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	Which one of the following monounsaturated fatty acids is not an omega-9 (ω-9) fatty acid? 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}) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
2	102	The decreasing order of the numerical values of Molar Extinction Coefficient of following amino acids at 280 nm is: (A). Cysteine (B). Phenylalanine (C). Tyrosine (D). Tryptophan Choose the **correct** answer from the options given below: 1. (D), (C), (A), (B). 2. (B), (C), (D), (A). 3. (C), (D), (B), (A). 4. (D), (B), (C), (A). A1 : 1 A2 : 2 A3 : 3 A4 : 4	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 occuring 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). *myo*-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:

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

6	106	The molarity of a buffer soultion made up from a weak acid and its conjugate base would be equal to: 1. Molar concentration of weak acid only. 2. Molar concentration of the conjugate base of the weak acid. 3. Sum of the molar concentration of both the weak acid and its conjugate base. 4. 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	4.0	1.00
Objective Question				
7	107	Which of the following patterns is true about the relationship between three pKa values of triprotic phosphoric acid? 1. pKa1< pKa2 < pKa3 2. pKa1> pKa2 > pKa3 3. pKa1= pKa2 = pKa3 4. pKa3= (pKa1 + pKa2)/2 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

8	108	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? 1. Hexokinase 2. Pyruvate kinase 3. Triose phosphate isomerase 4. Phosphofructokinase A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
9	109	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? 1. Acetolactate synthase 2. Glutamine synthetase 3. 5-Enolpyruvylshikimate-3-phosphate (EPSP) synthase 4. Acetoacetate synthase A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
10	110		4.0	1.00

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 | 4.0 | 1.00

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

List-I	**List-II**
Form of the DNA	**Occurance**
(A). B-DNA	(I). Observed *in vitro* when DNA helix becomes desiccated.
(B). A-DNA	(II). The most common form of DNA found *in vivo*.
(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.

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

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)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question				
12	112		4.0	1.00

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		4.0	1.00

The "Van Deemter equation" describes the elements of band broadening and chromatographic column efficiency in terms of
(A). Eddy diffusion of analyte in the column

(B). Longitudinal diffusion of analyte in the column

(C). Mass transfer of analyte between stationary and mobile phase

(D). Flow rate

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

14	114		4.0	1.00

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

List-I	**List-II**
Name of the Photorespiratory C_2 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:

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

15	115	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. Reason (R) : The hydrogen bonds of parallel β-pleated sheets are distorted in comparison to those of antiparallel β-pleated sheets. 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	4.0	1.00
Objective Question				
16	116	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	4.0	1.00

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 A4 : 4	4.0	1.00
Objective Question				
19	119	Which of the following enzymes contain an unusual amino acid viz. selenocysteine, at its active site? 1. Ascorbate peroxidase 2. Glutathione peroxidase 3. Superoxide dismutase 4. Catalase A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

20	120	Match **List-I** with **List-II** **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 Choose the **correct** answer from the options given below: 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) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
21	121		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 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	The correct sequence for the flow of electrons between following components of mitochondrial electron transport chain is: (A). NADH dehydrogenase (B). Cytochrome bc_1 complex (C). Ubiquinone (D). Cytochrome C Choose the **correct** answer from the options given below: 1. (A), (B), (C), (D). 2. (A), (C), (B), (D). 3. (B), (A), (D), (C). 4. (C), (B), (D), (A). A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

23	123		4.0	1.00

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	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : The nitrogenase enzyme is considered to be a sluggish and inefficient enzyme. 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. 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	4.0	1.00
Objective Question				
25	125		4.0	1.00

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:

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

26	126	Reading 5'→ 3', the sequence of following loops present in the clover leaf structure of t-RNA would be (A). Anticodon loop (B). D-Loop (C). TψC loop (D). Variable loop Choose the **correct** answer from the options given below: 1. (B), (A), (C), (D). 2. (A), (B), (C), (D). 3. (B), (A), (D), (C). 4. (B), (D), (A), (C). A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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] << K_m	(I). Reaction follows zero-order kinetics
(B). [S] >> 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:

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

28	128	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: 1. (A), (B) and (D) only. 2. (A) and (B) only. 3. (A), (C) and (D) only. 4. (A) and (D) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
29	129	Which of the following statement(s) is/are true about the role of Malonyl CoA in fatty acid metabolism? (A). It is an inhibitor of the enzyme "Carnitine acyltransferase" (B). High levels of malonyl CoA suppress fatty acid entry into the mitochondria (C). High levels of malonyl CoA lead to reduced flux of fatty acids towards triglycerides' biosynthesis (D). Low levels of malonyl CoA favour fatty acid oxidation Choose the ***correct*** answer from the options given below: 1. (A), (B) and (D) only. 2. (A), (B) and (C) only. 3. (A), (B), (C) and (D). 4. (B), (C) and (D) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

30	130	Which of the following statements are true about the bundle sheath cells of C_4 plants? (A). In comparison to mesophyll cells, they contain large number of agranal chloroplasts (B). They have very thin cell wall, as compared to mesophyll cells, to facilitate gaseous exchange (C). They have no intercellular spaces between them (D). They generate less/no oxygen because of the low activity/lack of photosystem II Choose the ***correct*** answer from the options given below: 1. (A), (B) and (D) only. 2. (A), (C) and (D) only. 3. (B), (C) and (D) only. 4. (A), (B) and (C) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

31	131	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	4.0	1.00

Objective Question

32	132	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	4.0	1.00
Objective Question				
33	133	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	4.0	1.00
Objective Question				

34	134	Which of the following cellular structure found in all prokaryotes? (A). Ribosome (B). Capsules (C). Flagellum Choose the ***correct*** answer from the options given below: 1. (A), (B) and (C). 2. (A) only. 3. (B) only. 4. (C) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
35	135	Which of the following cellular structure is found only in a plant cells? 1. Glyoxysomes 2. Vacuoles 3. Lysosomes 4. Cytoskeleton A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

36	136	Which of the following can add the terminal 5′CCA3′ at the end of mature tRNA? 1. tRNA nucleotidyltransferase 2. RNase D 3. RNase P 4. RNase E/F A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
37	137	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	4.0	1.00
Objective Question				

38	138	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	4.0	1.00
Objective Question				
39	139	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	4.0	1.00
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
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
Objective Question				

42	142	Which of the following cannot be used for confirmation of positive clones? 1. Colony hybridization 2. Colony PCR 3. Growing tranformants on selection media 4. Growing transformants under low temperature A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
43	143	Probes are not used in 1. Southern hybridization 2. Northern hybridization 3. RT-PCR 4. Colony hybridization A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

44	144	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: (A). There is recombination between alleles of body color and types of wings of drosophila (B). These two genes assort independently (C). These genes are linked together (D). These genes are pleiotropic in nature Choose the ***correct*** answer from the options given below: 1. (A), and (C) only. 2. (A), (B) and (C) only. 3. (A), (B), (C) and (D). 4. (B) and (C) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
45	145	Which of the following database do not store nucleic acid data? 1. GenBank 2. EMBL 3. DDBJ 4. SWISS-PROT A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

46	146	Hormones that are to be used in tissue culture can be sterilized by 1. Autoclave 2. Flame sterilization 3. Air (HEPA) filtration 4. Filter sterilization A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
47	147	The expression of an anti-nutrional factor/negative regulator can be eliminated by which of the following tools (A). RNA interference (B). Genome editing (C). Over-expression of encoding gene (D). Insertional mutagenesis (E). TILLING Choose the ***correct*** answer from the options given below: 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. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
48	148		4.0	1.00

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	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	4.0	1.00

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:

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

51	151	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: 1. (A) - (I), (B) - (V), (C) - (II), (D) - (IV) 2. (A) - (V), (B) - (IV), (C) - (I), (D) - (III) 3. (A) - (III), (B) - (I), (C) - (IV), (D) - (II) 4. (A) - (II), (B) - (III), (C) - (IV), (D) - (V) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
52	152	Which of the following statement is/are correct: Statement (A) : Expressed sequence tags are short sequences obtained by sequencing of cDNA clones. Reason (B) : ESTs can be used as STS. In light of the above statements, choose the *most appropriate* answer from the options given below . 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. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

53	153	Which of the following hormone is preferred for rooting in plant tissue culture? (A). IAA (B). BAP (C). Kinetin Choose the ***correct*** answer from the options given below: 1. (A) only. 2. (B) only. 3. (C) only. 4. (A), (B) and (C). A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

54	154	Where is the Indian Institute of Agricultural Biotechnology located in India? 1. Ranchi 2. New Delhi 3. Hyderabad 4. Bangalore A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
55	155	What is the correct extended form of GEAC? 1. Genetic & Epigenetic Advanced Centre 2. Genetic Engineering Appraisal Committee 3. Genome Editing Approval Committee 4. Genome Engineering Approval Committee A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

56	156	Centrioles are present in the cytoplasm of the cells of the organism 1. Animal cell 2. Plant Cell 3. Fungi 4. *E. coli* A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
57	157	PCR based DNA amplification is an essential feature of which of the following combination of molecular markers 1. RFLP, AFLP and SSR 2. RFLP, RAPD and SSR 3. AFLP, SSR and RAPD 4. RAPD, RFLP and SSR A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

58	158	Match **List-I** with **List-II** **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 Choose the **correct** answer from the options given below: 1. (A) - (IV), (B) - (II), (C) - (I), (D) - (III) 2. (A) - (III), (B) - (IV), (C) - (I), (D) - (II) 3. (A) - (I), (B) - (III), (C) - (IV), (D) - (II) 4. (A) - (III), (B) - (I), (C) - (IV), (D) - (II) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

59	159	The properties of RAPD Marker are (A). Dominant Marker (B). Single Primer (C). Specific and target band (D). Low annealing temperature Choose the ***correct*** answer from the options given below: 1. (A), (B) and (C) only. 2. (A), (B) and (D) only. 3. (A), (C) and (D) only. 4. (B), (C) and (D) only. A1 : 1 A2 : 2	4.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
60	160	What is the year of establishment of NCBI? 1. 1991 2. 1988 3. 1990 4. 1989 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
61	161	What is not the query sequence in BLASTn? 1. DNA 2. RNA 3. Protein 4. tRNA A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

62	162	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	4.0	1.00
Objective Question				
63	163	Universally required vitamin in tissue culture medium is 1. Nicotinic acid 2. Glutamic Acid 3. Thiamine HCl 4. Sucrose A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

64	164	Which of the following statement is most correct in DNA replication 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 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
65	165	Terminating or stop codons are 1. UAA, UGA, UGG 2. UAA, UAG, UGA 3. UAG, UUU, UGG 4. UAA, UAG, UGG A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

66	166	The chemical used for encapsulating somatic embryo to produce Synthetic seeds is 1. Sodium alginate 2. Sodium nitrate 3. Sodium chloride 4. Sodium acetate A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
67	167	The important features of Shine Dalgarno Sequence are (A).Determine Trasncription initiation site (B).Distinct means of determining the translational start site in prokaryote (C).Complementary to part of the 3' end of 16S rRNA (D).Termination recognition in prokaryotes Choose the ***correct*** answer from the options given below: 1. (B) and (C) only. 2. (A) and (B) only. 3. (B) and (D) only 4. (C) and (D) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

68	168	Identify the nucleotide cap that is attached at the 5'end of mRNA 1. 5-methyl guanosine 2. 7-methyl guanosine 3. 5- acetyl guanosine 4. 7- acetyl guanosine A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
69	169	DNA ligase is the molecular glue or gum, which joins together the cut-ends of DNA by creating 1. Phosphotriester bond 2. Phosphodiester bond 3. Hydrogen Bond 4. N-glycosidic bond A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

70	170	The first crop plant genome sequenced 1. Tomato 2. Wheat 3. Rice 4. Barley A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
71	171	Batch cultures are type of suspension culture where 1. Medium is continuously replaced 2. A closed system and medium is loaded only at the begining 3. No depletion of the medium throughout the growth period 4. Cellular wastes are continuously removed and replaced A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

72	172	The genes present in Bollgard II Cotton are 1. Cry1Ac and Cry 2Ab 2. Cry1Ac and CP4-EPSPS 3. Cry1Ac and Cry1Fa1 4. Barnase/Barstar genes A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
73	173	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 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 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

74	174	Which type of toxins are produced by *Bacillus thuringiensis*? 1. γ-Endotoxin 2. δ Endotoxin 3. α-Endotoxin 4. β-Endotoxin A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
75	175	The enzyme that displaces histone octamer during transcription is 1. DNA polymerase 2. Gyrases 3. Helicases 4. RNA polymerase A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

76	176	A type of B–lymphocyte that produces antibody is 1. Erythrocyte 2. Adipocyte 3. Plasma cell 4. Memory cell A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
77	177	Match **List-I** with **List-II** **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 Choose the **correct** answer from the options given below: 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)	4.0	1.00
		A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				

78	178	DNA sequencing followed by genome annotation are steps of 1. Comparitive Genomics 2. Functional Genomics 3. Transcriptomics 4. Structural Genomics A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
79	179	The inter-chelating agent used as a stain for visualizing DNA in a UV spectrophotometer is 1. Ethidium Bromide 2. Bromophenol 3. Silver Nitrate 4. X Gal A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
80	180	An example for a scorable marker in Genetic engineering 1. *hpt* 2. *gus* 3. *amp* 4. *npt*II A1 : 1 A2 : 2	4.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
81	181	The outer layer of the primary plant body, which protects the underlying tissues, is called 1. Xylem 2. Ground tissue 3. Epidermis 4. Phloem A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
82	182	The correct order of light reaction elements is a. PSI b. PSII c. Plastocyanin d. Plastoquinol 1. b, d, c, a 2. b, c, d, a 3. a, d, c, d 4. b, c, a, d A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

83	183	The end product of anaerobic respiration is 1. Ethanol 2. Pyruvate 3. 3-Phosphoglyceric acid 4. Glycerol A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
84	184	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: 1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV) 2. (A) - (IV), (B) - (III), (C) - (II), (D) - (I) 3. (A) - (II), (B) - (I), (C) - (IV), (D) - (III) 4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

85	185	A copper-containing protein that takes part in electron transport in the chloroplast is 1. Cytochrome C-oxidase 2. Plastocyanin 3. Riboflavin 4. Plastoquinone A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
86	186	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	4.0	1.00
Objective Question				

87	187	Extent of canopy cover at a particular developmental stage of crop is termed as 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	4.0	1.00
Objective Question				
88	188	The portable instrument used to record photosynthesis in plants is 1. Isotope-ratio mass spectrometer (IRMS) 2. Inductively coupled plasma optical emission spectrometer (ICP-OES) 3. Infrared Gas Analyzer (IRGA) 4. Atomic absorption spectroscope (AAS) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
89	189		4.0	1.00

		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	An example of a perennial plant exhibiting monocarpic senescence is 1. Teak 2. Bamboo 3. Mulberry 4. Mango A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

91	191	[(Grain yield / Biological yield)× 100] = 1. Harvest Index (HI) 2. Relative Growth Rate (RGR) 3. Crop Growth Rate (CGR) 4. Net Assimilation Rate (NAR) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
92	192	An example of non-climacteric fruit is 1. Banana 2. Mango 3. Avocado 4. Citrus A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

93	193	The common chemical agents used as preservative solutions to improve the keeping quality of cut flowers is 1. Silver thiosulfate 2. Magnesium sulfate 3. Sodium chloride 4. Sodium hydroxide A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
94	194	A herbicide which belongs to a synthetic-auxin type is 1. Glyphocine 2. Dicamba 3. Thidiazuron 4. Atrazine A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
95	195		4.0	1.00

		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	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 1. Pneumatophores 2. Lenticell 3. Hydathodes 4. Stomata A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

97	197	The experiments helped researchers in understanding of photosynthesis in plants is 1. Joseph Priestley's experiments 2. Jan Ingenhousz's experiments 3. C B van Neil's experiments 4. T W Engleman's experiments A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
98	198	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	4.0	1.00
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 ($\Psi^{atmosphere}$)} 1. $\Psi^{soil} > \Psi^{root} > \Psi^{leaf} > \Psi^{atmosphere}$ 2. $\Psi^{root} > \Psi^{soil} > \Psi^{leaf} > \Psi^{atmosphere}$ 3. $\Psi^{root} > \Psi^{soil} > \Psi^{atmosphere} > \Psi^{leaf}$ 4. $\Psi^{root} > \Psi^{atmosphere} > \Psi^{soil} > \Psi^{leaf}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
100	200	Match **List-I** with **List-II** **List-I** (**Activity/event**) (A). Harvesting of farm produce (B). Marketing of farm produce (C). Loss of physical substance (D). Loss of seed viability **List-II** (**Description of the post-harvest system**) (I). Quantity loss of harvested produce (II). Quality loss of produce (III). The technical activity of the post-harvest system (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	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	4.0	1.00
Objective Question				
102	202	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	4.0	1.00
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	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	4.0	1.00
Objective Question				
105	205	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	4.0	1.00
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	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	4.0	1.00
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	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	4.0	1.00
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		4.0	1.00

Identify the crop plants with "zero" or "nearly zero" CO_2 compensation point
(A). Ragi, Pearlmillet, Amaranthus

(B). Cowpeas, Groundnut, Pineapple

(C). Sugarcane, Maize, Foxtailmillet

(D). Pineapple, Wheat, Sorghum

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

114	214		4.0	1.00

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:

1. (A) - (II), (B) - (IV), (C) - (I), (D) - (III)
2. (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
3. (A) - (II), (B) - (III), (C) - (IV), (D) - (I)
4. (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 : 1. t - test 2. Correlations 3. ANOVA 4. Regression A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
116	216	Desmotubule in the plasmodesmata joing the adjacent plant cells is formed from : 1. Transvacuolar strand 2. Endoplasmic reticulum network 3. Golgi apparatus 4. Microtubules A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

117	217	Identify the crop plants with "Albuminous" seeds : (A). Castor, Cashew, Coconut (B). Cucumber, Tamarind, Groundnut (C). Sunflower, Tomato, Papaya (D). Mustard, Redgram, Pea Choose the ***correct*** answer from the options given below: 1. (B) and (D) only. 2. (A) and (C) only 3. (C) and (D) only 4. (B) and (C) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
118	218	Given below are two statements: **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 10^0F (5.6^0C) decrease in seed storage temperature, the storage life of seed is doubled. **Statement (II)**: The arithmetic sum of storage temperature in ^{0}F and the % relative humidity should not exceed 100, with no more than half the sum contributed by the temperature. 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. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

119	219	Based on Distribution and Arrangement of STOMATA in leaves, Match **List-I** with **List-II** : **List-I** / **(Description)** — **List-II** / **(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	4.0	1.00

Objective Question

120	220	Occurrence of "Indole Acetoldoxime 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	4.0	1.00