

# National Testing Agency

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|------------------------------|-----------------------------------------------------|
| <b>Question Paper Name :</b> | Agricultural Microbiology 17th September<br>Shift 2 |
| <b>Subject Name :</b>        | Agricultural Microbiology                           |
| <b>Creation Date :</b>       | 2021-09-17 18:54:23                                 |
| <b>Duration :</b>            | 120                                                 |
| <b>Total Marks :</b>         | 480                                                 |
| <b>Display Marks:</b>        | Yes                                                 |

## Agricultural Microbiology

|                                      |          |
|--------------------------------------|----------|
| <b>Group Number :</b>                | 1        |
| <b>Group Id :</b>                    | 19088985 |
| <b>Group Maximum Duration :</b>      | 0        |
| <b>Group Minimum Duration :</b>      | 120      |
| <b>Show Attended Group? :</b>        | No       |
| <b>Edit Attended Group? :</b>        | No       |
| <b>Break time :</b>                  | 0        |
| <b>Group Marks :</b>                 | 480      |
| <b>Is this Group for Examiner? :</b> | No       |

## Part A: General Knowledge

|                         |           |
|-------------------------|-----------|
| <b>Section Id :</b>     | 190889179 |
| <b>Section Number :</b> | 1         |
| <b>Section type :</b>   | Online    |

|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| <b>Number of Questions :</b>                                        | 20        |
| <b>Number of Questions to be attempted :</b>                        | 20        |
| <b>Section Marks :</b>                                              | 80        |
| <b>Enable Mark as Answered Mark for Review and Clear Response :</b> | Yes       |
| <b>Sub-Section Number :</b>                                         | 1         |
| <b>Sub-Section Id :</b>                                             | 190889219 |
| <b>Question Shuffling Allowed :</b>                                 | Yes       |

**Question Number : 1 Question Id : 1908899502 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1**

Which of the following is the device used to measure the power and speed of the wind?

1. Avometer
2. Anemometer
3. Airometer
4. Aviontimeter

**Options :**

19088937901. 1
19088937902. 2
19088937903. 3
19088937904. 4

**Question Number : 2 Question Id : 1908899503 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1**

Optical fibre used the concept of which of the following?

1. Reflection
2. Refraction
3. Total internal reflection
4. Total internal refraction

**Options :**

19088937905. 1

19088937906. 2

19088937907. 3

19088937908. 4

**Question Number : 3 Question Id : 1908899504 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Yellow vein mosaic is the viral disease of which of the following plants?

1. Ladyfinger
2. Papaya
3. Sugarcane
4. Banana

**Options :**

19088937909. 1

19088937910. 2

19088937911. 3

19088937912. 4

**Question Number : 4 Question Id : 1908899505 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following organ(s) is affected by Mumps disease?

1. Entire body
2. Skin
3. Eye
4. Parotid

**Options :**

19088937913. 1

19088937914. 2

19088937916. 4

**Question Number : 5 Question Id : 1908899506 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following is the chemical name of vitamin B<sub>2</sub>?

1. Riboflavin
2. Calciferol
3. Pyridoxin
4. Niacin

**Options :**

19088937917. 1

19088937918. 2

19088937919. 3

19088937920. 4

**Question Number : 6 Question Id : 1908899507 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following is not the input unit of the computer?

1. Mouse
2. Keyboard
3. Screen
4. Scanner

**Options :**

19088937921. 1

19088937922. 2

19088937923. 3

19088937924. 4

**Question Number : 7 Question Id : 1908899508 Question Type : MCQ Option Shuffling : No Is**

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

The digital computer operates on which of the following principle?

1. Measurement
2. Calculation
3. Logical
4. Electrification

**Options :**

19088937925. 1

19088937926. 2

19088937927. 3

19088937928. 4

**Question Number : 8 Question Id : 1908899509 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The non-cooperation movement of Gandhiji was launched in which of the following year?

1. 1915
2. 1922
3. 1920
4. 1930

**Options :**

19088937929. 1

19088937930. 2

19088937931. 3

19088937932. 4

**Question Number : 9 Question Id : 1908899510 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

An Islamic revivalist movement named Wahabi movement was founded by which of the following person?

1. Sian Saheb
2. Syed Ahmed
3. Haji Shariat-Allah
4. DaduMian

**Options :**

19088937933. 1

19088937934. 2

19088937935. 3

19088937936. 4

**Question Number : 10 Question Id : 1908899511 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following is considered as the “Magna Carta of England Education in India”?

1. Hunter education commission
2. Lord Macaulay’s Minute
3. Wood’s Despatch
4. Thomas Babington Macaulay

**Options :**

19088937937. 1

19088937938. 2

19088937939. 3

19088937940. 4

**Question Number : 11 Question Id : 1908899512 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following nutrient does not come under the ambit of 'macro-nutrients in Soil Health Card?

1. Nitrogen
2. Zinc
3. Phosphorous
4. Potassium

**Options :**

19088937941. 1

19088937942. 2

19088937943. 3

19088937944. 4

**Question Number : 12 Question Id : 1908899513 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Cole crops, root crops and legumes come under the ambit of which of the following?

1. Olericulture
2. Pomology
3. Viticulture
4. Arboriculture

**Options :**

19088937945. 1

19088937946. 2

19088937947. 3

19088937948. 4

**Question Number : 13 Question Id : 1908899514 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The study of individual trees, shrubs, vines, and perennial woody plants is known as which of the following?

1. Turf management
2. Arboriculture
3. Pomology
4. Viticulture

**Options :**

19088937949. 1

19088937950. 2

19088937951. 3

19088937952. 4

**Question Number : 14 Question Id : 1908899515 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

The ministry is implementing MIDH (Mission for Integrated Development of Horticulture) with effect from which of the following year?

1. 2012-13
2. 2019-20
3. 2015-16
4. 2014-15

**Options :**

19088937953. 1

19088937954. 2

19088937955. 3

19088937956. 4

**Question Number : 15 Question Id : 1908899516 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

The interaction of soils with living things, particularly plants are well known as which of the following?

1. Edaphology
2. Pedology
3. Soil zoology
4. Pedogenesis

**Options :**

19088937957. 1

19088937958. 2

19088937959. 3

19088937960. 4

**Question Number : 16 Question Id : 1908899517 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following systems has also incorporated social aspects in itself?

1. Landscaping
2. Permaculture
3. Horticulture
4. Forest gardening

**Options :**

19088937961. 1

19088937962. 2

19088937963. 3

19088937964. 4

**Question Number : 17 Question Id : 1908899518 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

What do you term the phenomenon whereby the specific gene is added to the plant for producing a desirable phenotype?

1. Genetic manipulation
2. Genetic recombination
3. Genetic modification
4. Genetic hybridisation

**Options :**

19088937965. 1

19088937966. 2

19088937967. 3

19088937968. 4

**Question Number : 18 Question Id : 1908899519 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

What is the focus of the participatory plant breeding program?

1. Scientists
2. Plants
3. Environment
4. Farmers

**Options :**

19088937969. 1

19088937970. 2

19088937971. 3

19088937972. 4

**Question Number : 19 Question Id : 1908899520 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

How do you term the form of agriculture, in which, industrialized production of crops and animal products takes place?

1. Manufactured agriculture
2. Modern agriculture
3. Industrial agriculture
4. Mechanistic agriculture

**Options :**

19088937973. 1

19088937974. 2

19088937975. 3

19088937976. 4

**Question Number : 20 Question Id : 1908899521 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Micro-irrigation fund of Rs. 5,000 crore has been placed with which of the following organization?

1. NABARD
2. IDBI
3. SBI
4. RRBs

**Options :**

19088937977. 1

19088937978. 2

19088937979. 3

19088937980. 4

## **Part B Core : Crop Sciences-III**

**Section Id :** 190889180

**Section Number :** 2

**Section type :** Online

|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| <b>Mandatory or Optional :</b>                                      | Mandatory |
| <b>Number of Questions :</b>                                        | 50        |
| <b>Number of Questions to be attempted :</b>                        | 50        |
| <b>Section Marks :</b>                                              | 200       |
| <b>Enable Mark as Answered Mark for Review and Clear Response :</b> | Yes       |
| <b>Sub-Section Number :</b>                                         | 1         |
| <b>Sub-Section Id :</b>                                             | 190889220 |
| <b>Question Shuffling Allowed :</b>                                 | Yes       |

**Question Number : 21 Question Id : 1908899522 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following indicates pH of a cola drink?

1. 7.6
2. 8.0
3. 3.0
4. 5.6

**Options :**

19088937981. 1

19088937982. 2

19088937983. 3

19088937984. 4

**Question Number : 22 Question Id : 1908899523 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Options :**

19088937985. 1

19088937986. 2

19088937987. 3

19088937988. 4

**Question Number : 23 Question Id : 1908899524 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following bond/ interaction is involved in stabilizing the structure of globular proteins?

1. Multiple weak interactions
2. Hydrophobic interactions
3. Conformation of protein molecules
4. Twist of  $\alpha$ -helix

**Options :**

19088937989. 1

19088937990. 2

19088937991. 3

19088937992. 4

**Question Number : 24 Question Id : 1908899525 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** All amino acids except glycine are chiral active.

**Reason R :**  $\alpha$ -carbon of glycine is bonded to carboxyl group, an amino group, R group and oxygen atom.

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.

**Options :**

19088937993. 1

19088937994. 2

19088937995. 3

19088937996. 4

**Question Number : 25 Question Id : 1908899526 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Plant products are broken down to more complex carbohydrates and peptides during malting.

**Statement II:** In malting, polysaccharides breakdown to disaccharides and monosaccharides.

In light of the above statements, choose the *correct* 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

**Options :**

19088937997. 1

19088937998. 2

19088937999. 3

19088938000. 4

**Question Number : 26 Question Id : 1908899527 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

| List I (Enzymes)                   | List II (Substrate)                               |
|------------------------------------|---------------------------------------------------|
| A. Acyl carrier protein            | I. $\beta$ -keto group to $\beta$ -hydroxyl group |
| B. Malonyl-CoA-ACP transferase     | II. Reduces double bond, form substrate Acyl-ACP  |
| C. Enoyl ACP reductase             | III. Transfers malonyl group from CoA to ACP      |
| D. $\beta$ -ketoacyl-ACP reductase | IV. Carries acyl groups in thio-ester linkage     |

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

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

**Options :**

19088938001. 1

19088938002. 2

19088938003. 3

19088938004. 4

**Question Number : 27 Question Id : 1908899528 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

How many folds the solution of pH 4 is acidic than a solution of pH 6?

1. 10 times
2. 100 times
3. 2 times
4. 1.5 times

**Options :**

19088938005. 1

19088938006. 2

19088938007. 3

19088938008. 4

**Question Number : 28 Question Id : 1908899529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** Aspartame, an artificial sweetener is a calorie-free substance.

**Reason R :** Aspartame is broken down to aspartate, phenyl alanine and methanol.

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

**Options :**

19088938009. 1

19088938010. 2

19088938011. 3

19088938012. 4

**Question Number : 29 Question Id : 1908899530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following vitamin is *NOT* a component of coenzymes required for pyruvate dehydrogenase complex?

1. Biotin
2. Thiamine
3. Niacin
4. Riboflavin

**Options :**

19088938013. 1

19088938014. 2

19088938015. 3

19088938016. 4

**Question Number : 30 Question Id : 1908899531 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Match List I with List II**

| List I (Amino Acid) | List II (One Letter Symbol) |
|---------------------|-----------------------------|
| A. Tryptophan       | I. Y                        |
| B. Glutamine        | II. R                       |
| C. Arginine         | III. Q                      |
| D. Tyrosine         | IV. W                       |

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

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

**Options :**

19088938017. 1

19088938018. 2

19088938019. 3

19088938020. 4

**Question Number : 31 Question Id : 1908899532 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following sentences-

- A. Stereoisomers are the molecule with same chemical bond and same configuration.
- B. Stereoisomers are the molecule with same chemical bond but different configuration.
- C. Enantiomers are the pair of stereoisomers that are mirror images to each other.
- D. Configurational isomers cannot be interconverted without breaking one or more bonds.

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

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

**Options :**

19088938021. 1

19088938022. 2

19088938023. 3

19088938024. 4

**Question Number : 32 Question Id : 1908899533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Options :**

- 19088938025. 1
- 19088938026. 2
- 19088938027. 3
- 19088938028. 4

**Question Number : 33 Question Id : 1908899534 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

**Match List I with List II**

| List I (Cell organelle) | List II (Function)                              |
|-------------------------|-------------------------------------------------|
| A. Lysosomes            | I. Degradation of fatty acids and amino acids   |
| B. Peroxisomes          | II. Degradation of extracellular macromolecules |
| C. Nucleolus            | III. Sorting center of the cell                 |
| D. Golgi apparatus      | IV. Site of rRNA synthesis                      |

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

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

**Options :**

- 19088938029. 1
- 19088938030. 2
- 19088938031. 3
- 19088938032. 4

**Question Number : 34 Question Id : 1908899535 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Which one of the following equations is correct as per the Michaelis-Menten equation for an enzyme-catalyzed reaction?

1.  $v = \frac{Km + [S]}{Vmax[S]}$
2.  $v = \frac{Vmax[S]}{Km + [S]}$
3.  $v = \frac{Vmax + [S]}{Km[S]}$
4.  $v = \frac{Vmax + [S]}{Km + [S]}$

**Options :**

19088938033. 1

19088938034. 2

19088938035. 3

19088938036. 4

**Question Number : 35 Question Id : 1908899536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** The optimum leaf area index is between 3 to 4 for crops with horizontally oriented leaves.

**Statement II:** The optimum leaf area index is between 6 to 9 for crops with upright leaves.

In light of the above statements, choose the *correct* 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

**Options :**

19088938037. 1

19088938038. 2

19088938039. 3

19088938040. 4

**Question Number : 36 Question Id : 1908899537 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** CAM plants like pineapple and sisal, have higher water use efficiency.

**Reason R :** In CAM plants, stomata are closed during day time, transpiration is, therefore, negligible.

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

**Options :**

19088938041. 1

19088938042. 2

19088938043. 3

19088938044. 4

**Question Number : 37 Question Id : 1908899538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Manganese deficiency is characterized by a reduction in intermodal growth results in rosette habit of growth.

**Statement II:** Nickel-deficient plants accumulate urea in their leaves and, consequently, show leaf tip necrosis.

In light of the above statements, choose the *correct* 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

**Options :**

- 19088938045. 1
- 19088938046. 2
- 19088938047. 3
- 19088938048. 4

**Question Number : 38 Question Id : 1908899539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements-

- A. Decrease in leaf area is an early adaptive response to water deficit.
- B. Water deficit enhances root extension into deeper moist soil.
- C. Closing of stomata takes place during a water deficit period in response to ethylene.
- D. Water deficit limits photosynthesis within the chloroplast.

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

**Options :**

- 19088938049. 1
- 19088938050. 2
- 19088938051. 3
- 19088938052. 4

**Question Number : 39 Question Id : 1908899540 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** In photoperiodism, the leaf detects the photoperiod and the bud becomes the flower.

**Reason R :** The flowering hormone- florigen acts as a stimulus transmitted from the leaf to the bud.

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

**Options :**

19088938053. 1

19088938054. 2

19088938055. 3

19088938056. 4

**Question Number : 40 Question Id : 1908899541 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

1. Given below are two statements-

**Statement I:** Calcium is used in the synthesis of new cell walls, particularly the middle lamellae that separates newly divided cells.

**Statement II:** Nickel-deficient plants accumulate urea in their leaves and, consequently, show leaf tip necrosis.

In light of the above statements, choose the *correct* 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

**Options :**

19088938057. 1

19088938058. 2

19088938059. 3

19088938060. 4

**Question Number : 41 Question Id : 1908899542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Match List I with List II**

| List I (Terms)       | List II (Scientist)                 |
|----------------------|-------------------------------------|
| A. Water potential   | I. W. W. Garner and H. A. Allard    |
| B. Vernalization     | II. Arnon and Stout                 |
| C. Photoperiodism    | III. R. O. Slatyer and S. A. Taylor |
| D. Essential element | IV. T. D. Lysenko                   |

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

**Options :**

19088938061. 1

19088938062. 2

19088938063. 3

19088938064. 4

**Question Number : 42 Question Id : 1908899543 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** Chlorine is required for the water-splitting reaction of photosynthesis through which oxygen is produced.

**Reason R :** Plants deficient in chlorine develop wilting of the leaf tips followed by general leaf chlorosis and necrosis.

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

**Options :**

19088938065. 1

19088938066. 2

19088938067. 3

19088938068. 4

**Question Number : 43 Question Id : 1908899544 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following plant hormone is known as ripening hormone?

1. ABA
2. Auxin
3. Ethylene
4. Gibberellin

**Options :**

19088938069. 1

19088938070. 2

19088938071. 3

19088938072. 4

**Question Number : 44 Question Id : 1908899545 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Non pigmented plastids are called leucoplasts.

**Statement II:** The most important type of leucoplast is the amyloplast, a starch storing plastid.

In light of the above statements, choose the *correct* 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

**Options :**

19088938073. 1

19088938074. 2

19088938075. 3

19088938076. 4

**Question Number : 45 Question Id : 1908899546 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

**Options :**

- 19088938077. 1
- 19088938078. 2
- 19088938079. 3
- 19088938080. 4

**Question Number : 46 Question Id : 1908899547 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements

- A. Cell membrane lipids are amphipathic in nature
- B. Cell membrane peripheral proteins are water-soluble in nature
- C. Phase transition is affected only by protein component of cell membrane
- D. Cell membrane integral proteins are water-insoluble in nature

Choose the *correct* answer from the options given below

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

**Options :**

- 19088938081. 1
- 19088938082. 2
- 19088938083. 3
- 19088938084. 4

**Question Number : 47 Question Id : 1908899548 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** DNA consists of four bases - Adenine (A), Guanine (G), Cytosine (C) and Thymine (T).

**Statement II:** DNA double helix was discovered by Watson, Crick and Wilkins.

In light of the above statements, choose the *correct* 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

**Options :**

19088938085. 1

19088938086. 2

19088938087. 3

19088938088. 4

**Question Number : 48 Question Id : 1908899549 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Which of the following equation is correct for estimating melting temperature ( $T_m$ ) of primer target sequence duplex?

1.  $[4(G+C) + 2(A+T)]$
2.  $[2(G+C) + 4(A+T)]$
3.  $[3(G+C) + 2(A+T)]$
4.  $[2(G+C) + 3(A+T)]$

**Options :**

19088938089. 1

19088938090. 2

19088938091. 3

19088938092. 4

**Question Number : 49 Question Id : 1908899550 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

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

**Assertion A :** The enzyme glutathione synthase is designated as EC 6.3.2.3.

**Reason R :** Glutathione synthase catalyze covalent bond formation by hydrolysis of ATP/GTP.

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

**Options :**

19088938093. 1

19088938094. 2

19088938095. 3

19088938096. 4

**Question Number : 50 Question Id : 1908899551 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Mobility of hydrogen atoms from one position to another in nitrogenous bases is the primary cause of tautomeric shifts.

**Statement II:** Base-pair substitutions involving replacement of purine with pyrimidine and *vice versa* are called transitions.

In light of the above statements, choose the *correct* 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

**Options :**

19088938097. 1

19088938098. 2

19088938099. 3

19088938100. 4

**Question Number : 51 Question Id : 1908899552 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

**Match List I with List II**

| List I (Discovery/Invention)     | List II (Discoverer)    |
|----------------------------------|-------------------------|
| A. Polymerase Chain Reaction     | I. Francis H Arnold     |
| B. Directed evolution of enzymes | II. Kary B Mullis       |
| C. Water Channels                | III. Barbara McClintock |
| D. Mobile Genetic Elements       | IV. Peter Agre          |

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

**Options :**

19088938101. 1

19088938102. 2

19088938103. 3

19088938104. 4

**Question Number : 52 Question Id : 1908899553 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

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

**Assertion A :** Three codons – UAG (amber), UAA (ochre), UGA (opal) specify polypeptide chain termination.

**Reason R :** Three codons (amber, ochre and opal) are recognized by Release Factors (RF), rather than tRNAs

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

**Options :**

19088938105. 1

19088938106. 2

19088938107. 3

19088938108. 4

**Question Number : 53 Question Id : 1908899554 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Match List I with List II**

| List I (Selectable marker gene) | List II (Selection mechanism) |
|---------------------------------|-------------------------------|
| A. epsps                        | I. Resistance to D-serine     |
| B. nptIII                       | II. Herbicide resistance      |
| C. gfp                          | III. Antibiotic resistance    |
| D. dsdA                         | IV. Visual screening          |

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

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

**Options :**

19088938110. 2

19088938111. 3

19088938112. 4

**Question Number : 54 Question Id : 1908899555 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Who proved the semiconservative mode of DNA replication?

1. Watson and Crick
2. Hershey and Chase
3. Meselson and Stahl
4. Charpentier and Doudna

**Options :**

19088938113. 1

19088938114. 2

19088938115. 3

19088938116. 4

**Question Number : 55 Question Id : 1908899556 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Options :**

19088938117. 1

19088938118. 2

19088938119. 3

19088938120. 4

**Question Number : 56 Question Id : 1908899557 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A:** Lactic acid is formed due to extreme activity in aerobic organisms.

**Reason R:**  $\text{NAD}^+$  is regenerated from NADH by the reduction of pyruvate to lactate.

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

**Options :**

19088938121. 1

19088938122. 2

19088938123. 3

19088938124. 4

**Question Number : 57 Question Id : 1908899558 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following enzymes are involved in Nucleotide-excision repair?

- A. DNA polymerase I
- B. DNA glycosylases
- C. DNA ligase
- D. ABC excinuclease

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

- 1. A, B, D
- 2. A, B, C
- 3. B, C, D
- 4. A, C, D

**Options :**

- 19088938125. 1
- 19088938126. 2
- 19088938127. 3
- 19088938128. 4

**Question Number : 58 Question Id : 1908899559 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Who has proposed the chromosomal theory of heredity?

- 1. William Bateson
- 2. Walter Sutton
- 3. Seymour Benzer
- 4. Gregor Johann Mendel

**Options :**

- 19088938129. 1
- 19088938130. 2
- 19088938131. 3
- 19088938132. 4

**Question Number : 59 Question Id : 1908899560 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

First description of bacterial characteristics from human mouth as 'animalcules' written to the Royal Society of Science was reported by a -

1. French chemist
2. German physician
3. Dutch merchant
4. Russian naturalist

**Options :**

19088938133. 1

19088938134. 2

19088938135. 3

19088938136. 4

**Question Number : 60 Question Id : 1908899561 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Match List I with List II**

| List I (Function)       | List II (Enzyme involved) |
|-------------------------|---------------------------|
| A. RNA primer synthesis | I. Helicase               |
| B. Negative supercoil   | II. DNA polymerase III    |
| C. Unwinding of DNA     | III. Primase              |
| D. Proof reading        | IV. Gyrase                |
|                         | V. RNA polymerase II      |

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

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

**Options :**

19088938138. 2

19088938139. 3

19088938140. 4

**Question Number : 61 Question Id : 1908899562 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements regarding decomposition of organic matter-

- A. C:N ratio of fresh plant material ranges from 20:1 to 30:1 in legumes
- B. If C:N ratio is less than 25:1, immobilization exceeds mineralization
- C. A compost is considered superior if the C:N ratio is 20:1 or less
- D. Ideal C:N ratio for maximum decomposition is 20:1 to 25:1

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

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

**Options :**

19088938141. 1

19088938142. 2

19088938143. 3

19088938144. 4

**Question Number : 62 Question Id : 1908899563 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Differential staining method requires more than one stain and more steps.

**Statement II:** Gram staining is a differential staining method which divides bacteria in two major groups.

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

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

**Options :**

19088938145. 1

19088938146. 2

19088938147. 3

19088938148. 4

**Question Number : 63 Question Id : 1908899564 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

10 g soil sample from groundnut rhizosphere was put in a flask containing 90 ml sterile distilled water. 1 ml content was drawn from the flask and transferred to a tube containing 9 ml sterile distilled water and similarly was serially diluted up to 8<sup>th</sup> dilution. 1 ml each from 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> dilution was used to plate on nutrient agar medium by pour plate method in triplicates. After incubation at suitable environmental conditions for 24 hours, the count of 62, 60, 58 colonies was observed on the inoculated plates in 7<sup>th</sup> dilution.

What is the total population of the bacteria present in the soil sample?

1. 180 CFU/g
2.  $60 \times 10^8$  CFU/g
3.  $60 \times 10^7$  CFU/g
4.  $6 \times 10^7$  CFU/g

**Options :**

19088938149. 1

19088938150. 2

19088938151. 3

19088938152. 4

**Question Number : 64 Question Id : 1908899565 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A** : Denaturing gradient gel electrophoresis (DGGE) is used for rapid fingerprint analysis of microbial community composition, diversity and dynamics.

**Reason R** : DGGE is used for bacterial identification based on capability to utilize various carbon sources.

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

**Options :**

19088938153. 1

19088938154. 2

19088938155. 3

19088938156. 4

**Question Number : 65 Question Id : 1908899566 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Who suggested the five kingdom concept for the classification of living organisms?

1. E. Hackel
2. Copeland
3. Lennaeus
4. R. H. Whittakar

**Options :**

19088938157. 1

19088938158. 2

19088938159. 3

19088938160. 4

**Question Number : 66 Question Id : 1908899567 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

**Match List I with List II**

| <b>List I (Prokaryotic cell structure)</b> | <b>List II (Function)</b> |
|--------------------------------------------|---------------------------|
| A. Flagella                                | I. Virulence              |
| B. Fimbriae                                | II. Food reservoir        |
| C. Capsule                                 | III. Motility             |
| D. Cell inclusions                         | IV. Attachment            |

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

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

**Options :**

19088938161. 1

19088938162. 2

19088938163. 3

19088938164. 4

**Question Number : 67 Question Id : 1908899568 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

**Options :**

- 19088938165. 1
- 19088938166. 2
- 19088938167. 3
- 19088938168. 4

**Question Number : 68 Question Id : 1908899569 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Arrange taxonomic hierarchical positions from higher to lower.

- A. Phylum
- B. Class
- C. Domain
- D. Family
- E. Order

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

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

**Options :**

- 19088938169. 1
- 19088938170. 2
- 19088938171. 3
- 19088938172. 4

**Question Number : 69 Question Id : 1908899570 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

In which phase of growth curve during batch culture, bacteria multiply exponentially?

1. Lag phase
2. Log phase
3. Stationary phase
4. Death phase

**Options :**

19088938173. 1

19088938174. 2

19088938175. 3

19088938176. 4

**Question Number : 70 Question Id : 1908899571 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

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

**Assertion A :** Biofertilizers should be preferred over chemical fertilizers.

**Reason R :** The high cost and environmental concerns associated with chemical fertilizers.

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

**Options :**

19088938177. 1

19088938178. 2

19088938179. 3

19088938180. 4

## Part C : Agricultural Microbiology

|                                                              |           |
|--------------------------------------------------------------|-----------|
| Section Id :                                                 | 190889181 |
| Section Number :                                             | 3         |
| Section type :                                               | Online    |
| Mandatory or Optional :                                      | Mandatory |
| Number of Questions :                                        | 50        |
| Number of Questions to be attempted :                        | 50        |
| Section Marks :                                              | 200       |
| Enable Mark as Answered Mark for Review and Clear Response : | Yes       |
| Sub-Section Number :                                         | 1         |
| Sub-Section Id :                                             | 190889221 |
| Question Shuffling Allowed :                                 | Yes       |

Question Number : 71 Question Id : 1908899572 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Highest magnification that could be obtained by Leeuwenhoek was  $n^{\text{th}}$  part of the highest magnification obtainable with a modern compound light microscope.  $n = ?$

1. More than  $1/3$
2. Less than  $1/3$
3. More than  $1/2$
4. Less than  $1/8$

Options :

19088938181. 1

19088938182. 2

19088938183. 3

19088938184. 4

Question Number : 72 Question Id : 1908899573 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

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

The term 'phyllosphere' was coined by -

1. Louis Pasteur
2. Hiltner
3. Jakoba Ruinen
4. John Tyndall

**Options :**

19088938185. 1

19088938186. 2

19088938187. 3

19088938188. 4

**Question Number : 73 Question Id : 1908899574 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Match List I with List II

| List I (Nutritional categories) | List II (Energy and C sources)                       |
|---------------------------------|------------------------------------------------------|
| A. Chemolithotroph              | I. Organic compound and organic compounds            |
| B. Chemoheterotroph             | II. Reduced inorganic compounds and carbon dioxide   |
| C. Photoheterotroph             | III. Light and carbon dioxide                        |
| D. Photoautotroph               | IV. Light and organic compounds                      |
|                                 | V. Reduced inorganic compounds and organic compounds |

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

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

**Options :**

19088938189. 1

19088938190. 2

19088938191. 3

19088938192. 4

**Question Number : 74 Question Id : 1908899575 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Why phosphates are widely used in the preparation of media for the cultivation of microorganisms?

- A. They are non-toxic to microorganisms at lower concentrations
- B. They are effective in the pH range 7.2-8.5
- C. They provide source of P for the growth
- D. They are the only inorganic agents that buffer in physiologically important pH range

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

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

**Options :**

19088938193. 1

19088938194. 2

19088938195. 3

19088938196. 4

**Question Number : 75 Question Id : 1908899576 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Under the best obtainable conditions, with light of the shortest visible wavelength (~426 nm), the maximal resolution of light microscopes would be -

- 1. 200 nm
- 2. 20 nm
- 3. 2 nm
- 4. 2000 nm

**Options :**

19088938197. 1

19088938198. 2

19088938199. 3

19088938200. 4

**Question Number : 76 Question Id : 1908899577 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements regarding bacterial membrane system-

- A. Cytoplasmic membrane is the only unit membrane of most bacteria
- B. Gas vesicles in aquatic bacteria are the only unit membrane system
- C. Carboxysomes in autotrophic bacteria are characterized by unit membrane system
- D. Thylakoids in cyanobacteria are characterized by unit membrane system

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

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

**Options :**

19088938201. 1

19088938202. 2

19088938203. 3

19088938204. 4

**Question Number : 77 Question Id : 1908899578 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements regarding flagellar apparatus of bacteria-

- A. Basal body in Gram negative bacteria bears only two pairs of rings
- B. Basal body in Gram positive bacteria bears only lower two rings
- C. Basal body in Gram negative bacteria bears only lower two rings
- D. In bacteria, only S and M rings are essential for flagellar function

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

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

**Options :**

- 19088938205. 1
- 19088938206. 2
- 19088938207. 3
- 19088938208. 4

**Question Number : 78 Question Id : 1908899579 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

In order to measure bacterial mass which of the following quantity of cells is measured by a nephelometer?

- 1. the transmitted light
- 2. the absorbed light
- 3. the scattered light
- 4. the dry weight

**Options :**

- 19088938209. 1
- 19088938210. 2
- 19088938211. 3
- 19088938212. 4

**Question Number : 79 Question Id : 1908899580 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Among the following microbial culture collections, some important culture collections of India are-

- A. MTCC
- B. ATCC
- C. ITCC
- D. NAIMCC
- E. NBIMCC
- F. NCTC

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

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

**Options :**

- 19088938213. 1
- 19088938214. 2
- 19088938215. 3
- 19088938216. 4

**Question Number : 80 Question Id : 1908899581 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following autoinducers are used by Gram negative bacteria for communication?

1. Amino acids and short peptides
2. Homoserine lactones
3. Fatty acids
4. Oligonucleotides

**Options :**



19088938217. 1

19088938218. 2

19088938219. 3

19088938220. 4

**Question Number : 81 Question Id : 1908899582 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which fungal phylum accounts for approximately 75% of the described fungal species?

1. Ascomycota
2. Basidiomycota
3. Chytridiomycota
4. Zygomycota

**Options :**

19088938221. 1

19088938222. 2

19088938223. 3

19088938224. 4

**Question Number : 82 Question Id : 1908899583 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Under anaerobic conditions, in the absence of alternate electron acceptors, members of Enterobacteriaceae ferment glucose to -

1. Acetic acid and carbon dioxide
2. Propionic acid, acetic acid and carbon dioxide
3. Acetic acid, formic acid, lactic acid, succinic acid and ethanol
4. Butyric acid, butanol, acetone and isopropanol

**Options :**

19088938225. 1

19088938226. 2

19088938227. 3

Question Number : 83 Question Id : 1908899584 Question Type : MCQ Option Shuffling : No Is  
Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match List I with List II

| List I (Association)                     | List II (Examples of N <sub>2</sub> fixers) |
|------------------------------------------|---------------------------------------------|
| A. Symbiotic with root nodulating plants | I. <i>Azorhizobium caulinodans</i>          |
| B. Associative interaction with grasses  | II. <i>Azotobacter</i> spp.                 |
| C. Free living                           | III. <i>Azospirillum</i> spp.               |
| D. Symbiotic with stem nodulating plants | IV. <i>Klebsiella aerogenes</i>             |
| E. Symbiotic with leaf nodulating plants | V. <i>Frankia</i> spp.                      |

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

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

Options :

19088938229. 1

19088938230. 2

19088938231. 3

19088938232. 4

Question Number : 84 Question Id : 1908899585 Question Type : MCQ Option Shuffling : No Is  
Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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

**Assertion A :** *Zymomonas mobilis* is the only bacteria that utilizes Entner-Doudoroff pathway anaerobically.

**Reason R :** It lacks an oxidative electron transport system.

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

**Options :**

19088938233. 1

19088938234. 2

19088938235. 3

19088938236. 4

**Question Number : 85 Question Id : 1908899586 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Match List I with List II**

| <b>List I (Autotroph group)</b> | <b>List II (Examples)</b>      |
|---------------------------------|--------------------------------|
| A. Hydrogen bacteria            | I. <i>Chromatium</i> sp.       |
| B. Green sulfur bacteria        | II. <i>Thiobacillus</i> sp.    |
| C. Purple sulfur bacteria       | III. <i>Rhodospirillum</i> sp. |
| D. Purple non-sulfur bacteria   | IV. <i>Ralstonia eutropha</i>  |
| E. Iron bacteria                | V. <i>Chlorobium</i> sp.       |

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

1. A –IV, B –I, C –V, D –II, E –III
2. A –I, B –V, C –II, D –III, E –IV
3. A –IV, B –III, C –I, D –V, E –II
4. A –IV, B –V, C –I, D –III, E –II

**Options :**

19088938237. 1

19088938238. 2

19088938239. 3

19088938240. 4

**Question Number : 86 Question Id : 1908899587 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

First synthetic polyribonucleotide discovered to have mRNA activity, formed polypeptide chain containing only -

1. Lysine
2. Proline
3. Phenylalanine
4. Alanine

**Options :**

19088938241. 1

19088938242. 2

19088938243. 3

19088938244. 4

**Question Number : 87 Question Id : 1908899588 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** Synthesis of DNA is continuous in the leading strand and discontinuous in the lagging strand during replication.

**Reason R :** DNA polymerases have an absolute requirement for a free 3'-hydroxyl, and they can only carry out synthesis in 5' → 3' direction.

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

**Options :**

19088938245. 1

19088938246. 2

19088938247. 3

19088938248. 4

**Question Number : 88 Question Id : 1908899589 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A :** Bacteriophage lambda can be considered as specialized transducing phage which mediates transduction of 'gal' and 'bio' genes of *E. coli*.

**Reason R :** In specialized transduction, a given virus transduces a random or nearly random segment of bacterial DNA.

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

**Options :**

19088938249. 1

19088938250. 2

19088938251. 3

19088938252. 4

**Question Number : 89 Question Id : 1908899590 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements regarding chemically induced mutations-

- A. Mustard gas is mutagenic only to replicating DNA.
- B. Mustard gas transfers only alkyl groups to the bases in DNA.
- C. Mustard gas induces only an AT → GC transition.
- D. Mustard gas was the first chemical mutagen discovered.
- E. Mustard gas induces only oxidative deamination of bases.

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

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

**Options :**

19088938253. 1

19088938254. 2

19088938255. 3

19088938256. 4

**Question Number : 90 Question Id : 1908899591 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

| List I (RNA polymerases)               | List II (Number of subunits) |
|----------------------------------------|------------------------------|
| A. Archaeal RNA polymerase             | I. Twelve                    |
| B. Bacterial RNA polymerase            | II. Fourteen                 |
| C. Phage T <sub>7</sub> RNA polymerase | III. Eleven                  |
| D. Eukaryotic RNA polymerase I         | IV. Five                     |
| E. Eukaryotic RNA polymerase II        | V. One                       |

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

1. A –V, B –IV, C –III, D –I, E –II
2. A –III, B –IV, C –V, D –II, E –I
3. A –II, B –I, C –IV, D –V, E –III
4. A –IV, B –III, C –V, D –I, E –II

**Options :**

19088938257. 1

19088938258. 2

19088938259. 3

19088938260. 4

**Question Number : 91 Question Id : 1908899592 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

*'Cellulolytic fungi produce a number of organic acids from cellulose, which serve as carbon sources for non-cellulolytic bacteria and fungi.'*

Which type of microbial association has been mentioned in the above statement?

1. Mutualism
2. Neutralism
3. Synergism
4. Commensalism

**Options :**

19088938261. 1

19088938262. 2

19088938263. 3

19088938264. 4

**Question Number : 92 Question Id : 1908899593 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following techniques is helpful in the visualisation of single-cell ecophysiology of microorganisms in environmental samples?

1. FISH technique
2. SIMS technique
3. SEM technique
4. TEM technique

**Options :**

19088938265. 1

19088938266. 2

19088938267. 3

19088938268. 4

**Question Number : 93 Question Id : 1908899594 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements regarding biodegradation of lignin-

- A. Bacteria are the most efficient lignin degraders
- B. White rot fungi are the most effective degraders
- C. Lignin is solubilized in termites by gut-inhabiting *Streptomyces*
- D. Lignin is the major component of marine plants
- E. Dense nature, hydrophobicity and non-specific structure make it difficult for enzymes to attack

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

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

**Options :**

19088938269. 1

19088938270. 2

19088938271. 3

19088938272. 4

**Question Number : 94 Question Id : 1908899595 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read the following statements regarding ammonia assimilation-

- A. Microbes which have both NADP-linked glutamate dehydrogenase (GDH) system and GS-GOGAT system, are most active at higher  $\text{NH}_3$  concentrations
- B. GS-GOGAT system is most active at higher  $\text{NH}_3$  concentrations
- C. Under  $\text{N}_2$ -fixing conditions rhizobia use GS-GOGAT system
- D. Under  $\text{N}_2$ -fixing conditions rhizobia exports alanine
- E. Under  $\text{N}_2$ -fixing conditions rhizobia exports ammonia

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

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

**Options :**

19088938273. 1

19088938274. 2

19088938275. 3

19088938276. 4

**Question Number : 95 Question Id : 1908899596 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Specification of carrier-based *Azotobacter* biofertilizer for viable cell count under FCO, 1985 is -

- 1. CFU minimum  $5 \times 10^7$  cell/g of powder
- 2. CFU minimum  $100 \times 10^7$  cell/g of powder
- 3. CFU minimum  $500 \times 10^7$  cell/g of powder
- 4. CFU minimum  $5 \times 10^5$  cell/g of powder

**Options :**

19088938277. 1

19088938278. 2

19088938279. 3

19088938280. 4

**Question Number : 96 Question Id : 1908899597 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which nitrogen-fixing microorganism forms a mutual relationship with *Alnus* spp.?

1. *Streptomyces* sp.
2. *Rhizobium* sp.
3. *Frankia* sp.
4. *Anabaena* sp.

**Options :**

19088938281. 1

19088938282. 2

19088938283. 3

19088938284. 4

**Question Number : 97 Question Id : 1908899598 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

| List I                                   | List II                             |
|------------------------------------------|-------------------------------------|
| ( <i>Klebsiella pneumoniae</i> nif gene) | (Gene product/function)             |
| A. <i>nif</i> H                          | I. Positive regulator               |
| B. <i>nif</i> D                          | II. Dinitrogenase reductase         |
| C. <i>nif</i> K                          | III. MoFe protein $\alpha$ -subunit |
| D. <i>nif</i> A                          | IV. MoFe protein $\beta$ -subunit   |

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

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

**Options :**

19088938285. 1

19088938286. 2

19088938287. 3

19088938288. 4

**Question Number : 98 Question Id : 1908899599 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Mycorrhizae are the most prevalent relationship and colonize more than 90% vascular plants.

**Statement II:** Mycorrhizae confer biotic and abiotic stress tolerance to its plant partner.

In light of the above statements, choose the *correct* 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

**Options :**

19088938289. 1

19088938290. 2

19088938291. 3

19088938292. 4

**Question Number : 99 Question Id : 1908899600 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read following statements for milk and its associated microbes-

- A. In raw milk, microbes enter through udder, milking equipments, environment, etc.
- B. Milk is nutritionally rich food and perishable in nature.
- C. Pasteurization kills all the microbes in raw milk.
- D. Thermophilic microbes grow prominently during refrigeration storage of milk.
- E. Kefir is the microbial based fermented milk product.

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

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

**Options :**

19088938293. 1

19088938294. 2

19088938295. 3

19088938296. 4

**Question Number : 100 Question Id : 1908899601 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

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

**Assertion A :** Probiotic bacteria like *Lactobacillus* and *Bifidobacterium* reduce risk of colon cancer.

**Reason R :** These microbes produce proto-oncogene repressor protein.

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

**Options :**

- 19088938297. 1
- 19088938298. 2
- 19088938299. 3
- 19088938300. 4

**Question Number : 101 Question Id : 1908899602 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Consumption of food containing the potent toxin botulin affects-

- 1. Heart cells
- 2. Kidney cells
- 3. Nerve cells
- 4. Lung cells

**Options :**

- 19088938301. 1
- 19088938302. 2
- 19088938303. 3
- 19088938304. 4

**Question Number : 102 Question Id : 1908899603 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Which microbes in water are considered as indicator of faecal contamination?

- 1. Iron bacteria
- 2. Sulfur bacteria
- 3. Methylobacteria
- 4. Coliforms

**Options :**

- 19088938305. 1
- 19088938306. 2

19088938308. 4

**Question Number : 103 Question Id : 1908899604 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Which bacteria cause bloody bread by producing red coloured spots on it?

1. *Pseudomonas aeruginosa*
2. *Pseudomonas fluorescens*
3. *Clostridium botulinum*
4. *Serratia marcescens*

**Options :**

19088938309. 1

19088938310. 2

19088938311. 3

19088938312. 4

**Question Number : 104 Question Id : 1908899605 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

The term 'Fermentation' is derived from Latin word *fervere* means -

1. To work
2. To expose
3. To boil
4. To add

**Options :**

19088938313. 1

19088938314. 2

19088938315. 3

19088938316. 4

**Question Number : 105 Question Id : 1908899606 Question Type : MCQ Option Shuffling : No**

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

Given below are two statements-

**Statement I:** Wine is produced by fermentation of barley grains.

**Statement II:** Wine fermentation occurs by directly adding yeast on dry grains.

In light of the above statements, choose the *correct* 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

**Options :**

19088938317. 1

19088938318. 2

19088938319. 3

19088938320. 4

**Question Number : 106 Question Id : 1908899607 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

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

| List I (Antibiotic) | List II (Producer organism)        |
|---------------------|------------------------------------|
| A. Bacitracin       | I. <i>Bacillus brevis</i>          |
| B. Gentamycin       | II. <i>Bacillus subtilis</i>       |
| C. Gramicidin       | III. <i>Streptomyces griseus</i>   |
| D. Streptomycin     | IV. <i>Micromonospora purpurea</i> |

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

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

**Options :**

19088938321. 1

19088938323. 3

19088938324. 4

**Question Number : 107 Question Id : 1908899608 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Read following statements for Single Cell Protein (SCP)-

- A. Has very low digestibility.
- B. Can be produced on agricultural wastes.
- C. Provide all essential amino acids.
- D. Can be used as human food and animal feed.
- E. High nucleic acid content is not good for health.

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

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

**Options :**

19088938325. 1

19088938326. 2

19088938327. 3

19088938328. 4

**Question Number : 108 Question Id : 1908899609 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Human growth hormone (hGH) used to treat hypopituitary dwarfism was extracted from the brains of human cadavers initially.

**Statement II:** Currently, recombinant hGH from *E. coli* satisfied its demand and eliminated the risk associated with human source.

In light of the above statements, choose the *correct* 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

**Options :**

19088938329. 1

19088938330. 2

19088938331. 3

19088938332. 4

**Question Number : 109 Question Id : 1908899610 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Read following statements regarding biomining-

- A. Require sophisticated machinery for all metals biomining.
- B. Can be used for extraction of high-value products like Uranium and Gold.
- C. Can work for the ore with low metal concentration.
- D. *Acidithiobacillus ferrooxidans* is a hyperthermophile and can grow above 80°C temperature.
- E. *Acidithiobacillus ferrooxidans* dissolves FeS<sub>2</sub> by acid production mechanism.

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

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

19088938333. 1

19088938334. 2

19088938335. 3

19088938336. 4

**Question Number : 110 Question Id : 1908899611 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Which of the following secondary treatment is used for oxidation of organic matter from municipal sewage water?

1. Flocculation
2. Trickling filter
3. Sedimentation tank
4. Ion exchange chromatography

**Options :**

19088938337. 1

19088938338. 2

19088938339. 3

19088938340. 4

**Question Number : 111 Question Id : 1908899612 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

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

**Assertion A :** Phosphate forms complex with Ca, Al and Fe; becomes available for plants growth.

**Reason R :** Phosphate solubilizing microbes convert insoluble phosphate to soluble and plant utilizable phosphate.

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

**Options :**

19088938341. 1

19088938342. 2

19088938343. 3

19088938344. 4

**Question Number : 112 Question Id : 1908899613 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

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

| <b>List I</b>                         | <b>List II</b>                  |
|---------------------------------------|---------------------------------|
| <b>(Bio-product from Archaea)</b>     | <b>(Industrial application)</b> |
| A. Bacteriorhodopsin                  | I. Bioplastics                  |
| B. Compatible solutes                 | II. Oligosaccharide synthesis   |
| C. Poly $\beta$ -hydroxy butyric acid | III. Cosmetics                  |
| D. $\beta$ -Galactosidase             | IV. Spatial light modulator     |

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

**Options :**

19088938345. 1

19088938346. 2

19088938347. 3

19088938348. 4

**Question Number : 113 Question Id : 1908899614 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Which field of study measures the protein diversity and abundance in the microbial community?

1. Metagenomics
2. Metatranscriptomics
3. Metaproteomics
4. Nanogenomics

**Options :**

19088938349. 1

19088938350. 2

19088938351. 3

19088938352. 4

**Question Number : 114 Question Id : 1908899615 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Which of the following fields refers to the use of computers to store and analyze the sequences and structure of proteins as well as nucleic acids?

1. Bioengineering
2. Bioinvention
3. Bioinformatics
4. Bioinnovation

**Options :**

19088938353. 1

19088938354. 2

19088938355. 3

**Question Number : 115 Question Id : 1908899616 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

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

| <b>List I</b>        | <b>List II</b>                            |
|----------------------|-------------------------------------------|
| <b>(Marker gene)</b> | <b>(Substrate required for detection)</b> |
| A. <i>gfp</i>        | I. Catechol                               |
| B. <i>lux</i> AB     | II. No substrate                          |
| C. <i>lac</i> ZY     | III. Luciferin                            |
| D. <i>xyl</i> B      | IV. X-gal                                 |

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

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

**Options :**

19088938357. 1

19088938358. 2

19088938359. 3

19088938360. 4

**Question Number : 116 Question Id : 1908899617 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

In which of the following technique, one can separate two DNA of same size with dissimilar base sequences in gel based on their melting point difference?

1. Gel permeation chromatography
2. Agarose gel electrophoresis
3. Poly acrylamide gel electrophoresis
4. Denaturing gradient gel electrophoresis

19088938361. 1

19088938362. 2

19088938363. 3

19088938364. 4

**Question Number : 117 Question Id : 1908899618 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Statistical correlation is always made between two completely unrelated variables.

**Statement II:** The extent of relationship between two variables is called "coefficient of correlation".

In light of the above statements, choose the *correct* 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

**Options :**

19088938365. 1

19088938366. 2

19088938367. 3

19088938368. 4

**Question Number : 118 Question Id : 1908899619 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Value of regression coefficient lies between -

1. -1 and +1
2.  $-\infty$  and  $+\infty$
3. -0.1 and +0.1
4. 0 and +1

19088938369. 1

19088938370. 2

19088938371. 3

19088938372. 4

**Question Number : 119 Question Id : 1908899620 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Read following statements for Randomized Block Design (RBD)-

- A. Is widely used in agricultural field experiments.
- B. Only 3 replications can be tested in an experiment at a time.
- C. Missing plot technique can be considered.
- D. Degrees of freedom (d.f.) can be calculated by  $(r-1)(rt-2)$  formula.
- E. If any treatment shows an irregular type of variation, the error sum of square can further be sub-divided into single d.f. and the comparison of treatments can be done.

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

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

**Options :**

19088938373. 1

19088938374. 2

19088938375. 3

19088938376. 4

**Question Number : 120 Question Id : 1908899621 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Given below are two statements-

**Statement I:** Analysis of Variance (ANOVA) was developed by R. A. Fisher.

**Statement II:** By ANOVA, simultaneous comparison of any number of treatments is possible.

In light of the above statements, choose the *correct* 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

**Options :**

19088938377. 1

19088938378. 2

19088938379. 3

19088938380. 4