

# National Testing Agency

<b>Question Paper Name :</b>	Soil and Water Conservation Engineering 17th September Shift 2
<b>Subject Name :</b>	Soil and Water Conservation Engineering
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<b>Display Marks:</b>	Yes

## Soil and Water Conservation Engineering

<b>Group Number :</b>	1
<b>Group Id :</b>	190889115
<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>	190889269
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

<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>	190889309
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 19088913102 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 :**

19088952301. 1

19088952302. 2

19088952303. 3

19088952304. 4

**Question Number : 2 Question Id : 19088913103 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 :**

- 19088952305. 1
- 19088952306. 2
- 19088952307. 3
- 19088952308. 4

**Question Number : 3 Question Id : 19088913104 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 :**

- 19088952309. 1
- 19088952310. 2
- 19088952311. 3
- 19088952312. 4

**Question Number : 4 Question Id : 19088913105 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 :**

- 19088952313. 1
- 19088952314. 2
- 19088952315. 3

19088952316. 4

**Question Number : 5 Question Id : 19088913106 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 :**

19088952317. 1

19088952318. 2

19088952319. 3

19088952320. 4

**Question Number : 6 Question Id : 19088913107 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 :**

19088952321. 1

19088952322. 2

19088952323. 3

19088952324. 4

**Question Number : 7 Question Id : 19088913108 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**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 :**

19088952325. 1

19088952326. 2

19088952327. 3

19088952328. 4

**Question Number : 8 Question Id : 19088913109 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 :**

19088952329. 1

19088952330. 2

19088952331. 3

19088952332. 4

**Question Number : 9 Question Id : 19088913110 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 :**

19088952333. 1

19088952334. 2

19088952335. 3

19088952336. 4

**Question Number : 10 Question Id : 19088913111 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 :**

19088952337. 1

19088952338. 2

19088952339. 3

19088952340. 4

**Question Number : 11 Question Id : 19088913112 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 :**

19088952341. 1

19088952342. 2

19088952343. 3

19088952344. 4

**Question Number : 12 Question Id : 19088913113 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 :**

19088952345. 1

19088952346. 2

19088952347. 3

19088952348. 4

**Question Number : 13 Question Id : 19088913114 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 :**

19088952349. 1

19088952350. 2

19088952351. 3

19088952352. 4

**Question Number : 14 Question Id : 19088913115 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 :**

19088952353. 1

19088952354. 2

19088952355. 3

19088952356. 4

**Question Number : 15 Question Id : 19088913116 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 :**

19088952357. 1

19088952358. 2

19088952359. 3

19088952360. 4

**Question Number : 16 Question Id : 19088913117 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 :**

19088952361. 1

19088952362. 2

19088952363. 3

19088952364. 4

**Question Number : 17 Question Id : 19088913118 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 :**

19088952365. 1

19088952366. 2

19088952367. 3

19088952368. 4

**Question Number : 18 Question Id : 19088913119 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 :**

19088952369. 1

19088952370. 2

19088952371. 3

19088952372. 4

**Question Number : 19 Question Id : 19088913120 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 :**

19088952373. 1

19088952374. 2

19088952375. 3

19088952376. 4

**Question Number : 20 Question Id : 19088913121 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 :**

19088952377. 1

19088952378. 2

19088952379. 3

19088952380. 4

## **Part B Core : Agricultural Engineering and Technology**

**Section Id :** 190889270

**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>	190889310
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 21 Question Id : 19088913122 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 hammer mill is a machine, which is commonly used for spice grinding.

**Reason R:** The hammer mill works on impact force and causes less heating of spices during grinding.

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 :**

19088952381. 1

19088952382. 2

19088952383. 3

19088952384. 4

**Question Number : 22 Question Id : 19088913123 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** The fluid flow in a tube will be laminar, if the Reynold's number is less than 4100.

**Statement II:** The heat transfer will be more, if the fluid flow changes from laminar to turbulent zone.

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 :**

19088952385. 1

19088952386. 2

19088952387. 3

19088952388. 4

**Question Number : 23 Question Id : 19088913124 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** The rubber roll sheller is an equipment commonly used in the modern rice mills.

**Statement II:** The milling of wheat can also be done in the rubber roll sheller.

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 :**

19088952389. 1

19088952390. 2

19088952391. 3

19088952392. 4

**Question Number : 24 Question Id : 19088913125 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The moisture content of 35% wet basis for a grain is almost equivalent to

1. 26% dry basis
2. 44% dry basis
3. 54% dry basis
4. 185% dry basis

**Options :**

19088952393. 1

19088952394. 2

19088952395. 3

19088952396. 4

**Question Number : 25 Question Id : 19088913126 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following does NOT involve heat exchangers ?

1. LSU dryer
2. Boiler
3. Pasteuriser
4. Evaporator

**Options :**

19088952397. 1

19088952398. 2

19088952399. 3

19088952400. 4

Question Number : 26 Question Id : 19088913127 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. Sphericity	I. Porosity
B. Volume	II. Dielectric property
C. Microwave	III. Platform scale method
D. Toluene	IV. Shape

Choose the correct answer from the options given below:

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

Options :

19088952401. 1

19088952402. 2

19088952403. 3

19088952404. 4

Question Number : 27 Question Id : 19088913128 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Force(s) responsible for size reduction of material in hammer mill includes:

- A. Compression
- B. Shear
- C. Impact
- D. Cutting

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

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

**Options :**

- 19088952405. 1
- 19088952406. 2
- 19088952407. 3
- 19088952408. 4

**Question Number : 28 Question Id : 19088913129 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 :** Relative humidity of air reduces with an increase in dry bulb temperature.

**Reason R :** Mass of water present in the air affects relative humidity.

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 :**



19088952409. 1

19088952410. 2

19088952411. 3

19088952412. 4

**Question Number : 29 Question Id : 19088913130 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following is used for calculation of lateral pressure in deep bins?

1. Janssen formula
2. Rankine formula
3. Henderson equation
4. Plank equation

**Options :**

19088952413. 1

19088952414. 2

19088952415. 3

19088952416. 4

**Question Number : 30 Question Id : 19088913131 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which process destroys only pathogenic organisms?

1. Blanching
2. Pasteurization
3. Sterilization
4. Canning

**Options :**

19088952417. 1

19088952418. 2

19088952419. 3

19088952420. 4

**Question Number : 31 Question Id : 19088913132 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Calculate the time required for ploughing 15 ha of land by a 2-bottom, 50 cm plough, if the speed of the plough is  $5 \text{ km.h}^{-1}$  and time lost in turning is 10 per cent.

1. 11.11 hour
2. 22.22 hour
3. 33.33 hour
4. 44.44 hour

**Options :**

19088952421. 1

19088952422. 2

19088952423. 3

19088952424. 4

**Question Number : 32 Question Id : 19088913133 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A pair of bullocks exerts 240 kg pull at  $60^\circ$  to the horizontal, while making a V-shaped furrow of 25 cm width and 10 cm deep. Assuming the speed of ploughing  $1.8 \text{ km.h}^{-1}$ , calculate the horse power developed by the bullocks.

1. 0.6 HP
2. 0.8 HP
3. 1.0 HP
4. 1.2 HP

**Options :**

19088952425. 1

19088952426. 2

19088952427. 3

19088952428. 4

**Question Number : 33 Question Id : 19088913134 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

During calibration of seed drill, following data are noted

a) number of rotation of wheel = 450

b) seed dropped = 25 kg

c) number of furrow openers = 8

d) spacing between furrows = 35 cm

e) wheel diameter = 25 cm

Calculate the seed rate in  $\text{kg}\cdot\text{ha}^{-1}$ .

1. 150
2. 200
3. 250
4. 300

**Options :**

19088952429. 1

19088952430. 2

19088952431. 3

19088952432. 4

**Question Number : 34 Question Id : 19088913135 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A four cylinder 4-stroke gas engine has cylinder diameter of 20 cm; stroke-bore ratio is 1.5; clearance volume  $2500 \text{ cm}^3$ ; engine speed 300 rpm; mean effective pressure  $5 \text{ kg}\cdot\text{cm}^{-2}$ ; mechanical efficiency 70%. Calculate the IHP of the engine in kW.

1. 23.45
2. 31.43
3. 46.90
4. 62.86

**Options :**

- 19088952433. 1
- 19088952434. 2
- 19088952435. 3
- 19088952436. 4

**Question Number : 35 Question Id : 19088913136 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A field sprayer is operated by a tractor at a speed of  $6 \text{ km.h}^{-1}$ . The sprayer boom has 15 nozzles spaced 40 cm apart. Time lost in turning is 8% and tank filling is 7%. Calculate the area covered per hour.

- 1. 1.53 ha
- 2. 1.80 ha
- 3. 3.06 ha
- 4. 3.60 ha

**Options :**

- 19088952437. 1
- 19088952438. 2
- 19088952439. 3
- 19088952440. 4

**Question Number : 36 Question Id : 19088913137 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The diameter of a disc plough is:

- 1. Proportional to the maximum depth of ploughing and inversely proportional to the cosine of the tilt angle.
- 2. Proportional to the depth of ploughing and inversely proportional to the tilt angle
- 3. Proportional to the radius of curvature of the disc as well as cosine of apex angle
- 4. Inversely proportional to the radius of curvature of disc and sine of disc angle.

**Options :**

- 19088952441. 1

19088952442. 2

19088952443. 3

19088952444. 4

**Question Number : 37 Question Id : 19088913138 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Which of the following statements is NOT correct for a turbocharger fitted to a tractor engine?

1. Turbocharger is a supercharger driven by exhaust gas turbine.
2. Exhaust gas from the engine enter the turbine housing and drive the turbine wheel as well as compressor wheel.
3. Turbocharger increases the density of the air delivered to the engine cylinder thereby allows the engine to burn more fuel to develop more power.
4. Though a turbocharged engine develops more power than a naturally aspired engine, it consumes more fuel per unit power developed.

**Options :**

19088952445. 1

19088952446. 2

19088952447. 3

19088952448. 4

**Question Number : 38 Question Id : 19088913139 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Given below are two statements:

**Statement-I:** Hydraulic system in an agricultural tractor reduce the effort required for a particular function, provide easy power transmission from rotation to translation, easy and cheap overload protection, easy steering, braking and implement lifting etc.

**Statement-II:** Efficiencies of hydraulic systems are comparatively less than that of mechanical systems.

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

1. Statement-I and Statement-II, both are true
2. Statement-I and Statement-II, both are false
3. Statement-I is true but Statement-II is false
4. Statement-I is false but Statement-II is true

**Options :**

19088952449. 1

19088952450. 2

19088952451. 3

19088952452. 4

**Question Number : 39 Question Id : 19088913140 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Match **List I (Alloying elements in steel)** with **List II (Property conferred on steel by the element)**

List I	List II
Alloying elements in steel	Property conferred on steel by the element
A. Nickle	I. Corrosion resistance
B. Chromium	II. Magnetic permeability
C. Tungsten	III. Heat resistance
D. Silicon	IV. Hardenability

Choose the *correct* answer from the options given below

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

**Options :**

19088952453. 1

19088952454. 2

19088952455. 3

19088952456. 4

**Question Number : 40 Question Id : 19088913141 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

In a petrol engine, the voltage required to jump spark in a given spark-plug gap does NOT depend on:

1. Compression ratio of engine
2. Indicated mean effective pressure
3. Speed of the engine
4. Size of the engine

**Options :**

19088952457. 1

19088952458. 2

19088952459. 3

19088952460. 4

**Question Number : 41 Question Id : 19088913142 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

If soil bulk density is excess of  $1.6 \text{ g.cm}^{-3}$ , it will

- A. Restrict root growth
- B. Enhance aeration
- C. Restrict water movement
- D. Reduce level of porosity
- E. Enhance soil fertility

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

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

**Options :**

19088952461. 1

19088952462. 2

19088952463. 3

19088952464. 4

**Question Number : 42 Question Id : 19088913143 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



Which of the following are the characteristics of an airblast sprayer?

- A. It uses air stream to carry droplets
- B. It is used for spraying orchard crops
- C. It is used for spraying row crops
- D. It uses energy from hydraulic pressure
- E. It uses comparatively larger spray droplets than those of high-pressure sprayers

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

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

**Options :**

19088952465. 1

19088952466. 2

19088952467. 3

19088952468. 4

**Question Number : 43 Question Id : 19088913144 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 :** Horizontal axis lift type wind mills are mostly used.

**Reason R :** Lift type wind mills have high tip speed ratio in the range of 13:1.

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 :**

19088952469. 1

19088952470. 2

19088952471. 3

19088952472. 4

**Question Number : 44 Question Id : 19088913145 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following parameters can be indirectly measured using Linear variable differential transducer (LVDT)?

A. Surface tension

B. Pressure

C. Temperature

D. Acceleration

E. Force

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

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

**Options :**

19088952473. 1

19088952474. 2

19088952475. 3

19088952476. 4

**Question Number : 45 Question Id : 19088913146 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

How many frequent weighing scales are there in general-purpose sound measuring equipment?

1. One
2. Two
3. Three
4. Four

**Options :**

19088952477. 1

19088952478. 2

19088952479. 3

19088952480. 4

**Question Number : 46 Question Id : 19088913147 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

The amount of solar radiation striking the earth is called

1. Solar luminosity
2. Solar constant
3. Insolation
4. Solarization

**Options :**

19088952481. 1

19088952482. 2

19088952483. 3

19088952484. 4

**Question Number : 47 Question Id : 19088913148 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 :** Wind turbine machines intended for generating substantial power should have large rotors and located in areas of high wind speeds.

**Reason R :** Maximum power available in the wind varies according to the square of rotor diameter and square of wind speed.

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 :**

19088952485. 1

19088952486. 2

19088952487. 3

19088952488. 4

**Question Number : 48 Question Id : 19088913149 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** Fuel cell converts chemical energy into electrical energy.

**Statement II:** Fuel cell works on the principle of photo-electric effect.

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 :**

19088952489. 1

19088952490. 2

19088952491. 3

19088952492. 4

**Question Number : 49 Question Id : 19088913150 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. Fuel cell	I. Light energy into electrical energy
B. Photovoltaic cell	II. Kinetic energy into electrical energy
C. Turbine & Generator	III. Chemical energy into electrical energy
D. Solar cooker	IV. Light energy into heat energy
E. Combustion engine	V. Mechanical energy into electrical energy
F. Generator	VI. Chemical energy into mechanical energy

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

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

**Options :**

19088952493. 1

19088952494. 2

19088952495. 3

19088952496. 4

**Question Number : 50 Question Id : 19088913151 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Consider the statements given below:

- A. Biodiesel production from vegetable oils involves anaerobic fermentation
- B. Pyranometers can be used to measure global radiation
- C. Janta biogas plant is a fixed dome biogas plant
- D. Savonius and Darrieus rotors are example of vertical axis wind turbines
- E. Wind vanes are used for measurement of wind speed

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

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

**Options :**

19088952497. 1

19088952498. 2

19088952499. 3

19088952500. 4

**Question Number : 51 Question Id : 19088913152 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

What is annual average rainfall in India?

- 1. 100 cm
- 2. 119 cm
- 3. 150 cm
- 4. 200 cm

**Options :**

19088952501. 1

19088952502. 2

19088952503. 3

19088952504. 4

**Question Number : 52 Question Id : 19088913153 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Rain is said to be light rain, if rainfall intensity is:

1. < 2.5 mm/h
2. 2.6-5.0 mm/h
3. 5.1-7.5 mm/h
4. 7.6-10 mm/h

**Options :**

19088952505. 1

19088952506. 2

19088952507. 3

19088952508. 4

**Question Number : 53 Question Id : 19088913154 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Steps of water Erosion are:

- A. Detachment
- B. Transportation
- C. Deposition

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

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

**Options :**

19088952509. 1

19088952510. 2

19088952511. 3

19088952512. 4

**Question Number : 54 Question Id : 19088913155 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The day to day activities of a watershed development project under National Watershed Development Project for Rainfed Areas (NWDPA) are carried out by:

1. Watershed Development Team
2. Watershed Committee
3. Watershed Association
4. User Group

**Options :**

19088952513. 1

19088952514. 2

19088952515. 3

19088952516. 4

**Question Number : 55 Question Id : 19088913156 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Green house structure should be designed for:

- A. Dead Load
- B. Live load
- C. Wind load
- D. Snow load

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

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

**Options :**



19088952517. 1

19088952518. 2

19088952519. 3

19088952520. 4

**Question Number : 56 Question Id : 19088913157 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

One bar pressure is equal to how many psi?

1. 14.5
2. 13.5
3. 4.5
4. 3.5

**Options :**

19088952521. 1

19088952522. 2

19088952523. 3

19088952524. 4

**Question Number : 57 Question Id : 19088913158 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

LEPA irrigation stands for

1. Low Energy Pressurized Application
2. Large Emitter Pressurized Application
3. Low Energy Precision Application
4. Large Emitter Precision Application

**Options :**

19088952525. 1

19088952526. 2

19088952527. 3

19088952528. 4

**Question Number : 58 Question Id : 19088913159 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
Dimensionless Number	Ratio
A. Reynold's Number	I. Inertia force to viscous force
B. Euler's Number	II. Inertia force to gravitational force
C. Froude's Number	III. Inertia force to surface tension force
D. Weber's Number	IV. Inertia force to elastic force
	V. Inertia force to pressure force

Choose the correct answer from the options given below:

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

**Options :**

19088952529. 1

19088952530. 2

19088952531. 3

19088952532. 4

**Question Number : 59 Question Id : 19088913160 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Considering the efficiency of different irrigation methods, which of the following sequence is correct?

1. Drip > Sprinkler > Furrow > Check basin
2. Drip > Sprinkler > Check basin > Furrow
3. Drip > Furrow > Sprinkler > Check basin
4. Drip > Furrow > Check basin > Sprinkler

**Options :**

19088952533. 1

19088952534. 2

19088952535. 3

19088952536. 4

**Question Number : 60 Question Id : 19088913161 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following statements about tensiometers are true?

- A. Tensiometers are used for estimation of soil moisture
- B. Useful limit of most tensiometers is at about 0.85 atmospheres
- C. Tensiometers are not well suited for sandy soils
- D. Tensiometers provide direct measure of the tenacity with which water is held by soils

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

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

**Options :**

19088952537. 1

19088952538. 2

19088952539. 3

19088952540. 4

**Question Number : 61 Question Id : 19088913162 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Water requirement of crop is sum of

- A. Consumptive use
- B. Application Losses
- C. Special Needs
- D. Effective rainfall

Choose the correct answer form the options given below:

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

**Options :**

19088952541. 1

19088952542. 2

19088952543. 3

19088952544. 4

**Question Number : 62 Question Id : 19088913163 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Froude's Number is the ratio of

- 1. Inertial force to the viscous force
- 2. Viscous force to the gravitational force
- 3. Inertial force to the gravitational force
- 4. Gravitational force to the hydrostatic force

**Options :**

19088952545. 1

19088952546. 2

19088952547. 3

19088952548. 4

**Question Number : 63 Question Id : 19088913164 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:** Flumes are also called as critical flow sections.

**Reason R:** A critical flow occurs along the length of the flumes.

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

1. A. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. B. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
3. C. **A** is true but **R** is false
4. D. **A** is false but **R** is true

**Options :**

19088952549. 1

19088952550. 2

19088952551. 3

19088952552. 4

**Question Number : 64 Question Id : 19088913165 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The following statements are given with respect to unconfined aquifer.

- A. It is not confined by an upper impermeable layer
- B. Water in this aquifer is at higher than atmospheric pressure
- C. The upper surface of the zone of saturation is known as the water table
- D. The level of water in a well constructed in this aquifer is the level of water table
- E. Artesian wells are observed in this aquifer

Choose the *correct* answer from the options given below

- 1. Only A, B & C are correct
- 2. Only A, C, D are correct
- 3. Only B, C & D are correct
- 4. Only A, C & E are correct

**Options :**

19088952553. 1

19088952554. 2

19088952555. 3

19088952556. 4

**Question Number : 65 Question Id : 19088913166 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A certain amount of sodium chloride is dissolved in 1 litres of water. When the electrical conductivity was measured, it was found to be 10 dS/m. How much sodium chloride was dissolved in water?

- 1. 12.8 gm
- 2. 6.4 gm
- 3. 0.64 gm
- 4. 64 gm

**Options :**

19088952557. 1

19088952558. 2

19088952559. 3

19088952560. 4

**Question Number : 66 Question Id : 19088913167 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. Sherman	I. Infiltration rate
B. Darcy's law	II. Spacing of Drains
C. Hooghoudts equation	III. Flow through porous media
D. Green-Ampt equation	IV. Hydrograph
	V. Flood routing

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

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

**Options :**

19088952561. 1

19088952562. 2

19088952563. 3

19088952564. 4

**Question Number : 67 Question Id : 19088913168 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The depth (in centimeters) of water drained off from a given area in 24 hours is known as

1. Watershed
2. Hydrograph
3. Aquifer
4. Drainage design rate

**Options :**

19088952565. 1

19088952566. 2

19088952567. 3

19088952568. 4

**Question Number : 68 Question Id : 19088913169 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of types of greenhouse is specifically meant for hilly areas?

1. Lean to type
2. Uneven span type
3. Saw tooth type
4. Ridge and furrow type

**Options :**

19088952569. 1

19088952570. 2

19088952571. 3

19088952572. 4

**Question Number : 69 Question Id : 19088913170 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:** Anticyclones are high pressure areas.

**Reason R:** If the size of the raindrop is more than 8 mm, we call it rainfall.

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 :**

19088952573. 1

19088952574. 2

19088952575. 3

19088952576. 4

**Question Number : 70 Question Id : 19088913171 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Consider the following components as part of precision agriculture. Choose the one which does NOT belong to the group.

1. Geographical Positioning System (GPS)
2. Information gathering devices/methodology
3. Decision Support Systems (DSS)
4. Furrow irrigation methods

**Options :**

19088952577. 1

19088952578. 2

19088952579. 3

19088952580. 4

## Part C : Soil and Water Conservation Engineering

<b>Section Id :</b>	190889271
<b>Section Number :</b>	3
<b>Section type :</b>	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>	190889311
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 71 Question Id : 19088913172 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

As per the classification based on the size of the catchment area, a minor river basin is one with a catchment area of:

1.  $< 1000 \text{ km}^2$
2.  $< 2000 \text{ km}^2$
3.  $< 10,000 \text{ km}^2$
4.  $< 20,000 \text{ km}^2$

**Options :**

- 19088952581. 1
- 19088952582. 2
- 19088952583. 3
- 19088952584. 4

**Question Number : 72 Question Id : 19088913173 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Intensity of irrigation is defined as

1. Actual area irrigated in a year from an outlet
2. Total area which can be irrigated in a year from an irrigation project
3. Portion of the gross command area which is culturable
4. Gross area that can be irrigated with the amount of water available

**Options :**

19088952585. 1

19088952586. 2

19088952587. 3

19088952588. 4

**Question Number : 73 Question Id : 19088913174 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Major distributory canals generally carry discharge:

1. 425 to 280  $\text{m}^3.\text{s}^{-1}$
2. 8.5 to 4.0  $\text{m}^3.\text{s}^{-1}$
3. 5.5 to 0.75  $\text{m}^3.\text{s}^{-1}$
4.  $< 0.75 \text{m}^3.\text{s}^{-1}$

**Options :**

19088952589. 1

19088952590. 2

19088952591. 3

19088952592. 4

**Question Number : 74 Question Id : 19088913175 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

What is ultimate ground water potential in India?

1. 36.62 Mha
2. 38.89 Mha
3. 45.73 Mha
4. 64.00 Mha

**Options :**

19088952593. 1

19088952594. 2

19088952595. 3

19088952596. 4

**Question Number : 75 Question Id : 19088913176 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

In order to be classified as a major irrigation project, the project needs to have a cultural command area of:

1. > 20,000 ha
2. > 10,000 ha
3. 2,000 to 10,000 ha
4. < 2,000 ha

**Options :**

19088952597. 1

19088952598. 2

19088952599. 3

19088952600. 4

**Question Number : 76 Question Id : 19088913177 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

As per Indian Standard, raingauge density recommended for plains is:

1. 1 per 100 km<sup>2</sup>
2. 1 per 300 km<sup>2</sup>
3. 1 per 520 km<sup>2</sup>
4. 1 per 1,000 km<sup>2</sup>

**Options :**

19088952601. 1

19088952602. 2

19088952603. 3

19088952604. 4

**Question Number : 77 Question Id : 19088913178 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A hyetograph is a plot of

1. Accumulated precipitation with time
2. Intensity of rainfall with time
3. Runoff with time
4. Discharge with time

**Options :**

19088952605. 1

19088952606. 2

19088952607. 3

19088952608. 4

**Question Number : 78 Question Id : 19088913179 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

An instantaneous unit hydrograph is a direct runoff hydrograph

1. of unit rainfall excess precipitating instantaneously over the catchment
2. of 1 cm magnitude due to a rainfall excess of 1h duration
3. that occurs instantaneously due to a unit rainfall excess of rainfall of D h duration
4. occuring at any instant in a long storm

**Options :**

- 19088952609. 1
- 19088952610. 2
- 19088952611. 3
- 19088952612. 4

**Question Number : 79 Question Id : 19088913180 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

$\phi$  index is defined as

1. Average rainfall above which, the rainfall volume is equal to runoff
2. Initial abstraction is separated from average rainfall
3. Total runoff from rainfall
4. Infiltration rate after long period of saturation

**Options :**

- 19088952613. 1
- 19088952614. 2
- 19088952615. 3
- 19088952616. 4

**Question Number : 80 Question Id : 19088913181 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A stilling well is required when the stage of measurement is made by employing:

1. Bubble gauge
2. float gauge recorder
3. Vertical staff gauge
4. inclined staff gauge

**Options :**

- 19088952617. 1
- 19088952618. 2
- 19088952619. 3

19088952620. 4

**Question Number : 81 Question Id : 19088913182 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Average soil loss from a field could be estimated by the equation (where, A = Average annual soil loss in mg/ha, R = Rainfall and runoff erosivity index for geographic location, K = soil erodibility factor, L = slope length factor, S = slope steepness factor, C = Crop cover management factor and P= conservation practice factor):

1.  $A = \frac{RK}{LSCP}$
2.  $A = \frac{RKL}{SCP}$
3.  $A = \frac{RKLS}{CP}$
4.  $A = RKLSCP$

**Options :**

19088952621. 1

19088952622. 2

19088952623. 3

19088952624. 4

**Question Number : 82 Question Id : 19088913183 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The slope (%) and slope length (m) in standard USLE equation are:

1. slope 7% and slope length 11 m
2. slope 9% and slope length 11 m
3. slope 7 % and slope length 22 m
4. slope 9% and slope length 22 m

**Options :**

19088952625. 1

19088952626. 2

19088952627. 3

19088952628. 4

**Question Number : 83 Question Id : 19088913184 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The relation between effective roughness height ( $d$ ) and crop height ( $h$ ) for wind velocity profile is:

1.  $d = 0.5 h$
2.  $d = 0.7 h$
3.  $d = 0.9 h$
4.  $d = h$

**Options :**

19088952629. 1

19088952630. 2

19088952631. 3

19088952632. 4

**Question Number : 84 Question Id : 19088913185 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Saltation is a process where fine particles are lifted from the surface and follow a distinct trajectory. What size is most affected?

1.  $< 0.002 \text{ mm}$
2.  $0.002 \text{ mm} - 0.1 \text{ mm}$
3.  $0.1 \text{ mm} - 0.5 \text{ mm}$
4.  $0.5 \text{ mm} - 2 \text{ mm}$

**Options :**

19088952633. 1

19088952634. 2

19088952635. 3

19088952636. 4



Question Number : 85 Question Id : 19088913186 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** : Suspended particles represent 3-10 percent of eroded particles.

**Reason R** : Creep has shown 7 to 25 percent of soil movement.

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 :**

19088952637. 1

19088952638. 2

19088952639. 3

19088952640. 4

Question Number : 86 Question Id : 19088913187 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For an annual flood series arranged in decreasing order of magnitude, the return period for the magnitude listed at position **m** in a total of **N** entries is:

1.  $\frac{m}{N}$
2.  $\frac{m}{(N+1)}$
3.  $\frac{(N+1)}{m}$
4.  $\frac{N}{(m+1)}$

**Options :**

19088952641. 1

19088952642. 2

19088952643. 3

19088952644. 4

**Question Number : 87 Question Id : 19088913188 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The minimum land area under shifting cultivation required for sanctioning projects under the 'Watershed Development Projects for areas under shifting cultivation' is:

1. 25 %
2. 35 %
3. 50 %
4. 75 %

**Options :**

19088952645. 1

19088952646. 2

19088952647. 3

19088952648. 4

**Question Number : 88 Question Id : 19088913189 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
Programme	Implementing Agency
A. Self Help Group	I. National Rainfed Authority
B. WARSA Sahbhagita	II. Training the field functionaries in watershed technology guidelines
C. Common guidelines	III. Watershed committee
D. Capacity building	IV. Ministry of Agriculture
E. User group	V. Landless labourers

Choose the correct answer from the options given below:

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

**Options :**

19088952649. 1

19088952650. 2

19088952651. 3

19088952652. 4

**Question Number : 89 Question Id : 19088913190 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Social issues responsible for people's participation are:

- A. Awareness
- B. Values and Belief
- C. Social Hierarchy
- D. Role of political parties

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

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

**Options :**

19088952653. 1

19088952654. 2

19088952655. 3

19088952656. 4

**Question Number : 90 Question Id : 19088913191 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

The principles of watershed Management are:

- A. Utilizing land according to its capability
- B. Maintaining adequate vegetative cover
- C. Conserving maximum possible rainfall water at the place where it falls
- D. Draining out excess water with safe velocity

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

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

**Options :**

19088952657. 1

19088952658. 2

19088952659. 3

19088952660. 4

**Question Number : 91 Question Id : 19088913192 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Generally CO<sub>2</sub> concentration in open air is:

1. 250 ppm
2. 300 ppm
3. 350 ppm
4. 400 ppm

**Options :**

19088952661. 1

19088952662. 2

19088952663. 3

19088952664. 4

**Question Number : 92 Question Id : 19088913193 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Name the instrument used for measuring radiation from sun and from small portion of sky around the sun (beam radiation) at normal incidence:

1. Pyranometer
2. Pyrheliometer
3. Albedometer
4. Luxmeter

**Options :**

19088952665. 1

19088952666. 2

19088952667. 3

19088952668. 4

**Question Number : 93 Question Id : 19088913194 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

During soil solarization, soil-borne pests and plant pathogens are killed at:

1. 20-30 °C
2. 30-40 °C
3. 40-60 °C
4. 60-80 °C

**Options :**

19088952669. 1

19088952670. 2

19088952671. 3

19088952672. 4

**Question Number : 94 Question Id : 19088913195 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Optimum light intensity for plant growth in polyhouse is:

1. 32,000 lux
2. 50,000 lux
3. 1,00,000 lux
4. 1,50,000 lux

**Options :**

19088952673. 1

19088952674. 2

19088952675. 3

19088952676. 4

**Question Number : 95 Question Id : 19088913196 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** : Casin is Natural Plastic.

**Reason R** : Polyethylene is Synthetic Plastic

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 :**

19088952677. 1

19088952678. 2

19088952679. 3

19088952680. 4

**Question Number : 96 Question Id : 19088913197 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Mole drainage is suitable for which type of soils?

1. Sandy
2. Clayey
3. Silty
4. All soil types

**Options :**

19088952681. 1

19088952682. 2

19088952683. 3

19088952684. 4

**Question Number : 97 Question Id : 19088913198 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Side slope (H: V) of Cipolletti weir is:

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

**Options :**

19088952685. 1

19088952686. 2

19088952687. 3

19088952688. 4

**Question Number : 98 Question Id : 19088913199 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Bernoulli's equation is based upon which principle?

1. Principle of conservation of energy
2. Principle of conservation of mass
3. Archimedes' principle
4. Pascal's law

**Options :**

19088952689. 1

19088952690. 2

19088952691. 3

19088952692. 4

**Question Number : 99 Question Id : 19088913200 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



What is the efficiency of subsurface drip irrigation?

1. Same as surface drip irrigation
2. Lower than surface drip irrigation
3. 100 %
4. Higher than surface drip irrigation

**Options :**

19088952693. 1

19088952694. 2

19088952695. 3

19088952696. 4

**Question Number : 100 Question Id : 19088913201 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Read the following statements

Statement I: Andhra Pradesh has the highest area under drip irrigation

Statement II: Rajasthan has the highest area under sprinkler irrigation

Based upon the above statements which of the following options is correct?

1. Statement I is true and Statement II is false
2. Statement I is false and Statement II is true
3. Both statements are true
4. Both statements are false

**Options :**

19088952697. 1

19088952698. 2

19088952699. 3

19088952700. 4

**Question Number : 101 Question Id : 19088913202 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
Class	Irrigation Water Quality
A. C1-S3	I. EC: 0.25 - 0.75 dS.m <sup>-1</sup> and SAR: > 26
B. C2-S4	II. EC: > 2.25 dS.m <sup>-1</sup> and SAR: 0 - 10
C. C3-S2	III. EC: > 2.25 dS.m <sup>-1</sup> and SAR: 18 - 26
D. C4-S1	IV. EC: 0.1 - 0.25 dS.m <sup>-1</sup> and SAR: 18 - 26
	V. EC: 0.75 - 2.25 dS.m <sup>-1</sup> and SAR: 10 - 18

Choose the correct answer from the options given below:

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

**Options :**

19088952701. 1

19088952702. 2

19088952703. 3

19088952704. 4

**Question Number : 102 Question Id : 19088913203 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Read the following statements regarding the principle of flumes:

Statement I: Working of flume depends on principle of specific energy.

Statement II: Working of flume depends on principle of critical energy.

Based on the above two systems, which of the following options is correct?

1. Statement I is true and Statement II is false
2. Statement I and statement II both are false
3. Statement I and statement II both are true
4. Statement II is true and Statement I is false

**Options :**

19088952705. 1

19088952706. 2

19088952707. 3

19088952708. 4

**Question Number : 103 Question Id : 19088913204 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Based upon tolerance of the different crops to the waterlogging, which of the following sequence is correct?

1. Sorghum > Cotton > Sugarcane > Vegetables
2. Sugarcane > Vegetables > Cotton > Sorghum
3. Cotton > Sugarcane > Sorghum > Vegetables
4. Sugarcane > Cotton > Sorghum > Vegetables

**Options :**

19088952709. 1

19088952710. 2

19088952711. 3

19088952712. 4

**Question Number : 104 Question Id : 19088913205 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A drainage system removes 24000 cubic metre of water from an area of 1000 hectare in 24 hours. What is the value of drainage coefficient in mm?

1. 2.4
2. 1.0
3. 1.4
4. 3.4

**Options :**

19088952713. 1

19088952714. 2

19088952715. 3

19088952716. 4

Question Number : 105 Question Id : 19088913206 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
Hydraulic Jump Type	Froude Number Value
A. Steady Jump	I. 1
B. Oscillating Jump	II. 1.7 to 2.5
C. Undular Jump	III. 1 to 1.7
D. Weak Jump	IV. 2.5 to 4.5
	V. 4.5 to 9

Choose the correct answer from the options given below:

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

Options :

19088952717. 1

19088952718. 2

19088952719. 3

19088952720. 4

Question Number : 106 Question Id : 19088913207 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What will be the top width of trapezoidal channel (m) having 1 m bottom width, 0.6 m depth and 0.5:1 side slope?

1. 1.3
2. 2.6
3. 2.3
4. 1.6

Options :

19088952721. 1

19088952722. 2

19088952723. 3

19088952724. 4

**Question Number : 107 Question Id : 19088913208 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Inverse auger hole method is used in

1. Shallow water table condition only
2. Soils with low infiltration rate only
3. Both shallow and deep water table conditions
4. Deep water table condition

**Options :**

19088952725. 1

19088952726. 2

19088952727. 3

19088952728. 4

**Question Number : 108 Question Id : 19088913209 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

A 50 cubic metre water was diverted from a canal and 40 cubic metre was delivered to the field.  
If 30 cubic metre was stored in crop root zone, determine the application efficiency.

1. 60 %
2. 80 %
3. 75 %
4. 70 %

**Options :**

19088952729. 1

19088952730. 2

19088952731. 3

19088952732. 4

**Question Number : 109 Question Id : 19088913210 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following statements about Parshall Flume are correct?

- A. It is a self cleaning device.
- B. It requires only small amount of drop or head loss in the stream for flow measurement.
- C. It does not allow reasonably accurate measurement when partially submerged.

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

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

**Options :**

19088952733. 1

19088952734. 2

19088952735. 3

19088952736. 4

**Question Number : 110 Question Id : 19088913211 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following statements regarding the Darcy's law are true ?

- A. It states that flow rate through a porous medium is inversely proportional to the head loss
- B. It is applicable so long as the flow is laminar
- C. It has extensive applications in groundwater flow and drainage problems
- D. It is valid for both saturated and unsaturated flows

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

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

**Options :**

19088952737. 1

19088952738. 2

19088952739. 3

19088952740. 4

**Question Number : 111 Question Id : 19088913212 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
<b>Soil Order</b>	<b>Characteristic</b>
A. Oxisols	I. Irrigation is essential for productive agriculture
B. Vertisols	II. Shrinking and swelling dark clay soils
C. Aridisols	III. Common soils of alluvial areas
D. Entisols	IV. Deep red soils of the tropics
	V. Horizons are weakly developed

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

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

**Options :**

- 19088952741. 1
- 19088952742. 2
- 19088952743. 3
- 19088952744. 4

**Question Number : 112 Question Id : 19088913213 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

In case of soil water, the capillary adjustment is sluggish between:

- 1. 31 and 15 atmosphere
- 2. 31 and one-third atmosphere
- 3. 15 and one-third atmosphere
- 4. 15 and 7 atmosphere

**Options :**

- 19088952745. 1
- 19088952746. 2
- 19088952747. 3
- 19088952748. 4

**Question Number : 113 Question Id : 19088913214 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Considering the drain spacing of the subsurface drainage system, which of the following sequence is correct?

- 1. Sandy loam > Loam > Clay
- 2. Loam > Sandy loam > Clay
- 3. Clay > loam > Sandy loam
- 4. Clay > Sandy loam > loam

**Options :**

- 19088952749. 1
- 19088952750. 2



19088952751. 3

19088952752. 4

**Question Number : 114 Question Id : 19088913215 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Read the following statements regarding the alkali soils

- A. They have  $\text{pH} > 8.5$
- B. Their  $\text{EC} < 4 \text{ dS m}^{-1}$
- C. Their  $\text{ESP} < 15$

Which of the above statements is/are INCORRECT?

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

**Options :**

19088952753. 1

19088952754. 2

19088952755. 3

19088952756. 4

**Question Number : 115 Question Id : 19088913216 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which type of filter effectively removes large quantities of sand particles

- 1. Gravel Filter
- 2. Sand Filter
- 3. Disc Filter
- 4. Hydro-cyclone Filter

**Options :**

19088952757. 1

19088952758. 2

19088952759. 3

19088952760. 4

**Question Number : 116 Question Id : 19088913217 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following statement/s regarding Blaney-Criddle method is/are true?

- A. It estimates potential evapotranspiration
- B. It is closely correlated mean monthly temperatures
- C. It does not take into account daylight hours

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

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

**Options :**

19088952761. 1

19088952762. 2

19088952763. 3

19088952764. 4

**Question Number : 117 Question Id : 19088913218 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
Soil Separates	Particle size
A. Clay	I. $> 2$ mm
B. Coarse Sand	II. 0.002 to 0.02 mm
C. Silt	III. 0.2 to 2 mm
D. Fine Sand	IV. $< 0.002$ mm
	V. 0.02 to 0.2 mm

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

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

**Options :**

19088952765. 1

19088952766. 2

19088952767. 3

19088952768. 4

**Question Number : 118 Question Id : 19088913219 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Crop coefficient is affected by which of the following parameters?

- A. Crop characteristics
- B. Stage of crop development
- C. Climatic conditions
- D. Soil type

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

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

**Options :**

19088952769. 1

19088952770. 2

19088952771. 3

19088952772. 4

**Question Number : 119 Question Id : 19088913220 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following statements regarding sprinkler irrigation system are true?

A. Uniformity coefficient of more than 0.85 is considered as satisfactory

B. It is recommended that total pressure variation in the lateral should not be more than 20 % of highest pressure

C. Sprinkler irrigation can be used to protect crops against frost and high temperature

D. With lower pressure, the water from the nozzle breaks up into very fine drops and falls close to the sprinkler

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

1. B, C and D only

2. A, B and D only

3. A, B and C only

4. A, C and D only

**Options :**

19088952773. 1

19088952774. 2

19088952775. 3

19088952776. 4

**Question Number : 120 Question Id : 19088913221 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 sprinkler irrigation, with higher pressures water from nozzles falls close to the sprinkler.

**Reason R:** Higher pressures breaks the water from nozzle into very fine drops and hence they fall close to the sprinkler.

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 :**

19088952777. 1

19088952778. 2

19088952779. 3

19088952780. 4