

# National Testing Agency

<b>Question Paper Name :</b>	AGRICULTURAL ENGINEERING AND TECHNOLOGY 23rd Sep 2020 Shift 1 Set 2
<b>Subject Name :</b>	AGRICULTURAL ENGINEERING AND TECHNOLOGY
<b>Creation Date :</b>	2020-09-23 13:49:38
<b>Duration :</b>	120
<b>Total Marks :</b>	480
<b>Display Marks:</b>	Yes
<b>Share Answer Key With Delivery Engine :</b>	Yes
<b>Actual Answer Key :</b>	Yes

## AGRICULTURAL ENGINEERING AND TECHNOLOGY

<b>Group Number :</b>	1
<b>Group Id :</b>	21052912
<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

## AGRICULTURAL ENGINEERING AND TECHNOLOGY

<b>Section Id :</b>	21052916
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

<b>Number of Questions :</b>	120
<b>Number of Questions to be attempted :</b>	120
<b>Section Marks :</b>	480
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	Yes
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	21052916
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 2105291381 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

An urn contains 10 black and 5 white balls. Two balls are drawn from the urn one after the other without replacement. What is the probability that both drawn balls are black?

1.  $\frac{9}{14}$
2.  $\frac{27}{28}$
3.  $\frac{3}{7}$
4.  $\frac{2}{3}$

**Options :**

2105295521. 1
2105295522. 2
2105295523. 3
2105295524. 4

**Question Number : 2 Question Id : 2105291382 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

If  $x = a \cos \theta$ ,  $y = a \sin \theta$ , find  $\frac{dy}{dx}$

1.  $-\tan \theta$
2.  $-\cot \theta$
3.  $\tan \theta$
4.  $\cot \theta$

**Options :**

2105295525. 1  
2105295526. 2  
2105295527. 3  
2105295528. 4

**Question Number : 3 Question Id : 2105291383 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

$$\int \frac{dx}{1+x^2}$$

1.  $\tan x + \text{constant}$
2.  $\tan^{-1} x + \text{constant}$
3.  $\cot x + \text{constant}$
4.  $\cot^{-1} x + \text{constant}$

**Options :**

2105295529. 1  
2105295530. 2  
2105295531. 3  
2105295532. 4

**Question Number : 4 Question Id : 2105291384 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Evaluate the following integral  $\int_1^2 x^3 .dx$

1.  $\frac{4}{15}$
2.  $\frac{15}{4}$
3.  $\frac{7}{4}$
4.  $-\frac{4}{7}$

**Options :**

2105295533. 1  
2105295534. 2  
2105295535. 3  
2105295536. 4

**Question Number : 5 Question Id : 2105291385 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Find the general solution of the differential equation  $\frac{dy}{dx} = \frac{1+y^2}{1+x^2}$

1.  $\tan^{-1} x + \tan^{-1} y + \text{constant} = 0$
2.  $-\tan^{-1} x - \tan^{-1} y + \text{constant} = 0$
3.  $\tan x - \tan y + \text{constant} = 0$
4.  $\tan^{-1} y - \tan^{-1} x + \text{constant} = 0$

**Options :**

2105295537. 1  
2105295538. 2  
2105295539. 3  
2105295540. 4

**Question Number : 6 Question Id : 2105291386 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Let  $\vec{a} = \hat{i} + 2\hat{j}$  and  $\vec{b} = 2\hat{i} + \hat{j}$ . Which of the following statements holds true?

1.  $|\vec{a}| = |\vec{b}|$ ,  $\vec{a}$  is not equal to  $\vec{b}$
2.  $|\vec{a}| \neq |\vec{b}|$ ,  $\vec{a}$  is equal to  $\vec{b}$
3.  $|\vec{a}| = |\vec{b}|$ ,  $\vec{a}$  is equal to  $\vec{b}$
4.  $|\vec{a}| \neq |\vec{b}|$ ,  $\vec{a}$  is not equal to  $\vec{b}$

**Options :**

2105295541. 1  
2105295542. 2  
2105295543. 3  
2105295544. 4

**Question Number : 7 Question Id : 2105291387 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Find the value of  $\int \frac{1 - \sin x}{\cos^2 x} dx$

1.  $\tan x + \sec x + \text{constant}$
2.  $\sec x - \tan x + \text{constant}$
3.  $\tan x - \sec x + \text{constant}$
4.  $-\tan x - \sec x + \text{constant}$

**Options :**

2105295545. 1  
2105295546. 2  
2105295547. 3  
2105295548. 4

**Question Number : 8 Question Id : 2105291388 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Find the derivative of the function given by  $f(x)=\sin(x^2)$

1.  $2x \sin x^2$
2.  $-2x \cos x^2$
3.  $-2x \sin x^2$
4.  $2x \cos x^2$

**Options :**

2105295549. 1  
2105295550. 2  
2105295551. 3  
2105295552. 4

**Question Number : 9 Question Id : 2105291389 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The function of transducer is to

1. Amplify the input signal
2. Average the fluctuating type of input signal
3. Convert the input signal from one physical form to other form
4. Regulate the signal for control applications

**Options :**

2105295553. 1  
2105295554. 2  
2105295555. 3  
2105295556. 4

**Question Number : 10 Question Id : 2105291390 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following is non-volatile storage?

1. Backup
2. Secondary
3. Primary
4. Cache

**Options :**

2105295557. 1  
2105295558. 2  
2105295559. 3  
2105295560. 4

**Question Number : 11 Question Id : 2105291391 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Efficiency of electric motor can be represented as

1.  $\frac{T\omega}{VI}$
2.  $\frac{TI}{V\omega}$
3.  $\frac{VI}{T\omega}$
4.  $\frac{TV}{I\omega}$

**Options :**

2105295561. 1  
2105295562. 2  
2105295563. 3  
2105295564. 4

**Question Number : 12 Question Id : 2105291392 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following is decimal number representation of  $(10000)_2$ ?

1. 2
2. 4
3. 8
4. 16

**Options :**

2105295565. 1
2105295566. 2
2105295567. 3
2105295568. 4

**Question Number : 13 Question Id : 2105291393 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

FORTRAN stands for

1. Formula transfer
2. Formula translation
3. Format transformation
4. Formula transformation

**Options :**

2105295569. 1
2105295570. 2
2105295571. 3
2105295572. 4

**Question Number : 14 Question Id : 2105291394 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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



Which of the following is NOT a valid representation of bits?

1. 8-bit
2. 16-bit
3. 24-bit
4. 32-bit

**Options :**

2105295573. 1  
2105295574. 2  
2105295575. 3  
2105295576. 4

**Question Number : 15 Question Id : 2105291395 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

What will be the gravity of a petroleum product in API scale if its specific gravity at 15°C is 0.99?

1. Equal to 1
2. Equal to 10
3. More than 10
4. Less than 10

**Options :**

2105295577. 1  
2105295578. 2  
2105295579. 3  
2105295580. 4

**Question Number : 16 Question Id : 2105291396 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Compression ratio in an internal combustion engine denotes

1.  $(\text{Total cylinder volume} + \text{Clearance volume}) / (\text{Clearance volume})$
2.  $(\text{Swept volume} + \text{Clearance volume}) / (\text{Clearance volume})$
3.  $(\text{Swept volume} - \text{Clearance volume}) / (\text{Total cylinder volume})$
4.  $(\text{Swept volume} + \text{Clearance volume}) / (\text{Swept volume})$

**Options :**

- 2105295581. 1
- 2105295582. 2
- 2105295583. 3
- 2105295584. 4

**Question Number : 17 Question Id : 2105291397 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Positive entropy of a thermodynamic system indicates

1. Heat addition to the system
2. Heat rejection by the system
3. No addition or rejection of heat to or from the system
4. Entropy is not related to rejection or addition of heat

**Options :**

- 2105295585. 1
- 2105295586. 2
- 2105295587. 3
- 2105295588. 4

**Question Number : 18 Question Id : 2105291398 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The ratio of design stress to the estimated or expected maximum stress is called

1. Reliability
2. Factor of safety
3. Efficiency of design
4. Overload factor

**Options :**

2105295589. 1  
2105295590. 2  
2105295591. 3  
2105295592. 4

**Question Number : 19 Question Id : 2105291399 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Calculate the power transmitted by a V-belt in kW, if the speed of belt=10 m/s, tension in the tight side of the belt=100 N, tension in the slack side of belt=70 N

1. 0.1 kW
2. 0.2 kW
3. 0.3 kW
4. 3.0 kW

**Options :**

2105295593. 1  
2105295594. 2  
2105295595. 3  
2105295596. 4

**Question Number : 20 Question Id : 2105291400 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The square root of the ratio of the inertia force of a flowing fluid to the pressure force is known as

1. Reynold's Number
2. Froud's number
3. Euler's number
4. Weber's number

**Options :**

2105295597. 1  
2105295598. 2  
2105295599. 3  
2105295600. 4

**Question Number : 21 Question Id : 2105291401 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

A real fluid, in which the shear stress is directly proportional to the rate of shear strain (or, velocity gradient), is known as

1. Ideal fluid
2. Real fluid
3. Newtonian fluid
4. Non-Newtonian fluid

**Options :**

2105295601. 1  
2105295602. 2  
2105295603. 3  
2105295604. 4

**Question Number : 22 Question Id : 2105291402 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The flow in which the fluid particles move along well defined paths or stream line and all the stream lines are straight and parallel is known as

1. Uniform flow
2. Non-uniform flow
3. Turbulent flow
4. Laminar flow

**Options :**

- 2105295605. 1
- 2105295606. 2
- 2105295607. 3
- 2105295608. 4

**Question Number : 23 Question Id : 2105291403 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The relative proportion of sand, silt and clay in a soil sample designates

1. Soil structure
2. Soil texture
3. Soil strength
4. Soil hardness

**Options :**

- 2105295609. 1
- 2105295610. 2
- 2105295611. 3
- 2105295612. 4

**Question Number : 24 Question Id : 2105291404 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which of the following is true for the cohesion of soils?

1. It varies directly with surface tension and directly with particle size
2. It varies inversely with surface tension and inversely with particle size
3. It varies directly with surface tension and inversely with particle size
4. It varies inversely with surface tension and directly with particle size

**Options :**

2105295613. 1

2105295614. 2

2105295615. 3

2105295616. 4

**Question Number : 25 Question Id : 2105291405 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The water content at which soil changes from liquid state to plastic state is known as

1. Plastic limit
2. Liquid limit
3. Shrinkage limit
4. Plasticity Index

**Options :**

2105295617. 1

2105295618. 2

2105295619. 3

2105295620. 4

**Question Number : 26 Question Id : 2105291406 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The uniformity coefficient of soil is calculated as

1.  $D_{60} \times D_{10}$
2.  $D_{60} + D_{10}$
3.  $D_{60} - D_{10}$
4.  $D_{60} / D_{10}$

**Options :**

2105295621. 1  
2105295622. 2  
2105295623. 3  
2105295624. 4

**Question Number : 27 Question Id : 2105291407 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Maximum productivity of maize is to be obtained with a population of 40,000 plants per hectare at a row spacing of 80 cm. If the seed emergence is 80%, and the number of seeds dropped per hill is 2, determine the seed spacing.

1. 40 cm
2. 50 cm
3. 60 cm
4. 80 cm

**Options :**

2105295625. 1  
2105295626. 2  
2105295627. 3  
2105295628. 4

**Question Number : 28 Question Id : 2105291408 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Find the capacity of a field chopper with a throat size of  $25 \times 5$  cm operating at 50 rpm, with the help of given information.

- Number of knives in cutter head = 2
- Bulk density of the material =  $500 \text{ kg m}^{-3}$
- Length of cut = 2 cm
- Field efficiency of the chopper = 70%

1.  $500 \text{ kg.ha}^{-1}$
2.  $525 \text{ kg.ha}^{-1}$
3.  $1000 \text{ kg.ha}^{-1}$
4.  $1050 \text{ kg.ha}^{-1}$

**Options :**

2105295629. 1  
2105295630. 2  
2105295631. 3  
2105295632. 4

**Question Number : 29 Question Id : 2105291409 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

An engine is operating at 600 rpm. The inlet valve opens just at TDC and closes  $20^\circ$  after BDC. Calculate the time for which inlet valve remains open

1.  $1/12$  second
2.  $1/16$  second
3.  $1/18$  second
4.  $1/20$  second

**Options :**

2105295633. 1  
2105295634. 2  
2105295635. 3



2105295636. 4

**Question Number : 30 Question Id : 2105291410 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Arrange the following components of the grain combine harvester in the correct sequence as per the flow of materials, from the start of the operation through different components

- A. Reel
- B. Feeder conveyor
- C. Platform augur
- D. Straw walker
- E. Threshing cylinder

Choose the correct answer from the options given below

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

**Options :**

- 2105295637. 1
- 2105295638. 2
- 2105295639. 3
- 2105295640. 4

**Question Number : 31 Question Id : 2105291411 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

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

<b>List I</b>	<b>List II</b>
A. Knife clip	I. Thresher
B. Throughput capacity	II. Combine harvester
C. Reel index	III. Forage harvester
D. Flail	IV. Mower

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

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

**Options :**

2105295641. 1  
2105295642. 2  
2105295643. 3  
2105295644. 4

**Question Number : 32 Question Id : 2105291412 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The relation between Tractive Efficiency (TE), Net Traction Coefficient ( $\mu$ ), Gross Traction Coefficient ( $\mu_g$ ) and Slip (s) is

1.  $TE = \mu / \mu_g$
2.  $TE = (\mu / \mu_g)(1-s)$
3.  $TE = \mu(1-s) \mu_g$
4.  $TE = (\mu / \mu_g) / (1-s)$

**Options :**

2105295645. 1

2105295646. 2

2105295647. 3

2105295648. 4

**Question Number : 33 Question Id : 2105291413 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Specific draft of a tillage implement is defined as

1. Horizontal component of the Pull
2. Vertical component of the Pull
3. Draft of the implement per unit cross sectional area of the furrow slice cut by the tillage tool of the implement
4. Draft of the implement in a specific soil condition.

**Options :**

2105295649. 1

2105295650. 2

2105295651. 3

2105295652. 4

**Question Number : 34 Question Id : 2105291414 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which of the following expression is correct for increased draft due to increase in speed?

[ $D_o$  = Static component of draft independent of speed,  $D_s$  = Draft at speed 'S', k = a constant depending on machine type and operating condition.]

1.  $D_s = D_o + k S^2$
2.  $D_s = k D_o + S^2$
3.  $D_s = k D_o - k S^2$
4.  $D_s = k D_o + k S^2$

**Options :**

- 2105295653. 1
- 2105295654. 2
- 2105295655. 3
- 2105295656. 4

**Question Number : 35 Question Id : 2105291415 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

In which condition, mould board plough gives better performance than disc plough?

- 1. Sticky soil only
- 2. Weed infested soil only
- 3. Hard soil only
- 4. Hard and sticky soil.

**Options :**

- 2105295657. 1
- 2105295658. 2
- 2105295659. 3
- 2105295660. 4

**Question Number : 36 Question Id : 2105291416 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The drawbar power output of a tractor is always less than the power take off output because

- 1. Drive wheel slippage only
- 2. Tractor rolling resistance only
- 3. Friction losses and rolling resistance only
- 4. Slippage, rolling resistance and friction losses

**Options :**

- 2105295661. 1

2105295662. 2

2105295663. 3

2105295664. 4

**Question Number : 37 Question Id : 2105291417 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Placing a group of seeds at about equal intervals in rows is called

1. Drill seeding
2. Hill dropping
3. Bed planting
4. Precision planting

**Options :**

2105295665. 1

2105295666. 2

2105295667. 3

2105295668. 4

**Question Number : 38 Question Id : 2105291418 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Flow rate of a particular nozzle used for spraying liquid pesticides is proportional to

1. Pressure of spray material
2. Volume of spray material
3. Square of volume of spray material
4. Square root of pressure of spray material

**Options :**

2105295669. 1

2105295670. 2

2105295671. 3

2105295672. 4

**Question Number : 39 Question Id : 2105291419 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

If the annual fixed cost of a tractor operating a mould board plough is Rs 90000, the variable cost Rs 500 per hour and custom hiring market rate is Rs 700 per hour. The calculated annual break even hours of use of the tractor is

1. 250 hours per year
2. 350 hours per year
3. 450 hours per year
4. 550 hours per year

**Options :**

2105295673. 1

2105295674. 2

2105295675. 3

2105295676. 4

**Question Number : 40 Question Id : 2105291420 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

In check row planting method, which of the following conditions are to be met?

1. Row to row distance is equal
2. Seed to seed distance in rows is equal
3. Both row to row and seed to seed distances are maintained perfectly
4. Row to row distance is equal to the seed to seed distance

**Options :**

2105295677. 1

2105295678. 2

2105295679. 3

2105295680. 4

**Question Number : 41 Question Id : 2105291421 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following is **NOT** considered under the fixed costs of a machine?

1. Insurance charge
2. Housing charge
3. Overhead charge
4. Depreciation

**Options :**

2105295681. 1

2105295682. 2

2105295683. 3

2105295684. 4

**Question Number : 42 Question Id : 2105291422 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The value of concentration ratio of a flat plate collector is

1. 1
2. 10
3. 100
4. 1000

**Options :**

2105295685. 1

2105295686. 2

2105295687. 3

2105295688. 4

**Question Number : 43 Question Id : 2105291423 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The design of the operator's workplace in the machine is related to

1. Seat Index Point (SIP)
2. Seat Reference Point (SRP)
3. Centre of gravity of tractor
4. Geometric centre of tractor

**Options :**

- 2105295689. 1
- 2105295690. 2
- 2105295691. 3
- 2105295692. 4

**Question Number : 44 Question Id : 2105291424 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The severity of workload is considered heavy when heart rate of worker is

1. < 100 beats/minute
2. 100-125 beats/minute
3. 125-150 beats/minute
4. > 150 beats/minute

**Options :**

- 2105295693. 1
- 2105295694. 2
- 2105295695. 3
- 2105295696. 4

**Question Number : 45 Question Id : 2105291425 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**



The most critical vibration for a tractor operator is

1. 4-8 Hz
2. 1-2 Hz
3. 12-20 Hz
4. 3-5 Hz

**Options :**

- 2105295697. 1
- 2105295698. 2
- 2105295699. 3
- 2105295700. 4

**Question Number : 46 Question Id : 2105291426 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

'Point of no return' is related to

1. Cost economics of tractor
2. Tractor stability
3. Fuel injection system of tractor
4. Tractor hitch system

**Options :**

- 2105295701. 1
- 2105295702. 2
- 2105295703. 3
- 2105295704. 4

**Question Number : 47 Question Id : 2105291427 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Differential lock in a tractor is used to improve

1. Lateral stability
2. Hydraulic lift
3. Braking performance
4. Traction of wheel

**Options :**

- 2105295705. 1
- 2105295706. 2
- 2105295707. 3
- 2105295708. 4

**Question Number : 48 Question Id : 2105291428 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Tractor engine is designed to produce maximum torque at a speed

1. at which maximum power is developed
2. lower than the speed at which maximum power is developed
3. higher than the speed at which maximum power is developed
4. at which minimum power is developed

**Options :**

- 2105295709. 1
- 2105295710. 2
- 2105295711. 3
- 2105295712. 4

**Question Number : 49 Question Id : 2105291429 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The exposure limit as prescribed by the Swedish National Board of Occupational Safety and Health for respirable dust is

1. 5 mg/m<sup>3</sup>
2. 10 mg/m<sup>3</sup>
3. 15 mg/m<sup>3</sup>
4. 20 mg/m<sup>3</sup>

**Options :**

- 2105295713. 1
- 2105295714. 2
- 2105295715. 3
- 2105295716. 4

**Question Number : 50 Question Id : 2105291430 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Maximum noise level from a tractor near the operator's ear should not exceed

1. 110 dB
2. 100 dB
3. 95 dB
4. 90 dB

**Options :**

- 2105295717. 1
- 2105295718. 2
- 2105295719. 3
- 2105295720. 4

**Question Number : 51 Question Id : 2105291431 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Pyrheliometer is an instrument used for measuring

1. Diffuse radiation
2. Direct radiation
3. Both direct and diffuse radiation
4. Global radiation

**Options :**

2105295721. 1

2105295722. 2

2105295723. 3

2105295724. 4

**Question Number : 52 Question Id : 2105291432 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which one of the following is the main combustible component in biogas?

1. Methane
2. Carbon Monoxide
3. Hydrogen
4. Oxygen

**Options :**

2105295725. 1

2105295726. 2

2105295727. 3

2105295728. 4

**Question Number : 53 Question Id : 2105291433 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

What is the standard value of the solar constant?

1. 1.75 kW/m<sup>2</sup>
2. 1.50 kW/m<sup>2</sup>
3. 1.36 kW/m<sup>2</sup>
4. 1.00 kW/m<sup>2</sup>

**Options :**

2105295729. 1

2105295730. 2

2105295731. 3

2105295732. 4

**Question Number : 54 Question Id : 2105291434 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

How much energy will be available from a biogas plant with the following details: Burner efficiency 60%; methane proportion 0.8; the heat of combustion of methane 28 MJ/m<sup>3</sup>; and volume of biogas produced per day is 2.4 m<sup>3</sup>

1. 16.8 kWh/day
2. 4.2 kWh/day
3. 12.4 kWh/day
4. 8.8 kWh/day

**Options :**

2105295733. 1

2105295734. 2

2105295735. 3

2105295736. 4

**Question Number : 55 Question Id : 2105291435 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The acceptable workload for an average Indian worker with  $VO_{2max}$  of 2.2 litre/minute (calorific value of  $O_2$  as 20.9 kJ/litre) is

1. 16.1 kJ/ minute
2. 10.8 kJ/ minute
3. 11.7 kJ/ minute
4. 38.1 kJ/ minute

**Options :**

- 2105295737. 1
- 2105295738. 2
- 2105295739. 3
- 2105295740. 4

**Question Number : 56 Question Id : 2105291436 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following is true in respect of Volume Median Diameter (VMD) and Number Median Diameter (NMD)?

1.  $VMD > NMD$
2.  $NMD > VMD$
3.  $VMD = NMD$
4.  $VMD = 2NMD$

**Options :**

- 2105295741. 1
- 2105295742. 2
- 2105295743. 3
- 2105295744. 4

**Question Number : 57 Question Id : 2105291437 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Suitable metering mechanism for wheat seeds is

1. Cup feed
2. Cell feed
3. Brush feed
4. Fluted roller

**Options :**

2105295745. 1

2105295746. 2

2105295747. 3

2105295748. 4

**Question Number : 58 Question Id : 2105291438 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which is of the following is considered under conservation tillage?

1. Seed drill
2. Zero till drill
3. Planter
4. Transplanter

**Options :**

2105295749. 1

2105295750. 2

2105295751. 3

2105295752. 4

**Question Number : 59 Question Id : 2105291439 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Calibration of seed drill refers to testing of seed drill for

1. Row to row spacing
2. Plant to plant spacing
3. Correct seed rate
4. Operational width

**Options :**

2105295753. 1

2105295754. 2

2105295755. 3

2105295756. 4

**Question Number : 60 Question Id : 2105291440 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Clutch of a tractor is designed on the basis of

1. Constant torque
2. Constant pressure
3. Constant power
4. Constant speed

**Options :**

2105295757. 1

2105295758. 2

2105295759. 3

2105295760. 4

**Question Number : 61 Question Id : 2105291441 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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



Pycnometer method is used for the determination of which of the following properties of grains?

1. Surface roughness
2. Bulk density
3. Specific gravity
4. Colour

**Options :**

- 2105295761. 1
- 2105295762. 2
- 2105295763. 3
- 2105295764. 4

**Question Number : 62 Question Id : 2105291442 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Given below are two statements

**Statement I:** Increase in thermal conductivity increases thermal diffusivity

**Statement II:** Materials having higher specific heat possess lower thermal diffusivity

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

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

**Options :**

- 2105295765. 1
- 2105295766. 2
- 2105295767. 3

2105295768. 4

**Question Number : 63 Question Id : 2105291443 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Moisture contained by a substance that exerts equilibrium vapour pressure less than that of liquid at same temperature is known as

1. Equilibrium moisture
2. Bound moisture
3. Unbound moisture
4. Free moisture

**Options :**

- 2105295769. 1
- 2105295770. 2
- 2105295771. 3
- 2105295772. 4

**Question Number : 64 Question Id : 2105291444 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

1000 kg of grain at 10% (wet basis) moisture was stored in coastal region for six months, where grain absorbed 50 kg water vapour. The amount of dry matter content in the final product will be

1. 900 kg
2. 1000 kg
3. 950 kg
4. 1050 kg

**Options :**

- 2105295773. 1
- 2105295774. 2

2105295775. 3

2105295776. 4

**Question Number : 65 Question Id : 2105291445 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

At 65% relative humidity, dry bulb temperature will be

1. Equal to dew point temperature
2. Less than wet bulb temperature
3. Greater than wet bulb temperature
4. Equal to wet bulb temperature

**Options :**

2105295777. 1

2105295778. 2

2105295779. 3

2105295780. 4

**Question Number : 66 Question Id : 2105291446 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following is NOT a bulk storage practice?

1. Pusa bin
2. Cover and plinth
3. Squat silo
4. Bukhari

**Options :**

2105295781. 1

2105295782. 2

2105295783. 3

2105295784. 4

**Question Number : 67 Question Id : 2105291447 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Rankine formula is used for calculation of lateral pressure in case of

1. Shallow bin
2. Deep bin
3. Both shallow and deep bin
4. Ultra deep bin

**Options :**

2105295785. 1

2105295786. 2

2105295787. 3

2105295788. 4

**Question Number : 68 Question Id : 2105291448 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

A bulk storage structure can be termed as shallow bin, if plane of rupture of stored material

1. Meets opposite side of structure before it touches grain surface
2. Doesn't exist
3. Meets grain surface before it strikes opposite sides
4. Runs along bottom of the structure

**Options :**

2105295789. 1

2105295790. 2

2105295791. 3

2105295792. 4

**Question Number : 69 Question Id : 2105291449 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is**

**Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Process of separating the material according to its commercial value is known as

1. Sorting
2. Grading
3. Cleaning
4. Pearling

**Options :**

2105295793. 1

2105295794. 2

2105295795. 3

2105295796. 4

**Question Number : 70 Question Id : 2105291450 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is**

**Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Specific gravity separator separates materials based on

1. Texture
2. Length
3. Size
4. Density

**Options :**

2105295797. 1

2105295798. 2

2105295799. 3

2105295800. 4

**Question Number : 71 Question Id : 2105291451 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is**

**Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Terminal velocity of the material is an important property for the design of

1. Bucket elevators
2. Belt conveyors
3. Pneumatic conveyors
4. Screw conveyors

**Options :**

- 2105295801. 1
- 2105295802. 2
- 2105295803. 3
- 2105295804. 4

**Question Number : 72 Question Id : 2105291452 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Carrying capacity of a bucket elevator having 4 buckets per meter moving at a speed of 1 m/minute, with bucket holding capacity  $0.1 \text{ m}^3$ , will be

1.  $15 \text{ m}^3/\text{h}$
2.  $15 \text{ m}^3/\text{minute}$
3.  $0.4 \text{ m}^3/\text{minute}$
4.  $4 \text{ m}^3/\text{h}$

**Options :**

- 2105295805. 1
- 2105295806. 2
- 2105295807. 3
- 2105295808. 4

**Question Number : 73 Question Id : 2105291453 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

In case of rubber roll huller, rollers

1. Rotate at same speed
2. Rotate at different speed
3. Vibrate at same frequency
4. Vibrate at varying frequency

**Options :**

- 2105295809. 1
- 2105295810. 2
- 2105295811. 3
- 2105295812. 4

**Question Number : 74 Question Id : 2105291454 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Tempering degerming is a method of

1. Rice milling
2. Corn milling
3. Wheat milling
4. Pulse milling

**Options :**

- 2105295813. 1
- 2105295814. 2
- 2105295815. 3
- 2105295816. 4

**Question Number : 75 Question Id : 2105291455 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

First unit operation in oil refining process is

1. Blanching
2. Winterization
3. Deodorization
4. Alkali treatment

**Options :**

- 2105295817. 1
- 2105295818. 2
- 2105295819. 3
- 2105295820. 4

**Question Number : 76 Question Id : 2105291456 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

GAP stands for

1. Guide for Accelerated Procedure
2. Grain Aeration Procedure
3. Good Agricultural Practices
4. Graded Active Packaging

**Options :**

- 2105295821. 1
- 2105295822. 2
- 2105295823. 3
- 2105295824. 4

**Question Number : 77 Question Id : 2105291457 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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



Collection of Internationally adopted food standards and related texts, presented in a uniform manner is

1. FSSAI
2. Codex Alimentarius
3. HACCP
4. GMP

**Options :**

2105295825. 1  
2105295826. 2  
2105295827. 3  
2105295828. 4

**Question Number : 78 Question Id : 2105291458 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Major force of action in case of Rietz mill is

1. Crushing
2. Impact
3. Shear
4. Cutting

**Options :**

2105295829. 1  
2105295830. 2  
2105295831. 3  
2105295832. 4

**Question Number : 79 Question Id : 2105291459 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

In a size reduction operation, uniformity of grind of a ground product is given by

1. Size index
2. Grinding modulus
3. Uniformity index
4. Fineness modulus

**Options :**

- 2105295833. 1
- 2105295834. 2
- 2105295835. 3
- 2105295836. 4

**Question Number : 80 Question Id : 2105291460 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Most popular fencing for general farm use is

1. Woven wire mesh fencing
2. Electric fencing
3. Improved electric fencing
4. Barbed wire fencing

**Options :**

- 2105295837. 1
- 2105295838. 2
- 2105295839. 3
- 2105295840. 4

**Question Number : 81 Question Id : 2105291461 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Among the following, which unit operation is performed at the end of seed processing?

1. Sorting
2. Dressing
3. Drying
4. Conditioning

**Options :**

- 2105295841. 1
- 2105295842. 2
- 2105295843. 3
- 2105295844. 4

**Question Number : 82 Question Id : 2105291462 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Amino acids are the basic components of

1. Fat
2. Protein
3. Starch
4. Fibre

**Options :**

- 2105295845. 1
- 2105295846. 2
- 2105295847. 3
- 2105295848. 4

**Question Number : 83 Question Id : 2105291463 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Beyond break-even point, net loss of a processing plant will be what per cent of the total investment?

1. 0
2. 25
3. 50
4. 100

**Options :**

2105295849. 1  
2105295850. 2  
2105295851. 3  
2105295852. 4

**Question Number : 84 Question Id : 2105291464 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The drying process in which a solid form of water is directly converted to vapour form?

1. Spray drying
2. Drum drying
3. Freeze drying
4. Tray drying

**Options :**

2105295853. 1  
2105295854. 2  
2105295855. 3  
2105295856. 4

**Question Number : 85 Question Id : 2105291465 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Separation equipment suitable for separating air borne particles of a rice mill is:

1. Gravity separator
2. Hydroclone
3. Cyclone separator
4. Bran separator

**Options :**

- 2105295857. 1
- 2105295858. 2
- 2105295859. 3
- 2105295860. 4

**Question Number : 86 Question Id : 2105291466 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Temperature and pressure combination at which water co-exist in all forms is known as

1. Magic point
2. Universal point
3. Absolute point
4. Triple point

**Options :**

- 2105295861. 1
- 2105295862. 2
- 2105295863. 3
- 2105295864. 4

**Question Number : 87 Question Id : 2105291467 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Device used for exchange of heat between two fluids

1. Heat engine
2. Heat exchanger
3. Extruder
4. Irradiator

**Options :**

- 2105295865. 1
- 2105295866. 2
- 2105295867. 3
- 2105295868. 4

**Question Number : 88 Question Id : 2105291468 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

One ton of refrigeration is equal to

1. 50 kcal/minute
2. 50 kcal/h
3. 50 kcal/s
4. 50 cal/minute

**Options :**

- 2105295869. 1
- 2105295870. 2
- 2105295871. 3
- 2105295872. 4

**Question Number : 89 Question Id : 2105291469 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

LSU dryer was developed by

1. Ludhiana State University, India
2. Louisiana State University, USA
3. IIT, Kharagpur
4. IARI, New Delhi

**Options :**

2105295873. 1  
2105295874. 2  
2105295875. 3  
2105295876. 4

**Question Number : 90 Question Id : 2105291470 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Match List I with List II

List I	List II
A. COP	I. Conduction
B. Size reduction	II. Refrigeration
C. Kelvin equation	III. Sieve analysis
D. Molecular vibration	IV. Equilibrium moisture

Choose the correct answer from the option given below:

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

**Options :**

2105295877. 1  
2105295878. 2  
2105295879. 3

2105295880.4

**Question Number : 91 Question Id : 2105291471 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Length of Gunter's (Surveyor's) chain is

1. 20 m
2. 30 m
3. 66 feet
4. 100 feet

**Options :**

- 2105295881.1
- 2105295882.2
- 2105295883.3
- 2105295884.4

**Question Number : 92 Question Id : 2105291472 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Observation well is used for the investigation of

1. Soil moisture content
2. Water table in confined aquifer
3. Water table in unconfined aquifer
4. Determination of phreatic line

**Options :**

- 2105295885.1
- 2105295886.2
- 2105295887.3
- 2105295888.4



**Question Number : 93 Question Id : 2105291473 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Movement of water into soil at the surface is called

1. Lateral flow
2. Infiltration
3. Seepage
4. Percolation

**Options :**

- 2105295889. 1
- 2105295890. 2
- 2105295891. 3
- 2105295892. 4

**Question Number : 94 Question Id : 2105291474 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

The term piezometric surface is used for which of the following types of aquifers?

1. Unconfined aquifer
2. Confined aquifer
3. Semi confined aquifer
4. Perched aquifer

**Options :**

- 2105295893. 1
- 2105295894. 2
- 2105295895. 3
- 2105295896. 4

**Question Number : 95 Question Id : 2105291475 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Pitcher irrigation is used for

1. Water storage
2. Water conveyance
3. Irrigation
4. Drainage

**Options :**

2105295897. 1  
2105295898. 2  
2105295899. 3  
2105295900. 4

**Question Number : 96 Question Id : 2105291476 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Discharge rating (litres/second) of a pump operating in area A (hectares), is given by which of the following relationships?

[ Where D is the depth of application (cm), E is field application efficiency (fraction), F is irrigation interval (days), and h is operation period per day (hours) ]

1.  $278 \frac{AD}{FHE}$
2.  $278 \frac{ADF}{HE}$
3.  $278 \frac{DFH}{AE}$
4.  $278 \frac{FHE}{AD}$

**Options :**

2105295901. 1  
2105295902. 2  
2105295903. 3  
2105295904. 4

**Question Number : 97 Question Id : 2105291477 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Which of the following instruments is NOT used for determination of soil moisture content?

1. Tensiometer
2. Current meter
3. Electric resistance meter
4. Neutron moisture meter

**Options :**

2105295905. 1  
2105295906. 2  
2105295907. 3  
2105295908. 4

**Question Number : 98 Question Id : 2105291478 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Discharge could be determined for suppressed rectangular weir by which of the following formulae?

(where Q= discharge (liters/second), L= Length of crest (cm), and H = head on the crest (cm))

1.  $Q = 0.0184 LH^{3/2}$
2.  $Q = 0.0184 (1-0.1H)H^{3/2}$
3.  $Q = 0.0184 (1-0.2H)H^{3/2}$
4.  $Q = 0.184 LH^{3/2}$

**Options :**

2105295909. 1  
2105295910. 2  
2105295911. 3

2105295912. 4

**Question Number : 99 Question Id : 2105291479 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Hydraulic gradient is defined as

1.  $\frac{\text{Change in pressure head}}{\text{length}}$
2.  $\frac{\text{Change in velocity head}}{\text{length}}$
3.  $\frac{\text{Change in static head}}{\text{length}}$
4.  $\frac{\text{Head loss due to friction}}{\text{length}}$

**Options :**

2105295913. 1

2105295914. 2

2105295915. 3

2105295916. 4

**Question Number : 100 Question Id : 2105291480 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Permissible velocity in earth channel having sandy loam soil is

1. 45 cm/s
2. 60 cm/s
3. 75 cm/s
4. 90 cm/s

**Options :**

2105295917. 1

2105295918. 2

2105295919. 3

2105295920. 4

**Question Number : 101 Question Id : 2105291481 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

One atmosphere soil moisture tension is equal to

1. 936 cm of water column
2. 1036 cm of water column
3. 1136 cm of water column
4. 1236 cm of water column

**Options :**

2105295921. 1  
2105295922. 2  
2105295923. 3  
2105295924. 4

**Question Number : 102 Question Id : 2105291482 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The average moisture extraction by plants from first 25% of soil depth is approximately

1. 50 %
2. 45 %
3. 40 %
4. 35 %

**Options :**

2105295925. 1  
2105295926. 2  
2105295927. 3  
2105295928. 4

**Question Number : 103 Question Id : 2105291483 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

An irrigation stream of 30 l/s is diverted to a check basin of size 12 m x 10 m. The water holding capacity of the soil is 15 %. The average soil moisture content in the root zone prior to applying water is 7 %. How long should the irrigation stream be applied in the basin to replenish the root zone moisture to its field capacity, assuming no loss due to deep percolation?

[The depth of the crop root zone may be assumed as 1.0 m. The apparent specific gravity of the root zone soil is 1.50]

1. 6 minutes
2. 8 minutes
3. 10 minutes
4. 12 minutes

**Options :**

- 2105295929. 1
- 2105295930. 2
- 2105295931. 3
- 2105295932. 4

**Question Number : 104 Question Id : 2105291484 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

If the net amount of irrigation requirement is 8 cm and the field efficiency is 75 per cent, the gross amount to be applied to the field is

1. 6.66 cm
2. 8.66 cm
3. 10.66 cm
4. 12.66 cm

**Options :**

- 2105295933. 1
- 2105295934. 2
- 2105295935. 3
- 2105295936. 4

**Question Number : 105 Question Id : 2105291485 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Recommended top width of an embankment of farm pond up to a height of 3.0 m is

- 1. 1.2 m
- 2. 1.5 m
- 3. 1.8 m
- 4. 2.1 m

**Options :**

- 2105295937. 1
- 2105295938. 2
- 2105295939. 3
- 2105295940. 4

**Question Number : 106 Question Id : 2105291486 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Relationship between delta (d), Duty (D) and base period (B) is given as

- 1.  $d=8.6 \frac{B}{D}$
- 2.  $D=8.6 \frac{B}{d}$
- 3.  $B=8.6 \frac{d}{D}$
- 4.  $D=8.6 \frac{d}{B}$

**Options :**

- 2105295941. 1
- 2105295942. 2
- 2105295943. 3
- 2105295944. 4

**Question Number : 107 Question Id : 2105291487 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Match List I with List II

List I	List II
A. Permeability	I. The rate at which water is transmitted through the unit width of the aquifer under a unit hydraulic agent
B. Specific retention	II. The ratio of the volume of water will yield when drained by gravity to the total volume
C. Specific yield	III. The ability of a material to transmit fluid such as water
D. Transmissivity	IV. The ratio of the volume of water a material retains after drainage by gravity to the total volume

Choose the correct answer from the options given below:

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



**Options :**

- 2105295945. 1
- 2105295946. 2
- 2105295947. 3
- 2105295948. 4

**Question Number : 108 Question Id : 2105291488 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Effective diameter of aquifer material is defined as the diameter of the grains such that x % of the grains are finer.

x =

- 1. 10
- 2. 40
- 3. 60
- 4. 90

**Options :**

- 2105295949. 1
- 2105295950. 2
- 2105295951. 3
- 2105295952. 4

**Question Number : 109 Question Id : 2105291489 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The speed in revolutions per minute of a geometrically similar centrifugal pump of such a size that under corresponding conditions, it would deliver 1 litre of liquid per second against a head of 1 m is known as

1. Pump capacity
2. Pump efficiency
3. Pump head
4. Specific speed of pump

**Options :**

- 2105295953. 1
- 2105295954. 2
- 2105295955. 3
- 2105295956. 4

**Question Number : 110 Question Id : 2105291490 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Given below are two statements:

**Statement I:** Soil erodibility is a function of the physical characteristics of the rainfall

**Statement II:** Soil erodibility is defined as the vulnerability or susceptibility of the soil to erosion

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

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

**Options :**

- 2105295957. 1

2105295958. 2

2105295959. 3

2105295960. 4

**Question Number : 111 Question Id : 2105291491 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

In the universal soil loss equation (USLE):  $A=RKLSCP$ , the parameter 'S' stands for

1. Channel slope
2. Steepness of slope factor
3. Length of slope factor
4. Average channel length

**Options :**

2105295961. 1

2105295962. 2

2105295963. 3

2105295964. 4

**Question Number : 112 Question Id : 2105291492 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1**

Method suitable for managing rainwater in black soil is

1. Bunding
2. Broad bed and furrow
3. Terracing
4. Trenching

**Options :**

2105295965. 1

2105295966. 2

2105295967. 3

2105295968. 4

**Question Number : 113 Question Id : 2105291493 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which one of the following streambank protection measures is to be adopted where the stream takes to meandering; eroding the banks, and where the cuts are vertical?

1. Wooden jack series
2. Groynes or Spurs
3. Check dams
4. Brushwood roller

**Options :**

2105295969. 1  
2105295970. 2  
2105295971. 3  
2105295972. 4

**Question Number : 114 Question Id : 2105291494 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Laser leveler is used for

1. Operation of automated drip irrigation system
2. Determination of groundwater depth
3. Land smoothening operation
4. Determination of root zone moisture

**Options :**

2105295973. 1  
2105295974. 2  
2105295975. 3  
2105295976. 4

**Question Number : 115 Question Id : 2105291495 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following permanent gully control structure is used at the head to convey the water safely to the gully bed?

1. Brushwood check dam
2. Drop inlet or pipe spillway
3. Drop spillway
4. Chute spillway

**Options :**

2105295977. 1

2105295978. 2

2105295979. 3

2105295980. 4

**Question Number : 116 Question Id : 2105291496 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The hydrologic design of the drop inlet structure consists of knowing which of the following parameters?

1. Rainfall depth expected
2. Peak rate of runoff expected
3. The inflow hydrograph
4. Both peak rate of runoff expected and the inflow hydrograph.

**Options :**

2105295981. 1

2105295982. 2

2105295983. 3

2105295984. 4

**Question Number : 117 Question Id : 2105291497 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

The recommended permissible gap between two tiles in tile drainage of silt loam soil and silty clay loam soil is

1. 1 mm to 3 mm
2. 3 mm to 5 mm
3. 5 mm to 7 mm
4. 7 mm to 9 mm

**Options :**

- 2105295985. 1
- 2105295986. 2
- 2105295987. 3
- 2105295988. 4

**Question Number : 118 Question Id : 2105291498 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

If plantation is used in a waterlogged area, the type of drainage is called

1. Surface drainage
2. Sub-surface drainage
3. Mole drainage
4. Bio-drainage

**Options :**

- 2105295989. 1
- 2105295990. 2
- 2105295991. 3
- 2105295992. 4

**Question Number : 119 Question Id : 2105291499 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Parallel field ditch system is used for

1. Surface drainage system
2. Sub-surface drainage system
3. Mole drainage system
4. Bio-drainage system

**Options :**

2105295993. 1

2105295994. 2

2105295995. 3

2105295996. 4

**Question Number : 120 Question Id : 2105291500 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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

Which of the following conditions define saline soil?

(EC= Electrical conductivity of saturation extract and ESP = Exchangeable Sodium Percentage)

1.  $EC < 4$ ,  $ESP > 15$ ,  $pH = 10.0$
2.  $EC < 4$ ,  $ESP < 15$ ,  $pH = 8.0$
3.  $EC > 4$ ,  $ESP < 15$ ,  $pH = 8.0$
4.  $EC > 4$ ,  $ESP > 15$ ,  $pH = 10.0$

**Options :**

2105295997. 1

2105295998. 2

2105295999. 3

2105296000. 4