

# National Testing Agency

<b>Question Paper Name :</b>	Farm Machinery and Power Engineering 17th September Shift 2
<b>Subject Name :</b>	Farm Machinery and Power Engineering
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<b>Display Marks:</b>	Yes

## Farm Machinery and Power Engineering

<b>Group Number :</b>	1
<b>Group Id :</b>	190889114
<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>	190889266
<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>	190889306
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 19088912982 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 :**

19088951821. 1

19088951822. 2

19088951823. 3

19088951824. 4

**Question Number : 2 Question Id : 19088912983 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 :**

- 19088951825. 1
- 19088951826. 2
- 19088951827. 3
- 19088951828. 4

**Question Number : 3 Question Id : 19088912984 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 :**

- 19088951829. 1
- 19088951830. 2
- 19088951831. 3
- 19088951832. 4

**Question Number : 4 Question Id : 19088912985 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 :**

- 19088951833. 1
- 19088951834. 2
- 19088951835. 3



19088951836. 4

**Question Number : 5 Question Id : 19088912986 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 :**

19088951837. 1

19088951838. 2

19088951839. 3

19088951840. 4

**Question Number : 6 Question Id : 19088912987 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 :**

19088951841. 1

19088951842. 2

19088951843. 3

19088951844. 4

**Question Number : 7 Question Id : 19088912988 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 :**

19088951845. 1

19088951846. 2

19088951847. 3

19088951848. 4

**Question Number : 8 Question Id : 19088912989 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 :**

19088951849. 1

19088951850. 2

19088951851. 3

19088951852. 4

**Question Number : 9 Question Id : 19088912990 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 :**

19088951853. 1

19088951854. 2

19088951855. 3

19088951856. 4

**Question Number : 10 Question Id : 19088912991 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 :**

19088951857. 1

19088951858. 2

19088951859. 3

19088951860. 4

**Question Number : 11 Question Id : 19088912992 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 :**

19088951861. 1

19088951862. 2

19088951863. 3

19088951864. 4

**Question Number : 12 Question Id : 19088912993 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 :**

19088951865. 1

19088951866. 2

19088951867. 3

19088951868. 4

**Question Number : 13 Question Id : 19088912994 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 :**

19088951869. 1

19088951870. 2

19088951871. 3

19088951872. 4

**Question Number : 14 Question Id : 19088912995 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 :**

19088951873. 1

19088951874. 2

19088951875. 3

19088951876. 4

**Question Number : 15 Question Id : 19088912996 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 :**

19088951877. 1

19088951878. 2

19088951879. 3

19088951880. 4

**Question Number : 16 Question Id : 19088912997 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 :**

19088951881. 1

19088951882. 2

19088951883. 3

19088951884. 4

**Question Number : 17 Question Id : 19088912998 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 :**

19088951885. 1

19088951886. 2

19088951887. 3

19088951888. 4

**Question Number : 18 Question Id : 19088912999 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 :**

19088951889. 1

19088951890. 2

19088951891. 3

19088951892. 4

**Question Number : 19 Question Id : 19088913000 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 :**

19088951893. 1

19088951894. 2

19088951895. 3

19088951896. 4

**Question Number : 20 Question Id : 19088913001 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 :**

19088951897. 1

19088951898. 2

19088951899. 3

19088951900. 4

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

**Section Id :** 190889267

**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>	190889307
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 21 Question Id : 19088913002 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 :**

19088951901. 1

19088951902. 2

19088951903. 3

19088951904. 4

**Question Number : 22 Question Id : 19088913003 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 :**

19088951905. 1

19088951906. 2

19088951907. 3

19088951908. 4

**Question Number : 23 Question Id : 19088913004 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 :**

19088951909. 1

19088951910. 2



19088951911. 3

19088951912. 4

**Question Number : 24 Question Id : 19088913005 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 :**

19088951913. 1

19088951914. 2

19088951915. 3

19088951916. 4

**Question Number : 25 Question Id : 19088913006 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 :**

19088951917. 1

19088951918. 2

19088951919. 3

19088951920. 4

Question Number : 26 Question Id : 19088913007 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 :

19088951921. 1

19088951922. 2

19088951923. 3

19088951924. 4

Question Number : 27 Question Id : 19088913008 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 :**

19088951925. 1

19088951926. 2

19088951927. 3

19088951928. 4

**Question Number : 28 Question Id : 19088913009 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 :**



19088951929. 1

19088951930. 2

19088951931. 3

19088951932. 4

**Question Number : 29 Question Id : 19088913010 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 :**

19088951933. 1

19088951934. 2

19088951935. 3

19088951936. 4

**Question Number : 30 Question Id : 19088913011 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 :**

19088951937. 1

19088951938. 2

19088951939. 3

19088951940. 4

**Question Number : 31 Question Id : 19088913012 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 :**

19088951941. 1

19088951942. 2

19088951943. 3

19088951944. 4

**Question Number : 32 Question Id : 19088913013 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 :**

19088951945. 1

19088951946. 2

19088951947. 3

19088951948. 4



Question Number : 33 Question Id : 19088913014 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 :

19088951949. 1

19088951950. 2

19088951951. 3

19088951952. 4

Question Number : 34 Question Id : 19088913015 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 :**

- 19088951953. 1
- 19088951954. 2
- 19088951955. 3
- 19088951956. 4

**Question Number : 35 Question Id : 19088913016 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 :**

- 19088951957. 1
- 19088951958. 2
- 19088951959. 3
- 19088951960. 4

**Question Number : 36 Question Id : 19088913017 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 :**

- 19088951961. 1

19088951962. 2

19088951963. 3

19088951964. 4

**Question Number : 37 Question Id : 19088913018 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 :**

19088951965. 1

19088951966. 2

19088951967. 3

19088951968. 4

**Question Number : 38 Question Id : 19088913019 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 :**

19088951969. 1

19088951970. 2

19088951971. 3

19088951972. 4

**Question Number : 39 Question Id : 19088913020 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 :**

19088951973. 1

19088951974. 2

19088951975. 3

19088951976. 4

**Question Number : 40 Question Id : 19088913021 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 :**

19088951977. 1

19088951978. 2

19088951979. 3

19088951980. 4

**Question Number : 41 Question Id : 19088913022 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 :**

19088951981. 1

19088951982. 2

19088951983. 3

19088951984. 4

**Question Number : 42 Question Id : 19088913023 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 :**

19088951985. 1

19088951986. 2

19088951987. 3

19088951988. 4

**Question Number : 43 Question Id : 19088913024 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 :**

19088951989. 1

19088951990. 2

19088951991. 3

19088951992. 4

**Question Number : 44 Question Id : 19088913025 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 :**

19088951993. 1

19088951994. 2

19088951995. 3

19088951996. 4

**Question Number : 45 Question Id : 19088913026 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 :**

19088951997. 1

19088951998. 2

19088951999. 3

19088952000. 4

**Question Number : 46 Question Id : 19088913027 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 :**

19088952001. 1

19088952002. 2

19088952003. 3

19088952004. 4

**Question Number : 47 Question Id : 19088913028 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 :**

19088952005. 1

19088952006. 2

19088952007. 3

19088952008. 4

**Question Number : 48 Question Id : 19088913029 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 :**

19088952009. 1

19088952010. 2

19088952011. 3



19088952012. 4

**Question Number : 49 Question Id : 19088913030 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 :**

19088952013. 1

19088952014. 2

19088952015. 3

19088952016. 4

**Question Number : 50 Question Id : 19088913031 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 :**

19088952017. 1

19088952018. 2

19088952019. 3

19088952020. 4

**Question Number : 51 Question Id : 19088913032 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 :**

19088952021. 1

19088952022. 2

19088952023. 3

19088952024. 4

**Question Number : 52 Question Id : 19088913033 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 :**

19088952025. 1

19088952026. 2

19088952027. 3

19088952028. 4

**Question Number : 53 Question Id : 19088913034 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 :**

19088952029. 1

19088952030. 2

19088952031. 3



19088952032. 4

**Question Number : 54 Question Id : 19088913035 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 :**

19088952033. 1

19088952034. 2

19088952035. 3

19088952036. 4

**Question Number : 55 Question Id : 19088913036 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 :**



19088952037. 1

19088952038. 2

19088952039. 3

19088952040. 4

**Question Number : 56 Question Id : 19088913037 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 :**

19088952041. 1

19088952042. 2

19088952043. 3

19088952044. 4

**Question Number : 57 Question Id : 19088913038 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 :**

19088952045. 1

19088952046. 2

19088952047. 3

19088952048. 4

**Question Number : 58 Question Id : 19088913039 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 :**

19088952049. 1

19088952050. 2

19088952051. 3

19088952052. 4

**Question Number : 59 Question Id : 19088913040 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 :**

19088952053. 1

19088952054. 2

19088952055. 3

19088952056. 4

**Question Number : 60 Question Id : 19088913041 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 :**

19088952057. 1

19088952058. 2

19088952059. 3

19088952060. 4

**Question Number : 61 Question Id : 19088913042 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 :**

19088952061. 1

19088952062. 2

19088952063. 3

19088952064. 4

**Question Number : 62 Question Id : 19088913043 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 :**

19088952065. 1

19088952066. 2



19088952067. 3

19088952068. 4

**Question Number : 63 Question Id : 19088913044 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 :**

19088952069. 1

19088952070. 2

19088952071. 3

19088952072. 4

**Question Number : 64 Question Id : 19088913045 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 :**

19088952073. 1

19088952074. 2

19088952075. 3

19088952076. 4

**Question Number : 65 Question Id : 19088913046 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 :**

19088952077. 1

19088952078. 2

19088952079. 3



19088952080. 4

Question Number : 66 Question Id : 19088913047 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 :

19088952081. 1

19088952082. 2

19088952083. 3

19088952084. 4

Question Number : 67 Question Id : 19088913048 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 :

19088952085. 1

19088952086. 2

19088952087. 3

19088952088. 4

**Question Number : 68 Question Id : 19088913049 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 :**

19088952089. 1

19088952090. 2

19088952091. 3

19088952092. 4

**Question Number : 69 Question Id : 19088913050 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 :**

19088952093. 1

19088952094. 2

19088952095. 3

19088952096. 4

**Question Number : 70 Question Id : 19088913051 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 :**

19088952097. 1

19088952098. 2

19088952099. 3

19088952100. 4

## Part C : Farm Machinery and Power Engineering

Section Id :	190889268
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	200
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	190889308
Question Shuffling Allowed :	Yes

**Question Number : 71 Question Id : 19088913052 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

In a pneumatic planting metering system seed to seed spacing for a crop is varied by changing:

1. Speed of the ground drive wheel only.
2. Number of cells in the metering plate only.
3. Degree of suction in vacuum chamber.
4. Speed of ground drive wheel and number of cells in metering plate

**Options :**

19088952101. 1

19088952102. 2

19088952103. 3

19088952104. 4

**Question Number : 72 Question Id : 19088913053 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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



The true point of hitch of the implement is called:

1. Centre of gravity
2. Centre of resistance
3. Centre of pull
4. Centre of implement

**Options :**

19088952105. 1

19088952106. 2

19088952107. 3

19088952108. 4

**Question Number : 73 Question Id : 19088913054 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:** A slat mould board scours better than a solid mould board.

**Reason R:** A slat mould board has comparatively smaller contact area that results in reduced adhesive forces and increased soil pressure which in turn causes the frictional resistance at soil tool interface to be less than resistance at a parallel soil-soil interface.

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 :**

19088952109. 1

19088952110. 2

19088952111. 3

19088952112. 4

**Question Number : 74 Question Id : 19088913055 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Given below are two statements

**Statement I:** In order to achieve satisfactory inversion mould board should be relatively strongly twisted.

**Statement II:** Uniform twisting from landside to the mouldboard end provides satisfactory performance than with a mould board having most of the twist near the end.

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

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

**Options :**

19088952113. 1

19088952114. 2

19088952115. 3

19088952116. 4

**Question Number : 75 Question Id : 19088913056 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
(Planting method/device)	(Requirement)
A. Hill planting	I. Very small to bold seed planting
B. Check row planting	II. Precision test plot planting
C. Inclined plate planter	III. Row to row and plant to plant distance in rows equal
D. Pneumatic planter	IV. Placement a group of seeds at specific interval
	V. Needs pre-calibration

Choose the correct answer from the options given below:

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

**Options :**

19088952117. 1

19088952118. 2

19088952119. 3

19088952120. 4

**Question Number : 76 Question Id : 19088913057 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

In a differential, the efficiency of transmission from sun gear to planet gear is 90 % and planet gear to ring gear is 90 %. No of teeth in sun gear =19 and in ring gear =81. What will be the transmission efficiency from sun gear to ring gear?

1.  $(19 + 0.81 \cdot 81) \%$
2.  $(19/81) \cdot 100\%$
3.  $0.81 \cdot 100 \%$
4.  $0.90 \cdot 100 \%$

**Options :**

19088952121. 1

19088952122. 2

19088952123. 3

19088952124. 4

**Question Number : 77 Question Id : 19088913058 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

What is the fuel power of a tractor engine with a fuel consumption of  $4 \text{ l.h}^{-1}$  ?

(The heat value and specific gravity of fuel are  $11,500 \text{ kcal.kg}^{-1}$  and 0.9 respectively)

1. 11.5 kW
2. 12.78 kW
3. 48.3 kW
4. 53.67 kW

**Options :**

19088952125. 1

19088952126. 2

19088952127. 3

19088952128. 4

**Question Number : 78 Question Id : 19088913059 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Pressure at the lubrication oil exit of tractor engine is:

1. 100-200 kPa
2. 200-300 kPa
3. 300-400 kPa
4. 400-500 kPa

**Options :**

19088952129. 1

19088952130. 2

19088952131. 3

19088952132. 4

**Question Number : 79 Question Id : 19088913060 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 exhaust valve of engine should be as large as possible when designing the combustion chamber.

**Reason R :** A large valve gives greater flow area and reduces the time of blow down, allows for a later exhaust valve opening and larger expansion stroke with less lost work.

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 :**

19088952133. 1

19088952134. 2

19088952135. 3

19088952136. 4

**Question Number : 80 Question Id : 19088913061 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 requirement for a large drawbar pull necessitates that the design slip should be higher than the slip corresponding to maximum tractive efficiency.

**Reason R :**  $H/W$  ratio is not close to its maximum value at the slip where tractive efficiency is maximum. Large drawbar pull necessitates higher  $H/W$  ratio (where  $H$  – draw bar pull ;  
 $W$  – Weight of tractive device).

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 :**

19088952137. 1

19088952138. 2

19088952139. 3

19088952140. 4

**Question Number : 81 Question Id : 19088913062 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 :** Except for maximum pull, no lugs are needed for tractor rear tyre and their presence reduces power efficiency.

**Reason R :** When lugs are provided, more work has to be done on the soil to obtain traction and this reduces power efficiency.

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 :**

19088952141. 1

19088952142. 2

19088952143. 3

19088952144. 4

**Question Number : 82 Question Id : 19088913063 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



Which forces have maximum contribution to the total draft requirement of an M B plough?

1. Cutting forces
2. Sliding friction forces
3. Shear forces
4. Accelerating forces

**Options :**

19088952145. 1

19088952146. 2

19088952147. 3

19088952148. 4

**Question Number : 83 Question Id : 19088913064 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following greatly influences the relative contribution of origins of resistance to ploughing?

1. Soil texture
2. Speed of tillage tool
3. Soil moisture
4. Blade angle

**Options :**

19088952149. 1

19088952150. 2

19088952151. 3

19088952152. 4

**Question Number : 84 Question Id : 19088913065 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Load carrying index of a vehicle with drawbar load is:

[Where,  $W_p$  = Payload,  $T$  = Torque  $\omega$  = angular velocity,  $P$  = Drawbar pull,  $v$  = velocity]

1.  $W_p/T \omega$
2.  $W_p/(T \omega + Pv)$
3.  $W_p/Pv$
4.  $W_p/(T \omega - Pv)$

**Options :**

19088952153. 1

19088952154. 2

19088952155. 3

19088952156. 4

**Question Number : 85 Question Id : 19088913066 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

When the model

$\mu = F / N = \tan \psi$  is compared with  $\tau = c + \sigma \tan \phi$

Where,  $\mu$  = Coefficient of soil and soil friction

$F$  = Normal frictional force

$N$  = Normal force perpendicular to surface

$\psi$  = Angle whose tangent is  $\mu$

$\tau$  = Shearing stress

$c$  = cohesion,  $\sigma$  = Normal stress

$\phi$  = Angle of internal friction

Choose the *most appropriate* answer from the options given below:

1.  $\psi$  and  $\phi$  are same
2. Both the models represent same soil behavior
3. Both the models are completely different. Angles  $\psi$  and  $\phi$  are not same
4. Both the models represent the same behaviour. Angles  $\psi$  and  $\phi$  are same.

**Options :**



19088952157. 1

19088952158. 2

19088952159. 3

19088952160. 4

**Question Number : 86 Question Id : 19088913067 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following parameter of the tyre is to be increased to increase the traction in sandy soil?

1. Diameter of tyre
2. Width of tyre
3. Weight on the tyre
4. Aspect ratio of tyre

**Options :**

19088952161. 1

19088952162. 2

19088952163. 3

19088952164. 4

**Question Number : 87 Question Id : 19088913068 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Cast steel crankshaft surface is hardened by

1. Nitriding
2. Normalising
3. Carburising
4. Induction heating

**Options :**

19088952165. 1

19088952166. 2

19088952167. 3

19088952168. 4

**Question Number : 88 Question Id : 19088913069 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

High speed cutting elements/ tools are made from:

1. Boron steel
2. High speed steel
3. Stainless steel
4. Malleable cast iron

**Options :**

19088952169. 1

19088952170. 2

19088952171. 3

19088952172. 4

**Question Number : 89 Question Id : 19088913070 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

When a steel is heated in a furnace and then cooled in air at ordinary temperature, the process is called:

1. Annealing
2. Hardening
3. Normalizing
4. Tempering

**Options :**

19088952173. 1

19088952174. 2

19088952175. 3

19088952176. 4

**Question Number : 90 Question Id : 19088913071 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>Products</b>	<b>Process of Manufacture</b>
A. Automobile piston in aluminium alloy	I. Pressure die-casting
B. Engine crankshaft in spheroidal graphite iron	II. Gravity die-casting
C. Carburettor Housing in aluminium alloy	III. Sand casting
D. Cast titanium blades	IV. Precision investment casting
	V. Shell moulding

Choose the correct answer from the options given below:

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

**Options :**

19088952177. 1

19088952178. 2

19088952179. 3

19088952180. 4

**Question Number : 91 Question Id : 19088913072 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A diesel tractor has maximum PTO power of 35 kW and efficiency of 70 per cent. What is drawbar horse power required to pull the disc plough, if the disc plough with draft of 12 kN is to be pulled at  $5.4 \text{ km.h}^{-1}$  in hard soil?

1. 18.0 kW
2. 24.5 kW
3. 30.5 kW
4. 35.0 kW

**Options :**

19088952181. 1

19088952182. 2

19088952183. 3

19088952184. 4

**Question Number : 92 Question Id : 19088913073 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

With 70,000 plants per hectare the groundnut yield is optimum. The average emergence of 80% is expected. If the rows are 60 cm apart, what is the average seed spacing?

1. 16 cm
2. 18 cm
3. 20 cm
4. 22 cm

**Options :**

19088952185. 1

19088952186. 2

19088952187. 3

19088952188. 4

**Question Number : 93 Question Id : 19088913074 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

A chemical is sprayed at 35 litres per minute with forward speed of  $3.5 \text{ km.h}^{-1}$ . Determine the rate of application of a tractor operated sprayer having 6 m swath.

1.  $500 \text{ l.ha}^{-1}$
2.  $1000 \text{ l.ha}^{-1}$
3.  $1600 \text{ l.ha}^{-1}$
4.  $2100 \text{ l.ha}^{-1}$

**Options :**

19088952189. 1

19088952190. 2

19088952191. 3



19088952192. 4

**Question Number : 94 Question Id : 19088913075 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Determine the power requirement of a wheat thresher cleaning sieve, if weight of sieve with material is 24 kg, speed of eccentric is 150 rpm and horizontal displacement of the sieve is 8 cm.

1. 0.064 HP
2. 0.128 HP
3. 0.256 HP
4. 0.512 HP

**Options :**

19088952193. 1

19088952194. 2

19088952195. 3

19088952196. 4

**Question Number : 95 Question Id : 19088913076 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A power sprayer is discharging 35 litres per minute at the designed pressure. Determine the discharge rate of the sprayer in litres per minute, if the pressure is doubled.

1. 17.5
2. 35.0
3. 42.0
4. 49.5

**Options :**

19088952197. 1

19088952198. 2

19088952199. 3

19088952200. 4

**Question Number : 96 Question Id : 19088913077 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

A small hand operated chaff cutter having two knives and throat size of 25 cm X 4 cm is used to cut dry hay. The chaff cutter is operated at 50 rpm speed and the output capacity is  $600 \text{ kg.h}^{-1}$ . If effective density of hay is  $500 \text{ kg.m}^{-3}$ , find the length of cut of dry hay.

1. 1 cm
2. 2 cm
3. 3 cm
4. 4 cm

**Options :**

19088952201. 1

19088952202. 2

19088952203. 3

19088952204. 4

**Question Number : 97 Question Id : 19088913078 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Determine the power transmitted by a gear of tractor gear box having size 12 cm, if it is rotating at 1800 rpm and transmitting 17.5 kg-m torque.

1. 22 HP
2. 33 HP
3. 44 HP
4. 55 HP

**Options :**

19088952205. 1

19088952206. 2

19088952207. 3

19088952208. 4

**Question Number : 98 Question Id : 19088913079 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



A horizontal axis wind rotor of 4 m diameter is used to lift water in a farm. Calculate the theoretical power generated by the wind rotor, assuming average wind velocity  $14.4 \text{ km.h}^{-1}$  and air density  $1.4 \text{ kg.m}^{-3}$ .

1. 563.2 W
2. 746.4 W
3. 912.6 W
4. 1126.4 W

**Options :**

19088952209. 1

19088952210. 2

19088952211. 3

19088952212. 4

**Question Number : 99 Question Id : 19088913080 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following is the appropriate size of biogas plant for a family of 6 members owning 2 cows, 2 buffaloes and 1 calf. One candle lamp is used for lighting purpose for 4 hours?

[Assumptions: Dung production by cow, buffalo and calf are 10 kg, 15 kg and 5 kg respectively; cooking requirement per person per day is  $0.25 \text{ m}^3$  gas; gas requirement per lamp is  $0.12 \text{ m}^3$  per hour; gas production is  $0.04 \text{ m}^3$  per kg of dung.]

1.  $1.6 \text{ m}^3$
2.  $2.0 \text{ m}^3$
3.  $2.4 \text{ m}^3$
4.  $3.0 \text{ m}^3$

**Options :**

19088952213. 1

19088952214. 2

19088952215. 3

19088952216. 4

**Question Number : 100 Question Id : 19088913081 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Neglecting wheel slippage, calculate the seed rate per hectare of a 7 X 20 cm seed drill whose main drive wheel diameter is 105 cm. The total weight of grain collected in 20 revolutions is 0.231 kg.

1. 20 kg
2. 25 kg
3. 30 kg
4. 40 kg

**Options :**

19088952217. 1

19088952218. 2

19088952219. 3

19088952220. 4

**Question Number : 101 Question Id : 19088913082 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>Equipment</b>	<b>Component</b>
A. Combine Harvester	I. Swirl Chamber
B. Sprayer	II. Rake Angle
C. Reaper	III. Fan
D. Duster	IV. Concave Clearance

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

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

**Options :**

19088952221. 1

19088952222. 2

19088952223. 3

19088952224. 4



**Question Number : 102 Question Id : 19088913083 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following sprayers has minimum spraying drift?

1. Airblast sprayer
2. Aircraft based sprayer
3. Hydraulic ground rig sprayer
4. Rocker sprayer

**Options :**

19088952225. 1

19088952226. 2

19088952227. 3

19088952228. 4

**Question Number : 103 Question Id : 19088913084 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 wettable powders require more agitation than emulsifiable concentrates for a sprayer use.

**Reason R :** For better spraying, wettable powder should be in suspension.

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 :**

19088952229. 1

19088952230. 2

19088952231. 3

19088952232. 4

**Question Number : 104 Question Id : 19088913085 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following restricts the handling capacity of straw walker in a combine harvester?

1. Permissible grain loss
2. Permissible cutting width
3. Permissible height of cutter bar
4. HP of engine

**Options :**

19088952233. 1

19088952234. 2

19088952235. 3

19088952236. 4

**Question Number : 105 Question Id : 19088913086 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Arrange the type of spray droplets based on their size (in Ascending order).

- A. Mist
- B. Aerosol
- C. Fine spray
- D. Ultra course spray
- E. Coarse spray

Choose the *correct* answer from the options given below

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



**Options :**

19088952237. 1

19088952238. 2

19088952239. 3

19088952240. 4

**Question Number : 106 Question Id : 19088913087 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Select different types of muscle contraction faced by the farm workers.

A. Eccentrically

B. Isometrically

C. Locally

D. Concentrically

E. Autogenerating

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

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

**Options :**

19088952241. 1

19088952242. 2

19088952243. 3

19088952244. 4

**Question Number : 107 Question Id : 19088913088 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** : Intervertebral discs of spine act as shock absorber and stabilize the articulation of the vertebral bodies.

**Reason R** : Intervertebral discs of spine exhibit viscoelastic behaviour.

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 :**

19088952245. 1

19088952246. 2

19088952247. 3

19088952248. 4

**Question Number : 108 Question Id : 19088913089 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

What is the full form of "RASH" in ergonomics?

1. Rapid Analogy for Society Harmony
2. Rapid Anthropometrics Scales for Height
3. Role of Anthropometrics for Social Harmony
4. Relationship between Acceleration, Speed and Hour

**Options :**

19088952249. 1

19088952250. 2

19088952251. 3

19088952252. 4

**Question Number : 109 Question Id : 19088913090 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**



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

How many body dimensions are included in National Anthropometric database for agricultural workers?

1. 59
2. 65
3. 75
4. 79

**Options :**

19088952253. 1

19088952254. 2

19088952255. 3

19088952256. 4

**Question Number : 110 Question Id : 19088913091 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following are classified as physiological strain in ergonomic design?

- A. Heart activity
- B. Hearing loss
- C. Muscular fatigue
- D. Work performance
- E. Discomfort

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 E only
4. C, D and E only

**Options :**

19088952257. 1

19088952258. 2

19088952259. 3

19088952260. 4

**Question Number : 111 Question Id : 19088913092 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

In which year, the three point Hydraulic lift test for tractors was first reported?

1. 1971
2. 1977
3. 1980
4. 1984

**Options :**

19088952261. 1

19088952262. 2

19088952263. 3

19088952264. 4

**Question Number : 112 Question Id : 19088913093 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

Which of the following statements are correct for the vane type shear meter?

- A. Measures frictional component of shear strength
- B. Can record readings directly in kPa or  $\text{kg.cm}^{-2}$
- C. Used to compare strength of soil before and after ploughing
- D. Measures cohesive component of shear
- E. Used for strain measurement

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

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

**Options :**



19088952265. 1

19088952266. 2

19088952267. 3

19088952268. 4

**Question Number : 113 Question Id : 19088913094 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Which Indian Standard (IS) regulation is followed during Performance evaluation of a power tiller?

1. 9935-2002
2. 5182-2001
3. 5994-1998
4. 2000-1985

**Options :**

19088952269. 1

19088952270. 2

19088952271. 3

19088952272. 4

**Question Number : 114 Question Id : 19088913095 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Which of the flow measurement tools are categorised as pressure drop devices following Bernoulli principle?

- A. Venturi
- B. Orifice plate
- C. Laser doppler
- D. Pitot tube
- E. Acoustic flow meter

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

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

**Options :**

19088952273. 1

19088952274. 2

19088952275. 3

19088952276. 4

**Question Number : 115 Question Id : 19088913096 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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



Which of the following show the characteristic of a “Voltage follower amplifier”?

- A. Works as an inverting amplifier circuit
- B. Has similar input and output voltage
- C. Used as a buffer circuit
- D. Act as a differential circuit
- E. Has Output side resistor short circuited

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

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

**Options :**

19088952277. 1

19088952278. 2

19088952279. 3

19088952280. 4

**Question Number : 116 Question Id : 19088913097 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 :** Power dissipation of a thermistor should be kept low.

**Reason R :** Self heating of thermistor may affect the temperature reading.

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 :**

19088952281. 1

19088952282. 2

19088952283. 3

19088952284. 4

**Question Number : 117 Question Id : 19088913098 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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

Platinum has been preferred for Resistance Temperature Detector (RTDs) because

- A. It does not oxidise in air, having high melting point ( $1775.5^{\circ}\text{C}$ )
- B. Low corrosion resistance
- C. It is relatively chemically inert
- D. It measures wide range of temperature in the range  $-190^{\circ}\text{C}$  to  $800^{\circ}\text{C}$
- E. Low temperature measurement accuracy

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

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

**Options :**

19088952285. 1

19088952286. 2

19088952287. 3

19088952288. 4

**Question Number : 118 Question Id : 19088913099 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

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



Total hydrolysis of glucose generally yields which of the following materials?

1. D-glucose
2. Disaccharide
3. Polysaccharides
4. Cellobiose

**Options :**

19088952289. 1

19088952290. 2

19088952291. 3

19088952292. 4

**Question Number : 119 Question Id : 19088913100 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 :** Fourier Transform Near Infrared spectroscopy (FT-NIR) is based on the quantification of the vibration overtone intensities in the near-infrared region.

**Reason R :** FT-NIR spectrometers is used for compositional analysis of feedstock, and analytical monitoring of conversion of feedstocks to the final products.

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 :**

19088952293. 1

19088952294. 2

19088952295. 3

19088952296. 4

**Question Number : 120 Question Id : 19088913101 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

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

What is the flash point average of neat biodiesel?

1. 70 °C
2. 100 °C
3. 120 °C
4. 150 °C

**Options :**

19088952297. 1

19088952298. 2

19088952299. 3

19088952300. 4