

# National Testing Agency

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|------------------------------|---------------------------------------------------------------|
| <b>Question Paper Name :</b> | WATER SCIENCE AND TECHNOLOGY PG 17th<br>September 2021 Shift1 |
| <b>Subject Name :</b>        | WATER SCIENCE AND TECHNOLOGY PG                               |
| <b>Creation Date :</b>       | 2021-09-17 15:50:17                                           |
| <b>Duration :</b>            | 120                                                           |
| <b>Total Marks :</b>         | 480                                                           |
| <b>Display Marks:</b>        | Yes                                                           |

## WATER SCIENCE AND TECHNOLOGY PG

|                                      |          |
|--------------------------------------|----------|
| <b>Group Number :</b>                | 1        |
| <b>Group Id :</b>                    | 19088974 |
| <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       |

## WATER SCIENCE AND TECHNOLOGY PG -1

|                         |           |
|-------------------------|-----------|
| <b>Section Id :</b>     | 190889148 |
| <b>Section Number :</b> | 1         |
| <b>Section type :</b>   | Online    |

|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| <b>Number of Questions :</b>                                        | 120       |
| <b>Number of Questions to be attempted :</b>                        | 120       |
| <b>Section Marks :</b>                                              | 480       |
| <b>Enable Mark as Answered Mark for Review and Clear Response :</b> | Yes       |
| <b>Sub-Section Number :</b>                                         | 1         |
| <b>Sub-Section Id :</b>                                             | 190889188 |
| <b>Question Shuffling Allowed :</b>                                 | Yes       |

**Question Number : 1 Question Id : 1908898182 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1**

Which of the following is not an objective of watershed management programme

1. To manage and utilize runoff for useful purposes
2. To moderate floods in the downstream areas
3. To enhance groundwater discharge
4. To develop forest and fodder resources

**Options :**

19088932621. 1

19088932622. 2

19088932623. 3

19088932624. 4

**Question Number : 2 Question Id : 1908898183 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1**

Given below are some of the facts related to watershed

- A. In small watersheds overland flow is the chief contributor to the peak flow
- B. In small watersheds peak flows are influenced by channel characteristics
- C. Each watershed is an independent hydrological unit
- D. People's participation is the key to the success of any watershed programme
- E. Watershed management should be done on top-down approach

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

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

**Options :**

19088932625. 1

19088932626. 2

19088932627. 3

19088932628. 4

**Question Number : 3 Question Id : 1908898184 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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

**Assertion A:** A low drainage density reflects good drainage conditions in the catchment

**Reason R:** Poor conditions are observed in areas where soils are resistant to erosion

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

- 1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
- 2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
- 3. **A** is correct but **R** is not correct
- 4. **A** is not correct but **R** is correct

**Options :**

19088932629. 1

19088932630. 2

19088932631. 3

19088932632. 4

**Question Number : 4 Question Id : 1908898185 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Match **List I** of Government programs with **List II** of their year of launching

| List I                | List II  |
|-----------------------|----------|
| A. Catch the Rain     | I.2014   |
| B. PMKSY              | II.2019  |
| C. Jal Jeevan Mission | III.2021 |
| D. Namami Gange       | IV.2015  |

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

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

**Options :**

19088932633. 1

19088932634. 2

19088932635. 3

19088932636. 4

**Question Number : 5 Question Id : 1908898186 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following geo-morphological parameters is not used for quantitative expression of basin shape

1. Form factor
2. Drainage density
3. Circulatory ratio
4. Elongation ratio

**Options :**

19088932637. 1

19088932638. 2

19088932639. 3

19088932640. 4

**Question Number : 6 Question Id : 1908898187 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements :

**Statement I:** Precipitation denotes all forms of water that reach the earth from the atmosphere.

**Statement II:** The magnitude of precipitation do not vary with time and space.

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

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

**Options :**

19088932641. 1

19088932642. 2

19088932643. 3

19088932644. 4

**Question Number : 7 Question Id : 1908898188 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

The point rainfall values at various stations can be converted into an average values over a catchment using

- A. Double-mass curve technique
- B. Isohyetal method
- C. Depth-Area-Duration curves
- D. Thiessen-Polygon method
- E. Plotting position formula

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

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

**Options :**

19088932645. 1

19088932646. 2

19088932647. 3

19088932648. 4

**Question Number : 8 Question Id : 1908898189 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:** There is change in the slope of double-mass curve of the watershed.

**Reason R:** Streamflow has been changed due to watershed development activities.

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

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

**Options :**

19088932649. 1

19088932650. 2

19088932651. 3

19088932652. 4

**Question Number : 9 Question Id : 1908898190 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                                           |
|------------------------|---------------------------------------------------|
| A. Ephemeral stream    | I. Overland flow                                  |
| B. Base flow           | II. No base-flow contribution                     |
| C. Intermittent stream | III. Delayed groundwater flow that reaches stream |
| D. Direct runoff       | IV. Limited groundwater contribution              |

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

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

**Options :**

19088932653. 1

19088932654. 2

19088932655. 3

19088932656. 4

**Question Number : 10 Question Id : 1908898191 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** In a catchment, the hydrograph is skewed to the left, it means peak occurs relatively longer and basin is elongated in shape.

**Statement II:** In a small catchment, the overland flow is predominant over the channel flow.

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 :**

19088932657. 1

19088932658. 2

19088932659. 3

19088932660. 4

**Question Number : 11 Question Id : 1908898192 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Estimate the peak rate of runoff from a watershed of 25 ha, having 10 ha under cultivation ( $C=0.5$ ), 5 ha under forests ( $C = 0.4$ ) and 10 ha under grass cover ( $C=0.45$ ). The intensity of rainfall is 18 cm/hr.

1.  $0.575 \text{ m}^3/\text{s}$
2.  $57.5 \text{ m}^3/\text{s}$
3.  $5.75 \text{ m}^3/\text{s}$
4.  $5 \text{ m}^3/\text{s}$



**Options :**

- 19088932661. 1
- 19088932662. 2
- 19088932663. 3
- 19088932664. 4

**Question Number : 12 Question Id : 1908898193 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Arrange the following components of hydrograph in sequence

- A. Base flow
- B. Rainfall occurrence
- C. Rising limb
- D. Recession limb
- E. Crest segment

Choose the *correct* answer from the options given below

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

**Options :**

- 19088932665. 1
- 19088932666. 2
- 19088932667. 3
- 19088932668. 4

**Question Number : 13 Question Id : 1908898194 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the followings are the rules for construction and installation of weirs:

- A. Weir should be installed in a straight line at right angle to the direction of flow
- B. Velocity of approach of water to the weir should be maximum
- C. Crest and sides of the edge should be sharp
- D. Velocity of approach of water to the weir should be negligible
- E. The head over the weir should be measured on the upstream side at a distance of at least 4 times the head of flow from the weir.

Choose the most appropriate answer from the options given below.

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

**Options :**

19088932669. 1

19088932670. 2

19088932671. 3

19088932672. 4

**Question Number : 14 Question Id : 1908898195 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 extent of sodium hazard is increased in irrigated agricultural area.

**Reason R :** Carbonate and bicarbonate are present in irrigation water.

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

19088932673. 1

19088932674. 2

19088932675. 3

19088932676. 4

**Question Number : 15 Question Id : 1908898196 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Leaching of saline soils is done by adding organic materials such as farm yard manure, crop residues and green manuring

**Statement II:** Reclamation of alkali soils is achieved by treating soils with chemical amendments like gypsum and sulphur

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 :**

19088932677. 1

19088932678. 2

19088932679. 3

19088932680. 4

**Question Number : 16 Question Id : 1908898197 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements:

**Statement I:** In Shejpali system, water is distributed according to a pre-determined date and time schedule according to the turn fixed for the individual farmer.

**Statement II:** The farmers at the head of the channel being served the first and those at tail end of the command area are served the last.

In the 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 :**

19088932681. 1

19088932682. 2

19088932683. 3

19088932684. 4

**Question Number : 17 Question Id : 1908898198 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

In the National Water Policy (2002) the highest priority in allocation of water resources is given to:

1. Ecology
2. Irrigation
3. Industry
4. Environment

**Options :**

19088932685. 1

19088932686. 2

19088932687. 3

19088932688. 4

**Question Number : 18 Question Id : 1908898199 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** In major irrigation projects, all irrigation schemes have a culturable command area of 10,000 ha or more.

**Statement II:** Medium irrigation projects have a culturable command area less than 2,000 ha.

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 :**

19088932689. 1

19088932690. 2

19088932691. 3

19088932692. 4

**Question Number : 19 Question Id : 1908898200 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** Major irrigation projects are essentially groundwater projects.

**Statement II:** Major irrigation projects involve large scale storage work.

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 :**

19088932693. 1



19088932695. 3

19088932696. 4

**Question Number : 20 Question Id : 1908898201 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The Khosla formula gives runoff as a function of

- A. Slope
- B. Rainfall
- C. Soil Texture
- D. Temperature
- E. Humidity

Choose the most appropriate answer from the options given below:

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

**Options :**

19088932697. 1

19088932698. 2

19088932699. 3

19088932700. 4

**Question Number : 21 Question Id : 1908898202 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 :** Groundwater occurs in the zone of saturation below the land surface.

**Reason R :** Groundwater is in a dynamic state and move slowly.

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 :**

19088932701. 1

19088932702. 2

19088932703. 3

19088932704. 4

**Question Number : 22 Question Id : 1908898203 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:** Eutrophication leads to increase in biological oxygen demand of water and increase the fish population in bottom water.

**Reason R:** Increase in algal growth in surface water due to inorganic contamination is called eutrophication.

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

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

**Options :**

19088932705. 1

19088932706. 2

19088932707. 3

19088932708. 4

**Question Number : 23 Question Id : 1908898204 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Dugout ponds or excavated ponds are fed by

A. Springs

B. Surface runoff

C. Wells

D. Groundwater wherever aquifers are available

E. Storage reservoirs

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

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

**Options :**

19088932709. 1

19088932710. 2

19088932711. 3

19088932712. 4

**Question Number : 24 Question Id : 1908898205 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

For homogeneous earthen embankment, the position of seepage line depends on

1. Geometry of cross-section
2. Permeability of materials
3. Both geometry of cross-section and permeability of materials
4. Capacity of pond

**Options :**

19088932713. 1

19088932714. 2

19088932715. 3

19088932716. 4

**Question Number : 25 Question Id : 1908898206 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Compute the volume of excavation required to construct an excavated pond with an average depth of 5.0 m, bottom width of 15 m and bottom length of 10 m. The top area is  $1000 \text{ m}^2$  and mid area of the pond is  $800 \text{ m}^2$ .

1.  $36.25 \text{ ha.m}$
2.  $3.625 \text{ ha.m}$
3.  $36.25 \text{ m}^3$
4.  $0.3625 \text{ ha.m}$

**Options :**

19088932717. 1

19088932718. 2

19088932719. 3

19088932720. 4

**Question Number : 26 Question Id : 1908898207 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Term 'Arrow' is related to which of the following crop?

1. Rice
2. Sugarcane
3. Rapeseed-Mustard
4. Cotton

**Options :**

19088932721. 1

19088932722. 2

19088932723. 3

19088932724. 4

**Question Number : 27 Question Id : 1908898208 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                       |
|-----------------|-------------------------------|
| A. Chickpea     | I. <i>Pennicum glaucum</i>    |
| B. Sunflower    | II. <i>Glycine max</i>        |
| C. Pearl millet | III. <i>Helianthus annuus</i> |
| D. Soybean      | IV. <i>Cicer arietinum</i>    |

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

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

**Options :**

19088932725. 1

19088932726. 2

19088932727. 3

19088932728. 4

**Question Number : 28 Question Id : 1908898209 Question Type : MCQ Option Shuffling : No Is**



**Question Mandatory : No**

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

Given below are two statements

**Statement I:** Geologically, the alluvium soils are divided into *khaddar* and *bhangar*.

**Statement II:** *Khaddar* alluvium is older alluvium, which are highly calcareous.

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 :**

19088932729. 1

19088932730. 2

19088932731. 3

19088932732. 4

**Question Number : 29 Question Id : 1908898210 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Arrange these crops in increasing order of area under cultivation in India

- A. Wheat
- B. Cotton
- C. Potato
- D. Rice
- E. Oat

Choose the *correct* answer from the options given below

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

**Options :**

19088932733. 1

19088932734. 2

19088932735. 3

19088932736. 4

**Question Number : 30 Question Id : 1908898211 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following plant nutrients are secondary plant nutrients?

A. Zinc

B. Calcium

C. Potassium

D. Sulphur

E. Manganese

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

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

**Options :**

19088932737. 1

19088932738. 2

19088932739. 3

19088932740. 4

**Question Number : 31 Question Id : 1908898212 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          |
|---------------|------------------|
| A. Nitrogen   | I. Cell wall     |
| B. Phosphorus | II. Chlorophylls |
| C. Calcium    | III. ATP         |
| D. Magnesium  | IV. Amino acid   |

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

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

**Options :**

19088932741. 1

19088932742. 2

19088932743. 3

19088932744. 4

**Question Number : 32 Question Id : 1908898213 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Options :**

19088932745. 1

19088932746. 2

19088932747. 3

19088932748. 4

**Question Number : 33 Question Id : 1908898214 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Where the National Institute of Abiotic Stresses Management is located?

1. Karnal, Haryana
2. Coimbatore, Tamil Nadu
3. Nagpur, Maharashtra
4. Baramati, Maharashtra

**Options :**

19088932749. 1

19088932750. 2

19088932751. 3

19088932752. 4

**Question Number : 34 Question Id : 1908898215 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following ICAR-Institutes are located at Hyderabad, Telangana?

- A. National Academy of Agricultural Research Management
- B. Sugarcane Breeding Institute
- C. Central Research Institute for Dryland Agriculture
- D. Indian Institute of Maize Research
- E. Indian Institute of Millets Research

Choose the most appropriate answer from the options given below:

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

**Options :**

19088932753. 1

19088932754. 2

19088932755. 3

19088932756. 4

**Question Number : 35 Question Id : 1908898216 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 :** Neem seed extract is used to coat urea for increasing nitrogen-use efficiency

**Reason R :** Neem seed extract coating slows down the hydrolysis and nitrification of urea.

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 :**





19088932757. 1

19088932758. 2

19088932759. 3

19088932760. 4

**Question Number : 36 Question Id : 1908898217 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the followings is the beneficial nutrient for rice crop?

1. Sodium
2. Cobalt
3. Silicon
4. Vanadium

**Options :**

19088932761. 1

19088932762. 2

19088932763. 3

19088932764. 4

**Question Number : 37 Question Id : 1908898218 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Food grains production in India during 2018-19 was 285.2 million tonnes.

**Statement II:** Contribution of wheat to the total food grains production during 2018-19 was 110 million tonnes.

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 :**

19088932765. 1

19088932766. 2

19088932767. 3

19088932768. 4

**Question Number : 38 Question Id : 1908898219 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

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**Options :**

19088932769. 1

19088932770. 2

19088932771. 3

19088932772. 4

**Question Number : 39 Question Id : 1908898220 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Options :**

- 19088932773. 1
- 19088932774. 2
- 19088932775. 3
- 19088932776. 4

**Question Number : 40 Question Id : 1908898221 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Ribosomes are responsible for protein synthesis in cell.

**Statement II:** Mitochondrion is the energy house of the cell.

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 :**

- 19088932777. 1
- 19088932778. 2
- 19088932779. 3
- 19088932780. 4

**Question Number : 41 Question Id : 1908898222 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Aflatoxin contamination is the problem associated with which of the following crops

- 1. Groundnut
- 2. Sugarcane
- 3. Wheat
- 4. Chickpea

**Options :**

19088932781. 1

19088932782. 2

19088932783. 3

19088932784. 4

**Question Number : 42 Question Id : 1908898223 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the followings are component of cultural management for pests control?

- A. Trap crops
- B. Crop rotation
- C. Quarantine
- D. Biological control
- E. Sowing and planting time

Choose the most appropriate answer from the options given below:

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

**Options :**

19088932785. 1

19088932786. 2

19088932787. 3

19088932788. 4

**Question Number : 43 Question Id : 1908898224 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

HD-2967, Pusa-1509 and ICPH-8 are the varieties/ hybrids of which of the following crops, respectively

1. Maize, Barley and Cowpea
2. Wheat, Pigeonpea, and Cotton
3. Wheat, Rice and Pigeonpea
4. Cotton, Rice and Wheat

**Options :**

19088932789. 1

19088932790. 2

19088932791. 3

19088932792. 4

**Question Number : 44 Question Id : 1908898225 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which parasitic weed threatening the cultivation of rapeseed-mustard in north-western part of India?

1. Witch weed
2. Broomrape
3. Dodder
4. Loranthus

**Options :**

19088932793. 1

19088932794. 2

19088932795. 3

19088932796. 4

**Question Number : 45 Question Id : 1908898226 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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



Water stress in plant increases the activities of which of the following hormones?

1. Cytokinin
2. Gibberallic acid
3. Indoleacetic acid
4. Absciscic acid

**Options :**

19088932797. 1

19088932798. 2

19088932799. 3

19088932800. 4

**Question Number : 46 Question Id : 1908898227 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following institutions recommends MSP of agricultural commodities to the Government of India?

1. FCI
2. NAFED
3. CACP
4. NDDB

**Options :**

19088932801. 1

19088932802. 2

19088932803. 3

19088932804. 4

**Question Number : 47 Question Id : 1908898228 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Mendelian re-combinations are due to

1. Independent assortment
2. Linkage of genes
3. Dominance
4. Mutation

**Options :**

19088932805. 1

19088932806. 2

19088932807. 3

19088932808. 4

**Question Number : 48 Question Id : 1908898229 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      |
|--------------------|--------------|
| A. Disaccharides   | I. D-ribose  |
| B. Polysaccharides | II. Starch   |
| C. Hexoses         | III. Maltose |
| D. Pentoses        | IV. Fructose |

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

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

**Options :**

19088932809. 1

19088932810. 2

19088932811. 3

19088932812. 4

**Question Number : 49 Question Id : 1908898230 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Selenium containing amino-acids are formed after replacement of which element by the selenium?

1. Nitrogen
2. Sulphur
3. Hydrogen
4. Oxygen

**Options :**

19088932813. 1

19088932814. 2

19088932815. 3

19088932816. 4

**Question Number : 50 Question Id : 1908898231 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Which of the following vitamins is fat soluble?

1. Vitamin A
2. Riboflavin (B<sub>2</sub>)
3. Thiamine (B<sub>1</sub>)
4. Nicotinic acid

**Options :**

19088932817. 1

19088932818. 2

19088932819. 3

19088932820. 4

**Question Number : 51 Question Id : 1908898232 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Termite belongs to which of the following order?

1. Hemiptera
2. Orthoptera
3. Coleoptera
4. Isoptera

**Options :**

19088932821. 1

19088932822. 2

19088932823. 3

19088932824. 4

**Question Number : 52 Question Id : 1908898233 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the followings is the mass communication method of extension teaching?

1. Exhibition
2. Radio talk
3. Workshop
4. Teleconferencing

**Options :**

19088932825. 1

19088932826. 2

19088932827. 3

19088932828. 4

**Question Number : 53 Question Id : 1908898234 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

**Options :**

- 19088932829. 1
- 19088932830. 2
- 19088932831. 3
- 19088932832. 4

**Question Number : 54 Question Id : 1908898235 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Non-protein organic part of the enzyme, which is essential for catalytic activities of the enzyme is known as

- 1. Coenzyme
- 2. Prosthetic group
- 3. Isozyme
- 4. Allosteric enzyme

**Options :**

- 19088932833. 1
- 19088932834. 2
- 19088932835. 3
- 19088932836. 4

**Question Number : 55 Question Id : 1908898236 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

In glycolysis, how much is the net production of ATP/hexose molecule?

- 1. 4
- 2. 3
- 3. 1
- 4. 2

**Options :**

- 19088932837. 1
- 19088932838. 2

19088932840. 4

**Question Number : 56 Question Id : 1908898237 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The unit of kinematic viscosity in MKS system is

1. Stoke
2. Poise
3.  $\text{Ns/m}^2$
4.  $\text{m}^2/\text{sec}$

**Options :**

19088932841. 1

19088932842. 2

19088932843. 3

19088932844. 4

**Question Number : 57 Question Id : 1908898238 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Find the surface tension in a soap bubble of 40 mm diameter when the inside pressure is 2.5  $\text{N/m}^2$  above atmospheric pressure.

1. 0.025  $\text{N/m}$
2. 0.0125  $\text{N/m}$
3. 0.025  $\text{N/cm}^2$
4. 0.00625  $\text{N/cm}^2$

**Options :**

19088932845. 1

19088932846. 2

19088932847. 3

19088932848. 4

**Question Number : 58 Question Id : 1908898239 Question Type : MCQ Option Shuffling : No Is**



**Question Mandatory : No**

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

In case of irrigation projects, the usually adopted value of the length of the project period for economic analysis is

1. 15 years
2. 25 years
3. 40 years
4. 50 years

**Options :**

19088932849. 1

19088932850. 2

19088932851. 3

19088932852. 4

**Question Number : 59 Question Id : 1908898240 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** Inverted siphon is not economical when a channel has to cross a wide depression or where road surface lies close to the field surface.

**Statement II:** Culverts are commonly used at channel crossing when the road fill is sufficiently high and channel bed lies on the field surface on either side.

In the 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 :**

19088932853. 1

19088932854. 2

19088932855. 3

19088932856. 4

**Question Number : 60 Question Id : 1908898241 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The first air vent in an underground pipeline system is located near the pump stand at a point where designed velocity

1. 15 cm/sec
2. <15cm/sec
3. 30 cm/sec
4. > 30 cm/sec

**Options :**

19088932857. 1

19088932858. 2

19088932859. 3

19088932860. 4

**Question Number : 61 Question Id : 1908898242 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following concrete mix cement:sand:course aggregates is not used in reinforced concrete pipes

1. 1:1.5:2
2. 1:2:2
3. 1:2:3
4. 1:2.5:2

**Options :**

19088932861. 1

19088932862. 2

19088932863. 3

19088932864. 4

**Question Number : 62 Question Id : 1908898243 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The differential equation of the family of curves  $y=a \sin (bx+c)$ , a and c being parameter will be

1.  $\frac{d^2y}{dx^2} + b^2 y = 0$
2.  $\frac{dy}{dx} + b^2 y = 0$
3.  $\frac{d^2y}{dx^2} - b^2 y = 0$
4.  $\frac{dy}{dx} - b^2 y = 0$

**Options :**

19088932865. 1

19088932866. 2

19088932867. 3

19088932868. 4

**Question Number : 63 Question Id : 1908898244 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

$$\frac{d}{dx}(\sec x) =$$

1.  $\cos x$
2.  $-\operatorname{Cosec}^2 x$
3.  $\sec x \cdot \tan x$
4.  $-\operatorname{Cosec} x \cdot \cot x$

**Options :**

19088932869. 1

19088932870. 2

19088932871. 3

19088932872. 4

**Question Number : 64 Question Id : 1908898245 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** A quadratic equation can have three distinct real roots.

**Statement II:** In quadratic equation  $ax^2+bx+c=0$ , if  $b^2-4ac=0$ , then the quadratic equation has real and equal roots.

In the 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 :**

19088932873. 1

19088932874. 2

19088932875. 3

19088932876. 4

**Question Number : 65 Question Id : 1908898246 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The differentiation of the  $\sin (x^2+1)$  function with respect to  $x$ , will be

1.  $\sin x \cdot \cos (x^2+1)$
2.  $x^2 \cdot \cos (x^2+1)$
3.  $x \cdot \cos (x^2+1)$
4.  $2x \cdot \cos (x^2+1)$

**Options :**

19088932877. 1

19088932878. 2

19088932879. 3

19088932880. 4

**Question Number : 66 Question Id : 1908898247 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

$$\int_0^{\pi/2} \cos^3 x dx =$$

1. 1/3
2. 4/3
3. 2/3
4. 1

**Options :**

19088932881. 1

19088932882. 2

19088932883. 3

19088932884. 4

**Question Number : 67 Question Id : 1908898248 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Histogram is more suited for frequency distributions with continuous classes.

**Statement II:** In Histogram, the lower limit of a class is the upper limit of the previous class.

In the 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 :**

19088932885. 1

19088932886. 2

19088932887. 3

19088932888. 4

**Question Number : 68 Question Id : 1908898249 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Algebraic sum of the deviations of the given values from their arithmetic mean is always

1. One
2. Maximum
3. Zero
4. Minimum

**Options :**

19088932889. 1

19088932890. 2

19088932891. 3

19088932892. 4

**Question Number : 69 Question Id : 1908898250 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The export of mangoes in million rupees from a district during eight weeks is given below.  
The median values of the set will be

21.3, 29.7, 16.6, 2.3, 14.1, 36.6, 18.7, 3.5

1. 18.7
2. 17.65
3. 16.6
4. 30.35

**Options :**

19088932893. 1

19088932894. 2

19088932895. 3

19088932896. 4

**Question Number : 70 Question Id : 1908898251 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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



A bag contains 20 white balls and 4 red balls. One ball is drawn from the bag and it is replaced after noting its colour. In the second draw again one ball is drawn and its colour is noted and replaced. Find the probability of the event that both the balls are of different colours?

1. 0.83
2. 1.0
3. 1.66
4. 0.66

**Options :**

19088932897. 1

19088932898. 2

19088932899. 3

19088932900. 4

**Question Number : 71 Question Id : 1908898252 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the following statements are true in case of mean deviation (MD)

- A. MD is the average of deviation taken from a central value
- B. MD is not affected much by extreme values
- C. Algebraic negative signs of the deviation are ignored
- D. MD is minimum when deviation are taken from median
- E. MD is the average of the absolute deviation taken from a central value

Choose the most appropriate answer from the options given below:

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

**Options :**

19088932901. 1

19088932902. 2

19088932903. 3

19088932904. 4

**Question Number : 72 Question Id : 1908898253 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Determine the gross irrigation requirement of the crop, if the field capacity of soil is 18cm, water content in the root depth before irrigation is 12 cm, and peak consumptive use rate is 70 mm/day assuming the irrigation efficiency as 80%.

1. 7.5 cm
2. 75 cm
3. 49 cm
4. 4.9 cm

**Options :**

19088932905. 1

19088932906. 2

19088932907. 3

19088932908. 4

**Question Number : 73 Question Id : 1908898254 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Arrange the following steps to estimate irrigation interval (days)

- A. Compute the total number of irrigations over the growing season
- B. Estimate gross irrigation depth
- C. Calculate irrigation interval
- D. Compute the irrigation water need over the total growing season
- E. Estimate net irrigation depth

Choose the *correct* answer from the options given below

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

**Options :**

19088932909. 1

19088932910. 2

19088932911. 3

19088932912. 4

**Question Number : 74 Question Id : 1908898255 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Which of the followings is not an irrigation scheduling instrument?

1. Tensiometer
2. Moisture Sensor
3. Infiltrometer
4. Pan evaporimeter

**Options :**

19088932913. 1

19088932914. 2

19088932915. 3

19088932916. 4

**Question Number : 75 Question Id : 1908898256 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

If the flow rate of a 5 hp water pump is 250 l/min with a total head of 25 m, then the energy/electricity consumption of the pump will be

1. 3.73 kwh
2. 5 kwh
3. 3.73 wh
4. 5 wh

**Options :**

19088932917. 1

19088932918. 2

19088932919. 3

19088932920. 4

**Question Number : 76 Question Id : 1908898257 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Tile drains are usually spaced at

1. 10-15 m
2. 15-30 m
3. 60 - 80 m
4. 30-60 m

**Options :**

19088932921. 1

19088932922. 2

19088932923. 3

19088932924. 4

**Question Number : 77 Question Id : 1908898258 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

If a tile drainage system is laid along a length of 400 m with laterals spaced 24 m apart, and the outflow through one lateral is  $8 \text{ m}^3/\text{h}$ , then the drainage coefficient will be

1. 2 mm/day
2. 2 cm/day
3. 1 cm/day
4. 1 mm/day

**Options :**

19088932925. 1

19088932926. 2

19088932927. 3

19088932928. 4

**Question Number : 78 Question Id : 1908898259 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** Bedding system of surface drainage is best method for poorly drained soil on slope up to 1.5 per cent.

**Statement II:** The parallel field drain system is suitable surface drainage method for irrigated fields.

In the 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 :**

19088932929. 1

19088932930. 2

19088932931. 3

19088932932. 4

**Question Number : 79 Question Id : 1908898260 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** Tube well in hard rock area are called bore well.

**Statement I:** Bore wells are generally not used for small scale irrigation.

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 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 :**

19088932933. 1

19088932934. 2

19088932935. 3

19088932936. 4

**Question Number : 80 Question Id : 1908898261 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

If  $\eta_s$  = specific speed,  $\eta_1$  = pump speed, Q= pump discharge, H= total head, then the is mathematical expression for specific speed of a pump

1. 
$$\eta_s = \frac{\eta Q^{\frac{1}{2}}}{H^{\frac{3}{2}}}$$
2. 
$$\eta_s = \frac{\eta Q^{\frac{3}{4}}}{H^{\frac{1}{2}}}$$
3. 
$$\eta_s = \frac{\eta Q^{\frac{1}{2}}}{H^{\frac{3}{4}}}$$
4. 
$$\eta_s = \frac{\eta Q^{\frac{3}{4}}}{H^{\frac{1}{2}}}$$

**Options :**

19088932937. 1

19088932938. 2

19088932939. 3

19088932940. 4

**Question Number : 81 Question Id : 1908898262 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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



If a centrifugal pump is discharging 450 l/min of water with 5 hp motor having efficiency 80%, then Calculate the total head, will be

1. 6.7 m
2. 40 m
3. 67 m
4. 4 cm

**Options :**

19088932941. 1

19088932942. 2

19088932943. 3

19088932944. 4

**Question Number : 82 Question Id : 1908898263 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Well casings and screens are installed on the basis of well log.

**Statement II:** Well log is a systematic record of length of screens and casings.

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

**Options :**

19088932945. 1

19088932946. 2

19088932947. 3

19088932948. 4

**Question Number : 83 Question Id : 1908898264 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Calculate the capacity of a sprinkler system which has 10 sprinklers spaced at 12 m interval on each of the two laterals spaced at 10 m apart. Application rate of water is 1.5 cm/hr.

1. 0.5 l/sec
2. 1.0 l/sec
3. 10 l/sec
4. 10 m<sup>3</sup>/sec

**Options :**

19088932949. 1

19088932950. 2

19088932951. 3

19088932952. 4

**Question Number : 84 Question Id : 1908898265 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Drip irrigation was developed for field crops in Israel.

**Statement II:** Drip irrigation was started in early 1960s in Israel.

In the 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 :**

19088932953. 1

19088932954. 2

19088932955. 3

19088932956. 4

**Question Number : 85 Question Id : 1908898266 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

Given below are two statements

**Statement I:** In drip irrigation, lateral length is calculated to determine the set length to irrigate the field in the specified time interval.

**Statement II:** In drip irrigation lateral design, the design criterion for drip lateral is based on an emitter flow variation of less than 40%.

In the 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 :**

19088932957. 1

19088932958. 2

19088932959. 3

19088932960. 4

**Question Number : 86 Question Id : 1908898267 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

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

A useful thumb rule in check basin design is that the water spread in the entire check basin should cover in how much percentage of the time required to infiltrate the net depth of irrigation water?

1. 50.0%
2. 25.0%
3. 75.0%
4. 66.3%

**Options :**

19088932961. 1

19088932962. 2

19088932963. 3

19088932964. 4

**Question Number : 87 Question Id : 1908898268 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Culverts are only used when the irrigation channel is at a higher elevation than the obstruction to be crossed.

**Statement II:** Siphons are used when the channel level is almost same or higher than the obstruction.

In the 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 :**

19088932965. 1

19088932966. 2

19088932967. 3

19088932968. 4

**Question Number : 88 Question Id : 1908898269 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Half-life period is independent of the concentration for

1. Zero order reaction
2. First order reaction
3. Second order reaction
4. Any type of reaction

**Options :**

19088932969. 1

19088932970. 2

19088932971. 3

**Question Number : 89 Question Id : 1908898270 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Muscovite has which type of layer structure:

1. 1:1
2. 2:1
3. 2:1:1
4. 2:2:1

**Options :**

19088932973. 1

19088932974. 2

19088932975. 3

19088932976. 4

**Question Number : 90 Question Id : 1908898271 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

The settling velocity of spherical particles falling through fluid governed by Stokes' law is proportional to

1. 1/effective particle radius
2. 1/viscosity of fluids
3. Water
4. 1/effective particle diameter

**Options :**

19088932977. 1

19088932978. 2

19088932979. 3

19088932980. 4

**Question Number : 91 Question Id : 1908898272 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**



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

Matric suction of unsaturated soil is

1. Negative
2. Zero
3. Positive
4. Between 0 to 1

**Options :**

19088932981. 1

19088932982. 2

19088932983. 3

19088932984. 4

**Question Number : 92 Question Id : 1908898273 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Clay soil must have at least 35% of clay particles and in most cases not more than 40% of clay particles.

**Statement II:** Silty soils have at least 50% silt and 25% or less clay particles.

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

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

**Options :**

19088932985. 1

19088932986. 2

19088932987. 3

19088932988. 4

**Question Number : 93 Question Id : 1908898274 Question Type : MCQ Option Shuffling : No Is**



**Question Mandatory : No**

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

In 1 litre of 0.1 N NaOH solution if 5 g of KCl will be added, then pH of solution will be

1. Increased
2. Decreased
3. Not changed
4. Not predicted

**Options :**

19088932989. 1

19088932990. 2

19088932991. 3

19088932992. 4

**Question Number : 94 Question Id : 1908898275 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                           |
|----------------|-----------------------------------|
| A. Gibbs-Duhem | I. Horizontal infiltration        |
| B. Philip      | II. Soil water potential          |
| C. Buckingham  | III. Thermodynamics of soil water |
| D. Kostiakov   | IV. Cumulative infiltration       |

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

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

**Options :**

19088932993. 1

19088932994. 2

19088932995. 3

19088932996. 4

**Question Number : 95 Question Id : 1908898276 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 :** Sandy soil is lighter in weight than that of equal volume of clay soil.

**Reason R :** Addition of organic matter in soil for consecutive two years will not change the soil texture

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 :**

19088932997. 1

19088932998. 2

19088932999. 3

19088933000. 4

**Question Number : 96 Question Id : 1908898277 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Given below mineral species and their soil silicate classification

A. Tourmaline - Cyclosilicates

B. Amphiboles - Inosilicates

C. Olivine - Nesosilicates

D. Feldspar - Phyllosilicates

E. Pyroxene - Tectosilicates

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

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

**Options :**

19088933001. 1

19088933002. 2

19088933003. 3

19088933004. 4

**Question Number : 97 Question Id : 1908898278 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Lime potential of soil is expressed as:

1.  $\text{pH} - (1/2 \text{ pCa})^{1/2}$
2.  $\text{pH} - 1/2 \text{ pCa} + 1/2 \text{ pCO}_3^{2-}$
3.  $\text{pH} + 1/2 \text{ pCa}$
4.  $\text{pH} - 1/2 \text{ pCa}$

**Options :**

19088933005. 1

19088933006. 2

19088933007. 3

19088933008. 4

**Question Number : 98 Question Id : 1908898279 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:** Cat clays soil is extremely acidic in nature because of presence of sulphuric acid in the soil

**Reason R:** Wet clays soil leads to formation of cat clays soil due to physical and protozoan reaction when the soil is drained.

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

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

**Options :**

19088933009. 1

19088933010. 2

19088933011. 3

19088933012. 4

**Question Number : 99 Question Id : 1908898280 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 highly acidic soil ( $\text{pH} < 5$ ) most of the aluminium present in aluminium hydroxide cations form or bound by organic matter.

**Reason R:** Exchangeable acidity in soil mainly contributed by adsorbed hydrogen ( $\text{H}^+$ ) and aluminium ions on soil colloids.

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

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

**Options :**

19088933013. 1

19088933014. 2

19088933015. 3

19088933016. 4

**Question Number : 100 Question Id : 1908898281 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Some statements are given below:

- A. Process that occurs under constant volume is isochoric in nature
- B. Chemical potential is a state function
- C. Spontaneity of chemical reaction is decided by energy and entropy factor
- D. Removing insoluble component with percolating water is called leaching
- E. A system in which matter can exchange with surrounding, but energy cannot, is referred as a closed system

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

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

**Options :**

19088933017. 1

19088933018. 2

19088933019. 3

19088933020. 4

**Question Number : 101 Question Id : 1908898282 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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



**Options :**

19088933021. 1

19088933022. 2

19088933023. 3

19088933024. 4

**Question Number : 102 Question Id : 1908898283 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Carbonic anhydrase localize in cytoplasm and chloroplast but does not facilitate CO<sub>2</sub> fixation in plant under extreme lower concentration of Zn in plant system.

**Statement II:** Nitrite oxidoreductase and guanine aminoreductase activity is indicator of Mo status in plant

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

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

**Options :**

19088933025. 1

19088933026. 2

19088933027. 3

19088933028. 4

**Question Number : 103 Question Id : 1908898284 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

As per Arnon and Stout (1939) about essential nutrient, which of the following statements are correct

- A. Impossible to complete vegetative phase of life cycle
- B. Impossible to complete reproductive phase of life cycle
- C. Plant complete life cycle but less yield
- D. Plant complete life cycle with optimal yield
- E. Plant complete vegetative phase but not reproductive phase of life cycle

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

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

**Options :**

19088933029. 1

19088933030. 2

19088933031. 3

19088933032. 4

**Question Number : 104 Question Id : 1908898285 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Saturated hydraulic conductivity is less but unsaturated hydraulic conductivity is more in sandy soil.

**Statement II:** Infiltration is not affected by soil surface condition but depends upon the transmission characteristics of entire soil profile.

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

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

**Options :**

19088933033. 1

19088933034. 2

19088933035. 3

19088933036. 4

**Question Number : 105 Question Id : 1908898286 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The soil moisture constant “wilting coefficient” signifies the:

- A. Upper level of super available water
- B. Upper level of plant available water
- C. Lower level of plant available water
- D. Lower level of capillary water
- E. Upper level of field capacity

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

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

**Options :**

19088933037. 1

19088933038. 2

19088933039. 3

19088933040. 4

**Question Number : 106 Question Id : 1908898287 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The potential develop from gravitational, absorptive and capillary forces of soil matrix to soil water is known as:

- A. Overburden potential
- B. Gravitational potential
- C. Osmotic potential
- D. Matric potential
- E. Submergence potential

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

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

**Options :**

19088933041. 1

19088933042. 2

19088933043. 3

19088933044. 4

**Question Number : 107 Question Id : 1908898288 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

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

Mineral Colemanite is a source of which nutrient of plant:

- 1. B
- 2. Mo
- 3. Ni
- 4. Cu

**Options :**

19088933045. 1

19088933046. 2

19088933047. 3

19088933048. 4

**Question Number : 108 Question Id : 1908898289 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:** Lower oxidation states of Mn, Fe and Cu (reduced state) are more soluble than higher oxidation state at normal range of soil pH

**Reason R:** Presence of excess concentration of carbonate and bicarbonate ions in soil due to over liming or sodicity cause Fe deficiency to crops

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

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

**Options :**

19088933049. 1

19088933050. 2

19088933051. 3

19088933052. 4

**Question Number : 109 Question Id : 1908898290 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



Given below are two statements

**Statement I :** Enzymatic digestion of protein and proteineous compounds by non-specific heterotrophic microbes is aminization process.

**Statement II:** Enzymatic conversion of ammonia to amino acid is ammonification process. Ammonification process is carried out by both aerobic and anaerobic microorganisms.

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

1. Statement I and Statement II
2. 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 :**

19088933053. 1

19088933054. 2

19088933055. 3

19088933056. 4

**Question Number : 110 Question Id : 1908898291 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



Boron is essential micronutrient, has some regulating role in plant. Mark the correct statement

- A. Regulates the K/Ca ration in plants
- B. Regulates carbohydrate metabolism
- C. Require for synthesis of amino acid and protein
- D. Structural component of haematin
- E. Regulate nitrification process

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

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

**Options :**

19088933057. 1

19088933058. 2

19088933059. 3

19088933060. 4

**Question Number : 111 Question Id : 1908898292 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Arrange the given minerals based on their cation exchange capacity

- A. Kaolinite
- B. Montmorillonite
- C. Nontronite
- D. Vermiculite
- E. Illite

Choose the *correct* answer from the options given below

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

**Options :**

- 19088933061. 1
- 19088933062. 2
- 19088933063. 3
- 19088933064. 4

**Question Number : 112 Question Id : 1908898293 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Soil water potential can be expressed as

- 1. Joule  $\text{m}^{-2}$
- 2. Joule  $\text{kg}^{-1}$
- 3. Dyne  $\text{cm}^{-3}$
- 4. Dyne  $\text{g}^{-1}$

**Options :**

- 19088933065. 1
- 19088933066. 2
- 19088933067. 3
- 19088933068. 4

**Question Number : 113 Question Id : 1908898294 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Evaporation is governed by

1. Fick's law
2. Stoke's law
3. Darcey's law
4. Dalton's law

**Options :**

19088933069. 1

19088933070. 2

19088933071. 3

19088933072. 4

**Question Number : 114 Question Id : 1908898295 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Which of the following methods is not used for measurement of evapotranspiration

1. Lysimeter
2. Field experimental plot
3. Soil moisture depletion
4. Evaporimeter

**Options :**

19088933073. 1

19088933074. 2

19088933075. 3

19088933076. 4

**Question Number : 115 Question Id : 1908898296 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Arrange the following methods of evapotranspiration estimation according to their development in ascending order

A. Blaney and Criddle

B. Radiation

C. Penman-Montieth

D. FAO Modified Penman

E. Penman

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

**Options :**

19088933077. 1

19088933078. 2

19088933079. 3

19088933080. 4

**Question Number : 116 Question Id : 1908898297 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

At critical state of flow, if the velocity of flow is 981 cm/sec, then the hydraulic depth and Froude number will be, respectively

1. 1.0 m; 1.2
2. 981 cm; 0.98
3. 9.81 m; 1.0
4. 1.0 m; 1.0

**Options :**

19088933081. 1

19088933082. 2

19088933083. 3

19088933084. 4

**Question Number : 117 Question Id : 1908898298 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:** If the land slope is increased two times, the velocity of the water flowing on the slope is approximately doubled

**Reason R:** If the velocity is doubled, the erosive capacity of soil is increased by four times

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

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

**Options :**

19088933085. 1

19088933086. 2

19088933087. 3

19088933088. 4

**Question Number : 118 Question Id : 1908898299 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Graded bunds are laid out in areas where land is susceptible to water erosion, the soil is less permeable and area has no waterlogging problem.

**Statement II:** Graded bunds are more popular in India than broad-bed terrace.

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

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

**Options :**

19088933089. 1

19088933090. 2

19088933091. 3

19088933092. 4

**Question Number : 119 Question Id : 1908898300 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

In Manning's formula, the dimension of Manning's roughness coefficient is

1. Dimensionless
2.  $L^{1/6}$
3.  $TL^{-1/3}$
4.  $L^{2/3}$

**Options :**

19088933093. 1

19088933094. 2

19088933095. 3

19088933096. 4

**Question Number : 120 Question Id : 1908898301 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**



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

For a gully depth of 3 m with longitudinal slope of 0.5 per cent, height of water at crest 0.4 m and free board of 10 cm, the spacing of drop spillway will be

1. 480 cm
2. 480 m
3. 500 cm
4. 500 m

**Options :**

19088933097. 1

19088933098. 2

19088933099. 3

19088933100. 4