

PREVIEW QUESTION BANK

Module Name : Molecular Biology and Biotechnology-ENG
Exam Date : 14-Jul-2023 Batch : 14:30-16:30

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	2001	Choose the incorrect statement regarding the composition of election commission. 1. Appointment of the chief election commissioner and other election commissioners shall be made by the president. 2. President can also appoint regional commissioners after consultation with the election commission. 3. Conditions of service and tenure of office of the election commissioners and regional commissioners shall not be determined by the president. 4. Article 324 under constitution of India is dealing with the composition of election commission. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
Objective Question				
2	2002	Which one of the following amendment acts is referred to as the 'mini constitution'? 1. 42nd 2. 44th 3. 46th 4. 48th A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
Objective Question				
3	2003		4.0	1

With regard to the jurisdiction and powers of high court, disputes relating to the election of members of parliament and state legislatures, comes under the ambit of which one of the following jurisdictions?

1. Original
2. Writ
3. Appellate
4. Supervisory

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

4 2004

Which of the following is formed when the moisture is deposited in the form of water droplets on cooler surfaces of solid objects?

1. Frost
2. Fog
3. Mist
4. Dew

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

5 2005

Which of the following is the correct reason for the occurrence of best fishing grounds in the mixing zones (the mixing of warm and cold currents)?

1. It has the moderate temperature
2. It has the slowest sea waves
3. It has the high growth of planktons.
4. It has the sunrays perpendicular to the sea level.

A1 : 1

A2 : 2

4.0 1

A3 : 3

A4 : 4

Objective Question

6	2006	Eisenhower Cup is associated with which among the following sports? 1. Tennis 2. Chess 3. Football 4. Golf A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

7	2007	Who was the first woman President of the Indian National Congress? 1. Kasturba Gandhi 2. Sarojini Naidu 3. Annie Besant 4. Aruna Ali A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

8	2008	The dockyard was found in which of the following sites in Indus Valley Civilization? 1. Chanhudaro 2. Lothal 3. Kalibangan 4. Banawali A1 : 1	4.0	1
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A2 : 2

A3 : 3

A4 : 4

Objective Question

9	2009	Who built the famous Charminar of Hyderabad? 1. Krishndev Rai 2. Muhammad Quli Qutb Shah 3. Nadir Shah 4. Aurangzeb A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

10	2010	Who discovered the right triangle? 1. Pythagoras 2. Ancient Egyptians 3. Archimedes 4. Michelangelo A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

11	2011	Citrus canker is caused by 1. Virus 2. Viriod 3. Bacteria 4. Fungus	4.0	1
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A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

12 2012

DBM is a specific insect of

1. Brinjal
2. Tomato
3. Cabbage
4. Bottle gourd

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

13 2013

What is the scientific name of mulberry silkworm?

1. Bombyx mori
2. Antherea paphia
3. Antheraea assama
4. Attacus Ricinii

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

14 2014

4.0 1

Subject matter of economics are want, effort and

1. Wealth
2. Growth
3. Satisfaction
4. Income

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

15 2015

The National Bureau of Animal Genetic Resources (NBAGR) is located in

1. Karnal
2. Bengaluru
3. Hisar
4. Jind

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

16 2016

The oldest known agroforestry systems is

1. Alley cropping
2. Taungya systems
3. Home Gardening
4. Shifting cultivation

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

17	2017	The effect or requirement of the relative length of day and night on flowering is called 1. Photomechanics 2. Transpiration 3. Photoperiodism 4. Phytoperiodism A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

18	2018	Which of the following statements are true? (A) Small pores in epidermis of leaves is called stomata. (B) Guard cells present in the stomata are helpful in exchange of gases with atmosphere (C) Transpiration takes place through stomata Choose the correct answer from the options given below: 1. (A) and (B) only. 2. (B) and (C) only. 3. (A) and (C) only. 4. (A), (B) and (C). A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

19	2019		4.0	1
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Water holding capacity is highest in which of the following soils?

1. Silt soil
2. Clayey soil
3. Chalk soil
4. Peat soil

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

20 2020

Certified seed is the progeny of

1. Nucleus seed
2. Foundation seed
3. Breeder's seed
4. Registered seed

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

21 31001

Which of the following sugar is also known as cane sugar?

1. Fructose
2. Sucrose
3. Maltose
4. Glucose

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

22 31002

4.0 1

Read the following statements:

- (A) The DNA is a right-handed double helix consisting of two antiparallel strands twisted around each other on a common axis.
- (B) The N⁹ of a pyrimidine ring binds with the C₁ of a pentose sugar.
- (C) The two strands are held together by hydrogen bonds formed by complementary base pairs.
- (D) The double-stranded DNA has an equal number of purine and pyrimidines in the structure.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

23 31003

4.0 1

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

List-I	List-II
(Cell organelle)	(Marker enzyme)
(A) Plasma membrane	(I) Galactosyl transferase
(B) Golgi apparatus	(II) Adenylyl cyclase
(C) Lysosome	(III) Catalase
(D) Peroxisome	(IV) Acid phosphatase

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

24 31004

4.0 1

Given below are two statements:

Statement (I) : The type I topoisomerases break one of the two DNA strands and change the linking number (*Lk*) in increments of 2.

Statement (II) : The type II topoisomerases break both DNA strands and change the linking number (*Lk*) in increments of 1.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

25 31005

4.0 1

Which vitamin deficiency can cause burning food syndrome?

1. Niacin
2. Thiamine
3. Folic acid
4. Pantothenic acid

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

26 31006

4.0 1

Given below are two statements:

Statement (I) : Immunoglobulin A (IgA) is primarily found in the body's secretions.

Statement (II) : Immunoglobulin G (IgG) is the first line of host defense against infections.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

27 31007

4.0 1

Given below are two statements:

Statement (I) : Plants and many bacteria can readily reduce nitrate and nitrite through the action of nitrate and nitrite reductases

Statement (II) : The soil bacteria use NO_3^- rather than O_2 as the ultimate electron acceptor in a series of reactions that generates a transmembrane proton gradient, which is used to synthesize ATP

In the 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

Objective Question

28 31008

4.0 1

Given below are two statements:

Statement (I) : Membrane is composed of lipid bilayer and phospholipids are arranged in bilayers with a hydrophobic core.

Statement (II) : Cholesterol is a lipid with a structure quite similar to that of phospholipids.

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

Objective Question

29 31009

4.0 1

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

Assertion (A) : Alpha carboxyl group of one amino acid reacts with alpha amino group of another amino acid to form a peptide bond or CO-NH bridge

Reason (R) : All peptides bonds in proteins are trans in nature

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

30	31010	The net gain of ATP during the conversion of glucose to pyruvate is ? 1. ATP 2. 2 ATP 3. 1 ATP +1 GTP 4. 4 ATP A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

31	31011	Which enzyme containing selenium ? 1. Superoxide dismutase 2. Glutathione peroxidase 3. Cytochrome oxidase 4. Xanthine oxidase A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

32	31012		4.0	1
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Given below are two statements:

Statement (I) : In water molecule, each hydrogen atom shares an electron pair with the oxygen atom.

Statement (II) : The H—O—H bond angle is 109.5° and hydrogen nucleus attracts electrons more strongly than does the oxygen.

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

Objective Question

33 31013

4.0 1

Given below are two statements:

Statement (I) : The biogenesis of peroxisomes occurs through fission.

Statement (II) : Glyoxysomes are rich in enzymes *catalase* and *isocitrase*.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

34 31014

4.0 1

What is the wavelength range (in nm) of photosynthetic pigments to absorb light energy by plants?

1. 200 - 450
2. 250 - 400
3. 400 - 700
4. 650 - 800

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

35 31015

4.0 1

Consider the following statements:

- (A) Stomata lose their function and may die under severe drought condition.
- (B) Starch disappears from wilted leaves following decrease in soil moisture and sugar simultaneously.
- (C) CO₂ diffusion get effected due to reduction in stomata opening.
- (D) Osmotic pressure of plant cells increase under drought stress.

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

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

36 31016

4.0 1

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

Assertion (A) : Auxins help in the synthesis of the cell wall material.

Reason (R) : Auxin application increases activities of the enzyme *cellulose synthetase*.

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

37 31017

4.0 1

Match List-I with List-II

List-I	List-II
(Element)	(Disease due to Deficiency)
(A) Potassium	(I) Grey spec
(B) Magnesium	(II) Rossette
(C) Manganese	(III) Sand-drown
(D) Copper	(IV) Exanthema

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

38 31018

4.0 1

Given below are two statements:

Statement (I) : Scarification is the process of rupturing or weakening the seed coats by mechanical or other means.

Statement (II) : Stratification is the process to overcome seed dormancy by treating the seeds at low temperature (5-10 °C).

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

39 31019

4.0 1

Which is an example of long-short-day plant?

1. *Cestrum nocturnum*
2. *Nicotiana tabacum*
3. *Gossypium hirsutum*
4. *Ricinus communis*

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

40 31020

4.0 1

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

List-I	List-II
(Models proposed for plasma membrane)	(Scientist)
(A) Sandwich model	(I) Hallier and Hofmann
(B) Unit membrane	(II) Daniellis and Davson
(C) Micellar model	(III) S. Jonathan Singer and G. L. Nicolson
(D) Fluid Mosaic model	(IV) Robertson

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

41 31021

4.0 1

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

Assertion (A) : Photorespiration is not reported in C_4 plant.

Reason (R) : In C_4 plants, CO_2 compensation point is low.

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

- 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.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

42 31022

4.0 1

Given below are two statements:

Statement (I) : Zeatin is naturally occurring cytokinins.

Statement (II) : Kinetin is synthetic cytokinins.

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

Objective Question

43 31023

4.0 1

Given below are two statements:

Statement (I) : Carbon, hydrogen and oxygen are called frame work elements because they take part in carbohydrate synthesis, which constitutes major part of cell wall and protoplasm.

Statement (II) : Sulphur, phosphorus and nitrogen are called protoplasmic elements because they take part in protein synthesis.

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

Objective Question

44 31024

4.0 1

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

Assertion (A) : Exogenous ABA inhibits germination of most non-dormant seeds.

Reason (R) : ABA is specific antagonist of GA and inhibits synthesis of protease and amylase enzymes.

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

45 31025

4.0 1

Who coined the term photoperiodism?

1. Michaels and Amasino
2. Coen and Meyerowitz
3. Garner and Allard
4. Blazquez

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

46 31026

4.0 1

Which of the following facilitates rapid transport of water across plasma membrane?

1. Pumps
2. Carriers
3. Aquaporins
4. Ion Channels

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

47 31027

4.0 1

Given below are two statements:

Statement (I) : The electron transfer chain couples oxidation of reducing equivalents to formation of a proton electrochemical gradient.

Statement (II) : The F_0F_1 -ATP synthase complex couples dissipation of the proton electrochemical gradient with ATP formation.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

48 31028

4.0 1

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

List-I	List-II
Enzyme Class	Reactions catalyze
(A) Isomerases	(I) Transfer of electrons (hydride ions)
(B) Hydrolases	(II) Addition of groups to double bonds
(C) Lyases	(III) Transfer of groups within molecules to yield isomeric forms
(D) Oxidoreductases	(IV) Transfer of functional groups to water (hydrolysis)

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

49 31029

4.0 1

Given below are two statements:

Statement (I) : A processed pseudogene arise by inactivation mutation of a functional gene.

Statement (II) : A processed pseudogene arise by reverse transcription of the RNA transcript of a functional gene.

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

- Both **Statement (I)** and **Statement (II)** are correct.
- Both **Statement (I)** and **Statement (II)** are incorrect.
- Statement (I)** is correct but **Statement (II)** is incorrect.
- Statement (I)** is incorrect but **Statement (II)** is correct.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

50 31030

4.0 1

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

List-I	List-II
Transcriptional Specific	Associated with
(A) GU-AG Intron	(I) Rho-dependent
(B) Group III Intron	(II) Nuclear pre mRNA
(C) RNA Polymerase II termination	(III) Polyadenylation signal
(D) Bacterial transcription termination	(IV) Organeller RNA

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

51 31031

4.0 1

Given below are two statements:

Statement (I) : Sanger Sequencing employs enzymatic synthesis of complementary polynucleotide chain.

Statement (II) : Sequence is determined by treatment with chemicals that cut DNA molecule at specific nucleotide position.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. **Statement (I)** is true but **Statement (II)** is false.
3. Both **Statement (I)** and **Statement (II)** are false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

52 31032

Which of the following is an AI system developed by DeepMind to predict 3-D structure of protein?

1. ExPASy
2. AlphaFold
3. STRING
4. 3DP

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

53 31033

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

List-I	List-II
Technique	Primary application
(A) Polymerase Chain Reaction (PCR)	(I) Separation of DNA fragments based on size
(B) Gel Electrophoresis	(II) Amplification of specific DNA sequence
(C) Southern Blotting	(III) Detection of specific DNA sequence in a sample
(D) Restriction Fragment Length Polymorphism (RFLP)	(IV) Identification of genetic variation

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

54 31034

4.0 1

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

Assertion (A) : The lac operon is an example of an inducible operon.

Reason (R) : In the lac operon, transcription is usually off until induced by a molecule such as lactose.

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

- 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.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

55 31035

4.0 1

What type of cloning vector is used to clone large fragments of DNA?

1. Plasmid
2. Cosmid
3. Bacterial artificial chromosome (BAC)
4. Phagemid

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

56 31036

4.0 1

Given below are two statements:

Statement (I) : Apical meristems are responsible for the primary growth of the plant, increasing its length.

Statement (II) : In plants, the hormone auxin inhibits cell elongation and division.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

57 31037

4.0 1

Which of the following statements about the citric acid cycle is correct?

1. The citric acid cycle is a series of reactions that synthesize glucose molecules.
2. The citric acid cycle produces most of the ATP during cellular respiration.
3. The citric acid cycle is a catabolic pathway that breaks down proteins.
4. The citric acid cycle involves the transfer of electrons to NAD⁺ and FAD, producing NADH and FADH₂.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

58 31038

The hammerhead ribozyme is one of the most commonly used ribozymes in technology. Which of the following statements is true about its function and structure?

1. It has a simple structure consisting of only two stem-loop structures.
2. It can cleave any RNA sequence without the need for a specific target sequence.
3. It cleaves RNA sequences using a water molecule in a mechanism similar to protein enzymes.
4. It requires a protein cofactor to function.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

59 31039

Given below are two statements:

Statement (I) : Many prokaryotic organisms have the capsules or the slime outside the cell wall which are very much essential for the growth and survival of bacterial cells.

Statement (II) : The flagellar apparatus is composed of three distinct parts namely the filament, the hook and the basal granule.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

60 31040

What is the mode of action of silver nitrate when used as antimicrobial purpose?

1. Solubilization of lipids
2. Denaturation of proteins and enzymes
3. Protein inactivation by iodination
4. Oxidation of proteins

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

61 31041

Read the following statements-

- (A) The most common pathway of glucose catabolism is the Embden-Meyerhof Pathway (EMP) of glycolysis occurs only in microorganisms.
- (B) The Pentose Phosphate Pathway (PPP) of glucose catabolism exists in both prokaryotic and eukaryotic cells.
- (C) Entner-Duodorouff Pathway (EDP) of glucose catabolism found in both aerobic and anaerobic prokaryotes but not in eukaryotes.
- (D) The tricarboxylic acid (TCA) cycle is a sequence of reactions that generate energy in the form of ATP and reduced coenzyme molecules (NADH_2 and FADH_2).

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

62 31042

4.0 1

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

Assertion (A) : Soil microorganisms serve as biogeochemical agents.

Reason (R) : Soil microorganisms convert complex organic compounds into simple inorganic compounds or into their constituent elements.

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

63 31043

4.0 1

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

List-I	List-II
(Bacteria)	(Classification)
(A) <i>Gloeotrichia</i> spp.	(I) Chemotrophic bacteria
(B) <i>Rhodospirillum rubrum</i>	(II) Phototrophic bacteria
(C) <i>Beijerinckia indica</i>	(III) Denitrifying bacteria
(D) <i>Chromobacterium</i>	(IV) Cyanobacteria

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

64 31044

4.0 1

Given below are two statements:

Statement (I) : In generalized transduction, certain temperate phage strains can transfer only a few restricted genes of the bacterial chromosome.

Statement (II) : In specialized transduction, viral enzymes hydrolyze the bacterial chromosome into many small pieces of DNA.

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

- Both **Statement (I)** and **Statement (II)** are true.
- Both **Statement (I)** and **Statement (II)** are false.
- Statement (I)** is true but **Statement (II)** is false.
- Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

65 31045

4.0 1

Given below are two statements:

Statement (I) : Penicillins do not affect halophiles because their cell walls lack peptidoglycan.

Statement (II) : Novobiocin antibiotic kills halophiles by inhibiting isoprenoid biosynthesis.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

66 31046

4.0 1

Method of sterilization that performed at 100 °C temperature for three consecutive days with incubation in between is known as_____.

1. Tyndallization
2. Pasteurization
3. Homogenization
4. Immobilization

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

67 31047

4.0 1

Which of the following phage possess single stranded RNA (ssRNA) as genetic material?

1. MS2
2. Lambda
3. Mu
4. ØX174

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

68 31048

4.0 1

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

List-I	List-II
(Step of nitrogen cycle)	(Bacteria involved)
(A) Nitrogen fixation	(I) <i>Nitrobacter winogradskyi</i>
(B) Oxidation of ammonia to nitrite	(II) <i>Micrococcus denitrificans</i>
(C) Oxidation of nitrite to nitrate	(III) <i>Azotobacter chroococcum</i>
(D) Denitrification	(IV) <i>Nitrosomonas europaea</i>

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

69	31049	Mycorrhiza is the symbiotic association between fungi and _____. 1. Algae 2. Plant root 3. Bacteria 4. Plant leaf A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

70	31050	Given below are two statements: Statement (I) : Biochemical oxygen demand (BOD) indicates total amount of oxygen dissolved in the water. Statement (II) : Higher BOD value indicates that the water is of good quality and potable. In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. 1. Both Statement (I) and Statement (II) are true. 2. Both Statement (I) and Statement (II) are false. 3. Statement (I) is true but Statement (II) is false. 4. Statement (I) is false but Statement (II) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

71	1000551	Which of the following is the role of smooth endoplasmic reticulum (SER)? 1. Endocytosis 2. Phospholipid biosynthesis 3. Photosynthesis 4. Post-translational modification	4.0	1
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A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

72 1000552

4.0 1

Which of the following is NOT a part of chloroplast?

1. Cristae
2. Thylakoid vesicles
3. Microtubules
4. Stroma

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

73 1000553

4.0 1

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

List-I	List-II
Cell Components	Dimensions (nm)
(A) Microtubules	(I) 5-9
(B) Intermediate filaments	(II) 100
(C) Micro filaments	(III) 25-30
(D) Microsomes	(IV) 7-11

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

74	1000554	Given below are two statements: Statement (I) : Flow cytometry allows study of cell cycle events. Statement (II) : Relative DNA content of individual cells can be measured using flow cytometry. In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. - Both Statement (I) and Statement (II) are incorrect. - Both Statement (I) and Statement (II) are correct. Statement (I) is correct but Statement (II) is incorrect. Statement (I) is incorrect but Statement (II) is correct. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

75	1000555	Which of the following compound is the precursor of Vitamin D? 7-D-glycolate 7-glycerate 7-D-glucose 7-Dehydrocholesterol A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

76	1000556		4.0	1
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Given below are two statements:

Statement (I) : Fatty Acids breakdown occurs in mitochondrial matrix of eukaryotes.

Statement (II) : Fatty acids are activated by forming thioester link with CoA, before entering the mitochondria.

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

Objective Question

77 1000557

What is the net yield of ATP in glycolysis per glucose molecule?

1. 6
2. 4
3. 2
4. 5

A1 : 1

A2 : 2

A3 : 3

A4 : 4

4.0 1

Objective Question

78 1000558

4.0 1

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

List-I	List-II
Vitamins	Deficiency Disease/Symptoms
(A) Vitamin A	(I) Rickets
(B) Vitamin B3	(II) Scurvy
(C) Vitamin D	(III) Night-blindness
(D) Vitamin C	(IV) Pallegra

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

79 1000559

4.0 1

Given below are two statements:

Statement (I) : On Lineweaver-Burk plot, competitive inhibitor increases K_m but leave V_{max} unchanged.

Statement (II) : On Lineweaver-Burk plot, non-competitive inhibitor decreases V_{max} but leave K_m unchanged.

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

- Statement (I)** is incorrect but **Statement (II)** is correct.
- Both **Statement (I)** and **Statement (II)** are incorrect.
- Statement (I)** is correct but **Statement (II)** is incorrect.
- Both **Statement (I)** and **Statement (II)** are correct.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

80 1000560

4.0 1

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

List-I	List-II
Immobilized Enzyme	Product
(A) Aminoacylase	(I) Lactose-free milk
(B) Glucose isomerase	(II) Aspartame
(C) Thermolysin	(III) L-amino acids
(D) Lactase	(IV) High-fructose corn syrup

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

81 1000561

4.0 1

Who among the following proposed the induced-fit model of enzyme action?

- Emil Fischer
- Edward Buchner
- Daniel E Koshland
- J B S Haldane

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

82	1000562	Which of the following is the Enzyme Commission (EC) number of trypsin? 1. 3.4.21.1 2. 3.4.21.4 3. 3.4.21.7 4. 3.4.21.5 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

83	1000563	Whose studies provided the first evidence for collinearity between gene and polypeptide product? 1. Beadle and Tatum 2. Edward B Lewis 3. Archibald Garrod 4. Charles Yanofsky A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

84	1000564	Which of the following histone types are present in nucleosome octamer? 1. H2A, H2B, H3, H4 2. H1, H2, H3, H4 3. H1A, H1B, H2, H3 4. H1, H2A, H2B, H3 A1 : 1 A2 : 2	4.0	1
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A3 : 3

A4 : 4

Objective Question

85 1000565

4.0 1

Given below are two statements:

Statement (I) : Class I transposable elements utilize RNA intermediate during the transposition process.

Statement (II) : Class II transposable element can utilize both DNA and RNA during the transposition process.

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

Objective Question

86 1000566

4.0 1

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

List-I	List-II
Mutagen type	Agents
(A) Base analogs	(I) X-rays
(B) Alkylating agents	(II) EMS
(C) Ionizing radiations	(III) 5-bromouracil
(D) Non-ionizing radiations	(IV) UV rays

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

87 1000567

4.0 1

Given below are two statements:

Statement (I) : Gene expression can be influenced by changes in genome that do not involve mutations in DNA sequence.

Statement (II) : Expression changes are affected by DNA methylation pattern.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

88 1000568

4.0 1

Which of the following are the consensus sequences of *E.coli* promoter?

1. -35 and -25
2. -25 and -15
3. -35 and -10
4. -25 and -10

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

89	1000569	Who discovered the RNA interference as gene silencing by double stranded RNA? 1. Andrew Fire and Craig Mello 2. Elizabeth Blackburn 3. David Liu 4. Pamella Ronald A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

9010005704.01

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

List-I	List-II
RNA Polymerase	Product
(A) RNA Polymerase III Class 2	(I) tRNAs
(B) RNA Polymerase III Class I	(II) 5S rRNA
(C) RNA Polymerase II	(III) mRNA
(D) RNA Polymerase I	(IV) 5.8S rRNA

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

91	1000571		4.0	1
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Given below are two statements:

Statement (I) : Ultracentrifuges can be effectively used for separation of cell organelles.

Statement (II) : Ultracentrifuge rotor speed ranging from 60,000-1,50,000 rpm enable separation of smaller molecules.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

92 1000572

4.0 1

Given below are two statements:

Statement (I) : cDNA library represents the collection of expressed regions of the genome.

Statement (II) : cDNA are prepared from transcripts using DNA polymerase.

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

Objective Question

93 1000573

4.0 1

Given below are two statements:

Statement (I) : PacBio SMRT Sequencing is third generation sequencing technology.

Statement (II) : SMRT Sequencing requires no PCR and generate longer reads.

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

Objective Question

94 1000574

4.0 1

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

List-I	List-II
Software	Usage
(A) blastx	(I) Population genetics data analysis
(B) tblastn	(II) Protein → Translated Nucleotide
(C) Arlequin	(III) Translated Nucleotide → Protein
(D) mOTUs	(IV) Microbial taxonomy

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

95	1000575	Who among the following invented the polymerase chain reaction (PCR) technique? 1. Michael Smith 2. Fredrick Sanger 3. Stanton Gelvin 4. Kary Mullis A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

96	1000576	What is the role of the origin of replication (ori) in a plasmid? 1. It determines the copy number of the plasmid in the host cell. 2. It encodes a selectable marker such as antibiotic resistance. 3. It is responsible for the insertion of the plasmid into the host chromosome. 4. It encodes the proteins necessary for conjugation between bacterial cells. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

97	1000577		4.0	1
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Given below are two statements:

Statement (I) : In gene cloning, bacterial cells always take up only the recombinant DNA molecules, without any non-recombinant DNA.

Statement (II) : Blue-white screening is a technique that relies on the color of the bacterial colonies to differentiate between eukaryotic and prokaryotic cells.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

98 1000578

4.0 1

Arrange the following steps in chromosome walking in the correct order:

- (A) Use the known DNA sequence to design a primer.
- (B) Identify a clone containing the gene of interest.
- (C) Obtain a genomic library.
- (D) Sequence the new overlapping clone.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

99	1000579	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : Gene pyramiding involves stacking multiple resistance genes in a single plant variety. Reason (R) : Gene fusion is a molecular technique that combines two or more genes to form a single hybrid gene. In light of the above statements, choose the correct answer from the options given below. - 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. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

100	1000580	Arrange the following steps in the process of a biological risk assessment: (A) Determine the likelihood of harm. (B) Identify potential hazards. (C) Assess the severity of potential harm. (D) Characterize the risk. Choose the correct answer from the options given below: (A), (C), (B), (D). (B), (C), (A), (D). (B), (A), (C), (D). (D), (B), (C), (A). A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

101	1000581	Given below are two statements: Statement (I) : Ribosomes are composed of ribosomal RNA (rRNA) and proteins. Statement (II) : The small ribosomal subunit is responsible for catalyzing the formation of peptide bonds during translation. In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. - Both Statement (I) and Statement (II) are true. - Both Statement (I) and Statement (II) are false. Statement (I) is true but Statement (II) is false. Statement (I) is false but Statement (II) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

102	1000582	During translation, the charged tRNA enters the ribosome at which site? - A site - P site - E site - D site A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

103	1000583		4.0	1
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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 leading strand in DNA replication is synthesized discontinuously.

Reason (R) : DNA polymerase can only synthesize DNA in the 5' to 3' direction.

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

- 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.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

104 1000584

4.0 1

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

List-I	List-II
Type of DNA damage	Repair mechanism
(A) Thymine dimers	(I) Homologous recombination repair
(B) Mismatched base pairs	(II) Nucleotide excision repair
(C) DNA double-strand breaks	(III) Base excision repair
(D) Deaminated cytosine	(IV) Mismatch repair

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

105 1000585

4.0 1

Photoregulation of nuclear gene expression is mainly due to

1. Changes in the plant's circadian rhythm
2. Changes in the plant's temperature
3. Light-dependent changes in transcription factor activity
4. Light-dependent changes in water absorption

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

106 1000586

4.0 1

Given below are two statements:

Statement (I) : Nitrogen fixation only occurs in prokaryotic organisms.

Statement (II) : Leghemoglobin is a plant protein that helps maintain a low oxygen environment around nitrogen-fixing bacteria.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

107 1000587

4.0 1

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

List-I	List-II
(Plant hormone)	(Associated receptor or protein)
(A) Auxin	(I) PYR/PYL/RCAR
(B) Gibberellin	(II) ETR1
(C) Absciscic acid	(III) GID1
(D) Ethylene	(IV) TIR1

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

108 1000588

Arrange the following steps in the correct sequence that occurs in the regulation of nuclear genes involved in starch synthesis:

- Activation of AGPase (ADP-glucose pyrophosphorylase)
- Synthesis of ADP-glucose
- Transcription of starch synthesis genes
- Starch granule formation

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

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

A1 : 1

4.0 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

109 1000589

4.0 1

Given below are two statements:

Statement (I) : The process of androgenesis can be used to generate double haploid lines, which are beneficial in plant breeding programs.

Statement (II) : Gynogenesis is commonly used in animal breeding programs for producing animals with two sets of maternal chromosomes.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

110 1000590

4.0 1

Which of the following is a commonly used technique for somatic hybridization in plants?

1. Protoplast fusion
2. Cross-pollination
3. Genetic recombination
4. Transcriptional regulation

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

111	1000591	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : In vitro mutagenesis is an important tool for creating genetic variation in plants. Reason (R) : In vitro mutagenesis involves the use of chemical and physical mutagens to induce mutations in plant tissue culture. In light of the above statements, choose the <i>correct</i> answer from the options given below. - 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. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

112	1000592	A plant tissue culture repository is - A laboratory where plant tissue cultures are created - A storage facility where plant tissue cultures are kept for the long term - A database containing information about different plant species - A greenhouse where tissue-cultured plants are acclimatize A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1
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Objective Question

113	1000593		4.0	1
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Given below are two statements, one is labelled as **Assertion (A)** and other one labelled as **Reason (R)**.

Assertion (A) : ELISA (Enzyme-Linked Immunosorbent Assay) is a method used to detect the presence of specific DNA sequences in genetically modified organisms (GMOs).

Reason (R) : ELISA is a common laboratory technique which combines the specificity of antibodies with the sensitivity of simple enzyme assays, by using antibodies or antigens coupled to an easily-assayed enzyme.

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

114 1000594

4.0 1

Given below are two statements:

Statement (I) : RNA interference (RNAi) is a process within living cells that moderates the activity of their genes.

Statement (II) : In RNAi technology, miRNAs degrade messenger RNAs (mRNAs) directly, reducing their influence on protein production.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

115 1000595

4.0 1

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

List-I	List-II
Gene transfer method	Description/principle/procedure
(A) Agrobacterium tumefaciens	(I) Involves the use of a bacterium that naturally transfers its DNA into plants.
(B) Biolistics (gene gun)	(II) Utilizes brief electrical pulses to create temporary pores in cell membranes, allowing DNA to enter.
(C) Electroporation	(III) Fuses two cells by removing their cell walls, allowing for the mixing of their cellular contents.
(D) Protoplast fusion	(IV) Uses microscopic particles coated with DNA, which are shot into plant cells or tissues.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

116 1000596

4.0 1

Which of the following best describes biofortification?

- The process of fortifying food products with additional nutrients during processing.
- The use of organic farming methods to increase the nutrient content of the soil.
- The process of spraying crops with nutrient-rich solutions to increase their nutrient content.
- The process of increasing the nutrient content of crops through genetic modification.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

117 1000597

4.0 1

Given below are two statements:

Statement (I) : Recombinant Inbred Lines (RILs) are developed by inbreeding F₂ individuals from a cross for several generations.

Statement (II) : Near-isogenic lines (NILs) are populations that are genetically identical except at a single locus.

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

1. Both **Statement (I)** and **Statement (II)** are true.
2. Both **Statement (I)** and **Statement (II)** are false.
3. **Statement (I)** is true but **Statement (II)** is false.
4. **Statement (I)** is false but **Statement (II)** is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

118 1000598

4.0 1

Arrange the following steps in the process of Genomic Selection in the correct order:

- (A) Predict the genomic breeding values of the individuals based on their genotype.
- (B) Select the best individuals based on their genomic breeding values for breeding the next generation.
- (C) Generate a training population with known phenotypes and genotypes.
- (D) Genotype the selection candidates.

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

119 1000599

4.0 1

Which of the following techniques can be used in physical mapping?

1. Restriction mapping and Fluorescence in situ hybridization (FISH)
2. Polymerase Chain Reaction (PCR) and DNA sequencing
3. Southern blotting and Northern blotting
4. DNA Microarray and Next Generation Sequencing

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

120 1000600

4.0 1

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

Assertion (A) : DNA barcoding uses a short genetic sequence from a standard part of the genome to identify species.

Reason (R) : DNA barcoding always uses the entire genome sequence of an organism for identification.

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

