Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) : The citric acid cycle is amphibolic in nature rather than only catabolic.

Reason (R) : Several biosynthetic pathways utilize citric acid cycle intermediates as precursors for the synthesis of important products.

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

22	122	<p>The correct sequence for the flow of electrons between following components of mitochondrial electron transport chain is:</p> <p>(A). NADH dehydrogenase</p> <p>(B). Cytochrome bc_1 complex</p> <p>(C). Ubiquinone</p> <p>(D). Cytochrome C</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A), (B), (C), (D). 2. (A), (C), (B), (D). 3. (B), (A), (D), (C). 4. (C), (B), (D), (A). <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

23	123		4.0	1.00
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Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) : In the early part of the twentieth century, the 2,4-Dinitrophenol (DNP) was prescribed as a "diet pill" for weight loss.

Reason (R) : The DNP reduces metabolic rate by uncoupling oxidative phosphorylation from electron transport .

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

24	124	<p>Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).</p> <p>Assertion (A) : The nitrogenase enzyme is considered to be a sluggish and inefficient enzyme.</p> <p>Reason (R) : The nitrogenase enzyme must go through several catalytic reduction cycles, wherein the two components of the nitrogenase viz. Fe-Protein and MoFe-Protein get dissociated from each other following each electron transfer, before final product i.e. ammonia appears.</p> <p>In light of the above statements, choose the <i>correct</i> answer from the options given below.</p> <ol style="list-style-type: none"> 1. Both (A) and (R) are true and (R) is the correct explanation of (A). 2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A). 3. (A) is true but (R) is false. 4. (A) is false but (R) is true. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

25	125		4.0	1.00
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Match **List-I** with **List-II**

List-I	List-II
Reductive Reaction	Number of electrons needed
(A). Conversion of nitrogen into one molecule each of ammonia and hydrogen	(I). Six
(B). Reduction of nitrate ion into hydrazine	(II). Two
(C). Reduction of nitrate ion to nitrite ion	(III). Eight
(D). Reduction of sulfite to sulfide	(IV). Seven

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

- (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
- (A) - (III), (B) - (II), (C) - (I), (D) - (IV)
- (A) - (III), (B) - (IV), (C) - (II), (D) - (I)
- (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

26 126

4.0 1.00

Reading 5' → 3', the sequence of following loops present in the clover leaf structure of t-RNA would be

- Anticodon loop
- D-Loop
- T ψ C loop
- Variable loop

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

- (B), (A), (C), (D).
- (A), (B), (C), (D).
- (B), (A), (D), (C).
- (B), (D), (A), (C).

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

27 127

4.0 1.00

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

List-I	List-II
Substrate concentration in comparison to Michaelis-Menton constant (K_m)/ Total enzyme concentration (E_T)	Reaction characteristics
(A). $[S] \ll K_m$	(I). Reaction follows zero-order kinetics
(B). $[S] \gg K_m$	(II). Reaction obeys first order kinetics
(C). $[S] = K_m$	(III). K_m and V_{max} do not define enzyme catalyzed reactions
(D). $[S] < [E_T]$	(IV). Rate of reaction (velocity) equals to one-half of the maximum velocity.

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

- (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
- (A) - (III), (B) - (II), (C) - (I), (D) - (IV)
- (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
- (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

28 128

4.0 1.00

Which of the following statement(s) is/are true about the Type IV isozyme of the hexokinase?

- (A). It is highly specific for glucose and is thus often called as glucokinase.
- (B). It has much higher K_m value for glucose
- (C). It is allosterically inhibited by glucose-6-phosphate
- (D). It is a non-inducible enzyme and follows Michaelis-Menten Kinetics

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

- (A), (B) and (D) only.
- (A) and (B) only.
- (A), (C) and (D) only.
- (A) and (D) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

29	129	<p>Which of the following statement(s) is/are true about the role of Malonyl CoA in fatty acid metabolism?</p> <p>(A). It is an inhibitor of the enzyme "Carnitine acyltransferase"</p> <p>(B). High levels of malonyl CoA suppress fatty acid entry into the mitochondria</p> <p>(C). High levels of malonyl CoA lead to reduced flux of fatty acids towards triglycerides' biosynthesis</p> <p>(D). Low levels of malonyl CoA favour fatty acid oxidation</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none">1. (A), (B) and (D) only.2. (A), (B) and (C) only.3. (A), (B), (C) and (D).4. (B), (C) and (D) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

30	130	<p>Which of the following statements are true about the bundle sheath cells of C₄ plants?</p> <p>(A). In comparison to mesophyll cells, they contain large number of agranal chloroplasts</p> <p>(B). They have very thin cell wall, as compared to mesophyll cells, to facilitate gaseous exchange</p> <p>(C). They have no intercellular spaces between them</p> <p>(D). They generate less/no oxygen because of the low activity/lack of photosystem II</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none">1. (A), (B) and (D) only.2. (A), (C) and (D) only.3. (B), (C) and (D) only.4. (A), (B) and (C) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

31	131		4.0	1.00
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Which of the following phosphate is removed from the incoming nucleotide during the bacterial transcription?

1. alpha
2. gamma
3. 5 prime
4. 3 prime

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

32 132 4.0 1.00

Which of the following is not related with termination of transcription in E. coli?

1. ppGpp
2. pppGpp
3. Alarmones
4. pGp

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

33 133 4.0 1.00

Which of the following is/are true for B-DNA?

- (A). It is Right-handed
- (B). It has 10.4 base pairs per turn of helix
- (C). It's helix diameter is broadest among A and Z type
- (D). The glycosidic bond is of anti type

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

34	134	<p>Which of the following cellular structure found in all prokaryotes?</p> <p>(A). Ribosome</p> <p>(B). Capsules</p> <p>(C). Flagellum</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A), (B) and (C). 2. (A) only. 3. (B) only. 4. (C) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

35	135	<p>Which of the following cellular structure is found only in a plant cells?</p> <ol style="list-style-type: none"> 1. Glyoxysomes 2. Vacuoles 3. Lysosomes 4. Cytoskeleton <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

36	136	<p>Which of the following can add the terminal 5'CCA3' at the end of mature tRNA?</p> <ol style="list-style-type: none"> 1. tRNA nucleotidyltransferase 2. RNase D 3. RNase P 4. RNase E/F <p>A1 : 1</p>	4.0	1.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

37 137

4.0

1.00

What are Twintrons?

1. Group II introns
2. Group III introns
3. Composite structure made up of two or more Group II and Group III introns
4. An archaeal introns

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

38 138

4.0

1.00

Which of the following restriction endonuclease requires Mg^{2+} for cleavage?

1. EcoK
2. EcoRI
3. EcoB
4. EcoP1

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

39 139

4.0

1.00

Which of the following is the activity of alkaline phosphatase?

1. Addition of $5' -PO_4^-$
2. Removal of $5' -PO_4^-$
3. Removal of nucleotides from $3' -ends$
4. Removal of single-strand protrusions from the end

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

40	140	Which of the following vector can be used for obtaining single-strand copies of a cloned sequence? 1. pUC18 2. Cosmid 3. λ phage 4. Phage M13 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

41	141	Which of the following is an example of scorable marker? 1. Ampicillin 2. β -galacturonidase 3. Kanamycin 4. Neomycin A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

42	142	Which of the following cannot be used for confirmation of positive clones? 1. Colony hybridization 2. Colony PCR 3. Growing transformants on selection media 4. Growing transformants under low temperature A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

43	143	<p>Probes are not used in</p> <ol style="list-style-type: none"> 1. Southern hybridization 2. Northern hybridization 3. RT-PCR 4. Colony hybridization <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

44	144	<p>A progeny drosophila with grey body and vestigial wings derived from a cross between parents with grey body and normal wings with black body and vestigial wings indicate:</p> <p>(A). There is recombination between alleles of body color and types of wings of drosophila</p> <p>(B). These two genes assort independently</p> <p>(C). These genes are linked together</p> <p>(D). These genes are pleiotropic in nature</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A), and (C) only. 2. (A), (B) and (C) only. 3. (A), (B), (C) and (D). 4. (B) and (C) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

45	145	<p>Which of the following database do not store nucleic acid data?</p> <ol style="list-style-type: none"> 1. GenBank 2. EMBL 3. DDBJ 4. SWISS-PROT <p>A1 : 1</p>	4.0	1.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

46	146	<p>Hormones that are to be used in tissue culture can be sterilized by</p> <ol style="list-style-type: none"> 1. Autoclave 2. Flame sterilization 3. Air (HEPA) filtration 4. Filter sterilization <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

47	147	<p>The expression of an anti-nutritional factor/negative regulator can be eliminated by which of the following tools</p> <p>(A). RNA interference</p> <p>(B). Genome editing</p> <p>(C). Over-expression of encoding gene</p> <p>(D). Insertional mutagenesis</p> <p>(E). TILLING</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A), (B), (C) and (D) only. 2. (A), (C), (D), and (E) only. 3. (B), (C), (D), and (E) only. 4. (A), (B), (D) and (E) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

48	148		4.0	1.00
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Which of the following is correct statement for Genetic Code:

- (A). It uses ribonucleotide bases to make a codon.
- (B). It uses deoxyribonucleotide bases to make a codon.
- (C). A single coding dictionary is used by almost all viruses, prokaryotes, archaea, and eukaryotes
- (D). During translation, the codons are read one after the other with no breaks between them until a stop signal is found.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

49 149

4.0 1.00

Which of the following statement is/are correct with respect to bacterial transduction

Statement (A) : A partially diploid bacterial cell for the transduced gene can be produced.

Statement (B) : The partial diploid case is resulted due to a complete transduction phenomenon

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

50 150

4.0 1.00

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

List-I	List-II
(A). Isolation of CDS	(I). Affinity column with oligo-dT
(B). Isolation of plasmid	(II). Genomic library
(C). Isolation of mRNA	(III). Alkaline lysis
(D). Separation of proteins	(IV). Gel electrophoresis
	(V). cDNA library

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

- (A) - (V), (B) - (III), (C) - (I), (D) - (IV)
- (A) - (IV), (B) - V, (C) - I, (D) - (II)
- (A) - (II), (B) - (IV), (C) - (III), (D) - I
- (A) - I, (B) - V, (C) - III, (D) - II

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

51 151

4.0 1.00

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

List-I	List-II
(A). Amplification of a known DNA sequence	(I). RT-PCR
(B). Amplification of cDNA sequence	(II). Competent Cells
(C). Selection of transformed cells	(III). PCR
(D). CaCl ₂	(IV). Colony PCR
	(V). Plasmid isolation

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

- (A) - (I), (B) - (V), (C) - (II), (D) - (IV)
- (A) - (V), (B) - (IV), (C) - (I), (D) - (III)
- (A) - (III), (B) - (I), (C) - (IV), (D) - (II)
- (A) - (II), (B) - (III), (C) - (IV), (D) - (V)

A1 : 1

A2 : 2

A3 : 3

		A4 : 4		
Objective Question				
52	152	<p>Which of the following statement is/are correct:</p> <p>Statement (A) : Expressed sequence tags are short sequences obtained by sequencing of cDNA clones.</p> <p>Reason (B) : ESTs can be used as STS.</p> <p>In light of the above statements, choose the <i>most appropriate</i> answer from the options given below .</p> <ol style="list-style-type: none"> 1. Both (A) and (B) are correct. 2. Both (A) and (B) are incorrect. 3. Only (A) is correct but (B) is incorrect. 4. Only (B) is correct but (A) is incorrect. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
53	153	<p>Which of the following hormone is preferred for rooting in plant tissue culture?</p> <p>(A). IAA</p> <p>(B). BAP</p> <p>(C). Kinetin</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A) only. 2. (B) only. 3. (C) only. 4. (A), (B) and (C). <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
54	154	<p>Where is the Indian Institute of Agricultural Biotechnology located in India?</p> <ol style="list-style-type: none"> 1. Ranchi 2. New Delhi 3. Hyderabad 4. Bangalore 	4.0	1.00

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

55	155	<p>What is the correct extended form of GEAC?</p> <ol style="list-style-type: none"> 1. Genetic & Epigenetic Advanced Centre 2. Genetic Engineering Appraisal Committee 3. Genome Editing Approval Committee 4. Genome Engineering Approval Committee <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

56	156	<p>Centrioles are present in the cytoplasm of the cells of the organism</p> <ol style="list-style-type: none"> 1. Animal cell 2. Plant Cell 3. Fungi 4. <i>E. coli</i> <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

57	157	<p>PCR based DNA amplification is an essential feature of which of the following combination of molecular markers</p> <ol style="list-style-type: none"> 1. RFLP, AFLP and SSR 2. RFLP, RAPD and SSR 3. AFLP, SSR and RAPD 4. RAPD, RFLP and SSR <p>A1 : 1</p>	4.0	1.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

58	158	<p>Match List-I with List-II</p> <table border="1"> <thead> <tr> <th>List-I</th> <th>List-II</th> </tr> </thead> <tbody> <tr> <td>(A). Alec Jeffery</td> <td>(I). Reverse transcriptase</td> </tr> <tr> <td>(B). Temin and Baltimore</td> <td>(II). PCR</td> </tr> <tr> <td>(C). F. Griffith</td> <td>(III). DNA finger printing</td> </tr> <tr> <td>(D). Karry Mulli</td> <td>(IV).Transformation in Bacteria</td> </tr> </tbody> </table> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> (A) - (IV), (B) - (II), (C) - (I), (D) - (III) (A) - (III), (B) - (IV), (C) - (I), (D) - (II) (A) - (I), (B) - (III), (C) - (IV), (D) - (II) (A) - (III), (B) - (I), (C) - (IV), (D) - (II) <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	List-I	List-II	(A). Alec Jeffery	(I). Reverse transcriptase	(B). Temin and Baltimore	(II). PCR	(C). F. Griffith	(III). DNA finger printing	(D). Karry Mulli	(IV).Transformation in Bacteria	4.0	1.00
List-I	List-II													
(A). Alec Jeffery	(I). Reverse transcriptase													
(B). Temin and Baltimore	(II). PCR													
(C). F. Griffith	(III). DNA finger printing													
(D). Karry Mulli	(IV).Transformation in Bacteria													

Objective Question

59	159	<p>The properties of RAPD Marker are</p> <p>(A). Dominant Marker</p> <p>(B). Single Primer</p> <p>(C). Specific and target band</p> <p>(D). Low annealing temperature</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> (A), (B) and (C) only. (A), (B) and (D) only. (A), (C) and (D) only. (B), (C) and (D) only. <p>A1 : 1</p> <p>A2 : 2</p>	4.0	1.00
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A3 : 3

A4 : 4

Objective Question

60 160

4.0 1.00

What is the year of establishment of NCBI?

1. 1991
2. 1988
3. 1990
4. 1989

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

61 161

4.0 1.00

What is not the query sequence in BLASTn?

1. DNA
2. RNA
3. Protein
4. tRNA

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

62 162

4.0 1.00

What is the most relevant use of BLAST

1. Protein disulfide bond identification
2. Sequence Tagging
3. Sequence Alignment
4. DNA Methylation identification

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

63	163	<p>Universally required vitamin in tissue culture medium is</p> <ol style="list-style-type: none"> 1. Nicotinic acid 2. Glutamic Acid 3. Thiamine HCl 4. Sucrose <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

64	164	<p>Which of the following statement is most correct in DNA replication</p> <ol style="list-style-type: none"> 1. Helicase enzyme separates the two strands, DNA gyrase helps in opening of DNA double helix in front of replication fork and Tus protein helps in termination of replication 2. DNA polymerase enzyme separates the two strands, DNA gyrase helps in opening of DNA double helix in front of replication fork and Tus protein helps in termination of replication 3. Helicase enzyme separates the two strands, DNA ligase helps in opening of DNA double helix in front of replication fork and Tus protein helps in termination of replication 4. DNA ligase enzyme separates the two strands, DNA gyrase helps in opening of DNA double helix in front of replication fork and topoisomerase helps in termination of replication <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

65	165	<p>Terminating or stop codons are</p> <ol style="list-style-type: none"> 1. UAA, UGA, UGG 2. UAA, UAG, UGA 3. UAG, UUU, UGG 4. UAA, UAG, UGG <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p>	4.0	1.00
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		A4 : 4		
Objective Question				
66	166	<p>The chemical used for encapsulating somatic embryo to produce Synthetic seeds is</p> <ol style="list-style-type: none"> 1. Sodium alginate 2. Sodium nitrate 3. Sodium chloride 4. Sodium acetate <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
67	167	<p>The important features of Shine Dalgarno Sequence are</p> <p>(A).Determine Trasncription initiation site</p> <p>(B).Distinct means of determining the translational start site in prokaryote</p> <p>(C).Complementary to part of the 3' end of 16S rRNA</p> <p>(D).Termination recognition in prokaryotes</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (B) and (C) only. 2. (A) and (B) only. 3. (B) and (D) only 4. (C) and (D) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
68	168	<p>Identify the nucleotide cap that is attached at the 5'end of mRNA</p> <ol style="list-style-type: none"> 1. 5-methyl guanosine 2. 7-methyl guanosine 3. 5- acetyl guanosine 4. 7- acetyl guanosine <p>A1 : 1</p>	4.0	1.00

		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

69	169	<p>DNA ligase is the molecular glue or gum, which joins together the cut-ends of DNA by creating</p> <ol style="list-style-type: none"> 1. Phosphotriester bond 2. Phosphodiester bond 3. Hydrogen Bond 4. N-glycosidic bond <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

70	170	<p>The first crop plant genome sequenced</p> <ol style="list-style-type: none"> 1. Tomato 2. Wheat 3. Rice 4. Barley <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

71	171	<p>Batch cultures are type of suspension culture where</p> <ol style="list-style-type: none"> 1. Medium is continuously replaced 2. A closed system and medium is loaded only at the beginning 3. No depletion of the medium throughout the growth period 4. Cellular wastes are continuously removed and replaced <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p>	4.0	1.00
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		A4 : 4		
Objective Question				
72	172	<p>The genes present in Bollgard II Cotton are</p> <ol style="list-style-type: none"> 1. Cry1Ac and Cry 2Ab 2. Cry1Ac and CP4-EPSPS 3. Cry1Ac and Cry1Fa1 4. Barnase/Barstar genes <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
73	173	<p>T1 generation plants for Cry 1Ac gene showed 3:1 segregation for the selected trait and gene. When the 3 plants with the gene were selfed which one of the following statements explain the results</p> <ol style="list-style-type: none"> 1. Two of three plants produced all the progeny plants with the gene 2. All three plants produced all the progeny plants with the gene 3. Only one out of 3 plants produced all the progeny plants with the gene 4. All the three plants produced progeny plants which showed segregation for the gene <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
Objective Question				
74	174	<p>Which type of toxins are produced by <i>Bacillus thuringiensis</i>?</p> <ol style="list-style-type: none"> 1. γ-Endotoxin 2. δ Endotoxin 3. α-Endotoxin 4. β-Endotoxin <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00

Objective Question

75	175	<p>The enzyme that displaces histone octamer during transcription is</p> <ol style="list-style-type: none"> 1. DNA polymerase 2. Gyrases 3. Helicases 4. RNA polymerase <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

76	176	<p>A type of B-lymphocyte that produces antibody is</p> <ol style="list-style-type: none"> 1. Erythrocyte 2. Adipocyte 3. Plasma cell 4. Memory cell <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

77	177	<p>Match List-I with List-II</p> <table border="1"> <thead> <tr> <th>List-I</th> <th>List-II</th> </tr> </thead> <tbody> <tr> <td>(A). Orthologues</td> <td>(I). Removal of Introns</td> </tr> <tr> <td>(B). Splicing</td> <td>(II). Protein fingerprinting.</td> </tr> <tr> <td>(C). Mass spectrometry</td> <td>(III). Protein Database</td> </tr> <tr> <td>(D). UniProt</td> <td>(IV). Homologous genes found in different organisms</td> </tr> </tbody> </table> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A) - (II), (B) - (III), (C) - (IV), (D) - (I) 2. (A) - (IV), (B) - (III), (C) - (I), (D) - (II) 3. (A) - (IV), (B) - (I), (C) - (II), (D) - (III) 4. (A) - (III), (B) - (II), (C) - (IV), (D) - (I) 	List-I	List-II	(A). Orthologues	(I). Removal of Introns	(B). Splicing	(II). Protein fingerprinting.	(C). Mass spectrometry	(III). Protein Database	(D). UniProt	(IV). Homologous genes found in different organisms	4.0	1.00
List-I	List-II													
(A). Orthologues	(I). Removal of Introns													
(B). Splicing	(II). Protein fingerprinting.													
(C). Mass spectrometry	(III). Protein Database													
(D). UniProt	(IV). Homologous genes found in different organisms													

		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

78	178	<p>DNA sequencing followed by genome annotation are steps of</p> <ol style="list-style-type: none"> 1. Comparative Genomics 2. Functional Genomics 3. Transcriptomics 4. Structural Genomics <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

79	179	<p>The inter-chelating agent used as a stain for visualizing DNA in a UV spectrophotometer is</p> <ol style="list-style-type: none"> 1. Ethidium Bromide 2. Bromophenol 3. Silver Nitrate 4. X Gal <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

80	180	<p>An example for a scorable marker in Genetic engineering</p> <ol style="list-style-type: none"> 1. <i>hpt</i> 2. <i>gus</i> 3. <i>amp</i> 4. <i>nptII</i> <p>A1 : 1</p> <p>A2 : 2</p>	4.0	1.00
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A3 : 3

A4 : 4

Objective Question

81	181	<p>The outer layer of the primary plant body, which protects the underlying tissues, is called</p> <ol style="list-style-type: none"> 1. Xylem 2. Ground tissue 3. Epidermis 4. Phloem <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

82	182	<p>The correct order of light reaction elements is</p> <ol style="list-style-type: none"> a. PSI b. PSII c. Plastocyanin d. Plastoquinol <ol style="list-style-type: none"> 1. b, d, c, a 2. b, c, d, a 3. a, d, c, d 4. b, c, a, d <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

83	183	<p>The end product of anaerobic respiration is</p> <ol style="list-style-type: none"> 1. Ethanol 2. Pyruvate 3. 3-Phosphoglyceric acid 4. Glycerol <p>A1 : 1</p>	4.0	1.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

84 184

4.0 1.00

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

List-I	List-II
Plant hormone	Responses
(A). Gibberellins	(I). Inhibition of vivipary
(B). Indole-3-acetic acid	(II). Cell division factor
(C). 6-Benzylaminopurine	(III). Cell elongation
(D). Abscisic Acid	(IV). Seed germination

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

- (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
- (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
- (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
- (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

85 185

4.0 1.00

A copper-containing protein that takes part in electron transport in the chloroplast is

- Cytochrome C-oxidase
- Plastocyanin
- Riboflavin
- Plastoquinone

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

86 186

4.0 1.00

The chemical used to induce uniform flowering in pineapple is

1. Paclobutrazol
2. Naphthalene Acetic Acid
3. 2,4,5-Trichlorophenoxyacetic acid
4. trans-zeatin

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

87	187	Extent of canopy cover at a particular developmental stage of crop is termed as	4.0	1.00
		<ol style="list-style-type: none"> 1. Leaf area ratio (LAR) 2. Lead Area Index (LAI) 3. Leaf Area Duration (LAD) 4. Specific leaf area (SLA) 		
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

88	188	The portable instrument used to record photosynthesis in plants is	4.0	1.00
		<ol style="list-style-type: none"> 1. Isotope-ratio mass spectrometer (IRMS) 2. Inductively coupled plasma optical emission spectrometer (ICP-OES) 3. Infrared Gas Analyzer (IRGA) 4. Atomic absorption spectroscopy (AAS) 		
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

89	189		4.0	1.00
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The typical earliest symptom of Iron (Fe) deficiency in the crop plant is

1. Interveinal chlorosis of older leaves
2. Interveinal chlorosis of young leaves
3. Necrotic spots on old leaves and fruits
4. Leaf rosetting and the poor internode elongation

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

90	190	<p>An example of a perennial plant exhibiting monocarpic senescence is</p> <ol style="list-style-type: none"> 1. Teak 2. Bamboo 3. Mulberry 4. Mango <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

91	191	<p>$[(\text{Grain yield} / \text{Biological yield}) \times 100] =$</p> <ol style="list-style-type: none"> 1. Harvest Index (HI) 2. Relative Growth Rate (RGR) 3. Crop Growth Rate (CGR) 4. Net Assimilation Rate (NAR) <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

92	192		4.0	1.00
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An example of non-climacteric fruit is

1. Banana
2. Mango
3. Avocado
4. Citrus

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

93	193	<p>The common chemical agents used as preservative solutions to improve the keeping quality of cut flowers is</p> <ol style="list-style-type: none"> 1. Silver thiosulfate 2. Magnesium sulfate 3. Sodium chloride 4. Sodium hydroxide <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

94	194	<p>A herbicide which belongs to a synthetic-auxin type is</p> <ol style="list-style-type: none"> 1. Glyphocine 2. Dicamba 3. Thidiazuron 4. Atrazine <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

95	195		4.0	1.00
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The amount of water transpired by a plant divided by the amount of carbon dioxide assimilated is known as

1. Water use efficiency
2. Transpiration ratio
3. Quantum Efficiency
4. Carbon Assimilation

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

96	196	<p>The process of the discharge of liquid from the tip of a healthy leaf under humid conditions is called guttation, and this process occurs through specialized pores called</p> <ol style="list-style-type: none"> 1. Pneumatophores 2. Lenticell 3. Hydathodes 4. Stomata <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

97	197	<p>The experiments helped researchers in understanding of photosynthesis in plants is</p> <ol style="list-style-type: none"> 1. Joseph Priestley's experiments 2. Jan Ingenhousz's experiments 3. C B van Neil's experiments 4. T W Engleman's experiments <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

98	198		4.0	1.00
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The moisture content in perishable horticultural produce with a short shelf life is

1. 30-40 per cent
2. 20-30 per cent
3. 80-90 per cent
4. 3 - 8 per cent

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

99 199

The condition required for transpiration (water to move through the plant from the soil to the air) is
{Note: soil water potential (ψ^{soil}), root water potential (ψ^{root}), leaf water potential (ψ^{leaf}), water potential in the atmosphere ($\psi^{\text{atmosphere}}$)}

1. $\psi^{\text{soil}} > \psi^{\text{root}} > \psi^{\text{leaf}} > \psi^{\text{atmosphere}}$
2. $\psi^{\text{root}} > \psi^{\text{soil}} > \psi^{\text{leaf}} > \psi^{\text{atmosphere}}$
3. $\psi^{\text{root}} > \psi^{\text{soil}} > \psi^{\text{atmosphere}} > \psi^{\text{leaf}}$
4. $\psi^{\text{root}} > \psi^{\text{atmosphere}} > \psi^{\text{soil}} > \psi^{\text{leaf}}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1.00

Objective Question

100 200

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

List-I	List-II
(Activity/event)	(Description of the post-harvest system)
(A). Harvesting of farm produce	(I). Quantity loss of harvested produce
(B). Marketing of farm produce	(II). Quality loss of produce
(C). Loss of physical substance	(III). The technical activity of the post-harvest system
(D). Loss of seed viability	(IV). The economic activity of the post-harvest system

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

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

4.0 1.00

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

101 201

4.0 1.00

In trees at a height of 75 meters, the magnitude of gravitational component of water potential in leaves is:

1. - 0.25 MPa
2. - 0.50 MPa
3. - 0.75 MPa
4. - 1.00 MPa

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

102 202

4.0 1.00

An example of single membrane cell organelle associated with oil bodies in plant cells is:

1. Peroxisome
2. Lysosome
3. Vacuole
4. Glyoxysome

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

103 203

4.0 1.00

Enzymes of HMP shunt pathway are located in:

- (A). Cytosol
- (B). Plastids
- (C). Mitochondria
- (D). Peroxisomes

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

104 204

4.0 1.00

Match **List-I** with **List-II** pertaining to scientists and their contribution in various processes/ functioning in plant cells through equations/ laws/ models

List-I	List-II
(Scientist)	(Association)
(A). Mitchel	(I). Rate of diffusion of molecules down the concentration gradient/ chemical gradient
(B). Ficks	(II). Ion distribution across cell membranes - related to the membrane potential
(C). Giaquinta	(III). Chemi-osmotic machanism - ATP synthesis
(D). Nernst	(IV). Sucrose-proton transport model involving energy

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

105 205

4.0 1.00

The nutrient element essential for the synthesis of chlorophyll precursor in the biosynthesis of chlorophyll molecule

1. Mn
2. Mo
3. Fe
4. Mg

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

106 206

The amino donor to oxoglutarate during photorespiration is

1. Glycine
2. Glutamate
3. Serine
4. Aspartate

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0

1.00

Objective Question

107 207

In plant cells, the principal ion that is electrogenically pumped across membranes in plasmamembrane and tonoplast is

1. Mg⁺⁺
2. K⁺
3. Ca⁺⁺
4. H⁺

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0

1.00

Objective Question

108 208

4.0

1.00

Identify the crop(s) requiring vernalization :

- (A). Barley
- (B). Sunflower
- (C). Carrot
- (D). Ragi

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

109 209

4.0 1.00

Match **List-I** with **List-II** pertaining to the highest agricultural crop production in states in India

List-I	List-II
(Crop)	(State with highest Production)
(A). Chickpea	(I). Karnataka
(B). Cotton	(II). Madhya Pradesh
(C). Mustard	(III). Maharashtra
(D). Pigeon Pea	(IV). Rajasthan

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

110 210

4.0 1.00

Most commonly used chemicals to break dormancy in seeds requiring light (Ex. Oats, Lettuce, Gladiolus etc.) are:

- (A). Potassium nitrate
- (B). Kinetin
- (C). Thiourea
- (D). NAA

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

111 211

4.0 1.00

Examples of Non-climacteric fruits

- (A). Lemon
- (B). Cherry
- (C). Guava
- (D). Grape

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

112 212

4.0 1.00

"Richmond-Lang effect" on the process of ageing and remobilization of nutrients is associated with this hormone in plants:

1. Abscisic acid
2. Cytokinins
3. Gibberellins
4. Ethylene

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

113	213	<p>Identify the crop plants with "zero" or "nearly zero" CO₂ compensation point</p> <p>(A). Ragi, Pearl millet, Amaranthus</p> <p>(B). Cowpeas, Groundnut, Pineapple</p> <p>(C). Sugarcane, Maize, Foxtail millet</p> <p>(D). Pineapple, Wheat, Sorghum</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (A), (B) and (D) only 2. (B) and (C) only. 3. (A) and (C) only 4. (C) and (D) only <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	4.0	1.00
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Objective Question

114	214		4.0	1.00
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Match **List-I** with **List-II**

List-I	List-II
(Institution)	(Location)
(A). National Institute for Rural Development	(I). Barrackpore
(B). ICAR-Indian Institute of Sugarcane Research	(II). Hyderabad
(C). ICAR - National Dairy Reserch Institute	(III). Lucknow
(D). ICAR - Central Institute for Jute and Allied Fibres	(IV). Karnal

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

- (A) - (II), (B) - (IV), (C) - (I), (D) - (III)
- (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
- (A) - (II), (B) - (III), (C) - (IV), (D) - (I)
- (A) - (II), (B) - (I), (C) - (III), (D) - (IV)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

115 215

An appropriate statistical tool used to compare the differences among three or more than three groups is :

- t - test
- Correlations
- ANOVA
- Regression

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1.00

Objective Question

116 216

Desmotubule in the plasmodesmata joining the adjacent plant cells is formed from :

- Transvacuolar strand
- Endoplasmic reticulum network
- Golgi apparatus
- Microtubules

A1 : 1

4.0 1.00

A2 : 2

A3 : 3

A4 : 4

Objective Question

117	217	<p>Identify the crop plants with "Albuminous" seeds :</p> <p>(A). Castor, Cashew, Coconut</p> <p>(B). Cucumber, Tamarind, Groundnut</p> <p>(C). Sunflower, Tomato, Papaya</p> <p>(D). Mustard, Redgram, Pea</p> <p>Choose the correct answer from the options given below:</p> <ol style="list-style-type: none"> 1. (B) and (D) only. 2. (A) and (C) only 3. (C) and (D) only 4. (B) and (C) only 	4.0	1.00
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

118	218	<p>Given below are two statements:</p> <p>Statement (I): As per "Harrington thumb rules" (ISTA rules), Viability of seeds depends on storage conditions where a) For each 10% decrease in seed moisture content, the storage life of the seeds is doubled; b) For each 10^oF (5.6^oC) decrease in seed storage temperature, the storage life of seed is doubled.</p> <p>Statement (II): The arithmetic sum of storage temperature in ^oF and the % relative humidity should not exceed 100, with no more than half the sum contributed by the temperature.</p> <p>In light of the above statements, choose the <i>most appropriate</i> answer from the options given below.</p> <ol style="list-style-type: none"> 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. 	4.0	1.00
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

119 219

4.0

1.00

Based on Distribution and Arrangement of STOMATA in leaves, Match **List-I** with **List-II** :

List-I	List-II
(Description)	(Crop/ plant)
(A). Present on lower surface only	(I). Maize, Rice
(B). Present more on the lower surface and less on upper surface	(II). Nelumbo, Nymphaea
(C). Equally distributed on both upper surface and lower surface	(III). Potato, Tomato
(D). Present only on upper surface	(IV). Apple, Mulbery

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

120 220

4.0

1.00

Occurrence of "Indole Acetaldoxime Pathway" of auxin biosynthesis is characteristic to the members of this family

1. Compositae
2. Chinapodiaceae
3. Brassicaceae
4. Malvaceae

A1 : 1

A2 : 2

A3 : 3

A4 : 4