

Andhra Pradesh State Council of Higher Education

Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✘ icon are incorrect.

Question Paper Name :	Agricultural Engineering 20th June 2023 Shift 1
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No



Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	418099349
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 41809917401 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\text{If } \Delta = \begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+x & 1 \\ 1 & 1 & 1+y \end{vmatrix} \text{ for } x \neq 0 \text{ and } y \neq 0, \text{ then } \Delta \text{ is}$$

Options :

1. ✘ Divisible by x but not y

2. ✘ Divisible by y but not x

3. ✔

Divisible by both x & y

Divisible by neither x nor y

4. ✘

Question Number : 2 Question Id : 41809917402 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\text{If } x^a y^b = e^m \text{ and } x^c y^d = e^n, \quad \Delta_1 = \begin{vmatrix} m & b \\ n & d \end{vmatrix}, \Delta_2 = \begin{vmatrix} a & m \\ c & n \end{vmatrix} \text{ and } \Delta_3 = \begin{vmatrix} a & b \\ c & d \end{vmatrix}$$

Then the values of x and y are

Options :

1. ✘ $\frac{\Delta_1}{\Delta_3}$ and $\frac{\Delta_2}{\Delta_3}$

2. ✘ $\frac{\Delta_2}{\Delta_1}$ and $\frac{\Delta_3}{\Delta_1}$

3. ✘ $\log\left(\frac{\Delta_1}{\Delta_3}\right)$ and $\log\left(\frac{\Delta_2}{\Delta_3}\right)$

4. ✔ $e^{\left(\frac{\Delta_1}{\Delta_3}\right)}$ and $e^{\left(\frac{\Delta_2}{\Delta_3}\right)}$

Question Number : 3 Question Id : 41809917403 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A



Time : 0

If $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & a & 1 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} 1/2 & 1/2 & 1/2 \\ -4 & 3 & c \\ 5/2 & -3/2 & 1/2 \end{bmatrix}$ then the values of

a and c are equal to

Options :

1. ✘ 1 and 1

2. ✔ 1 and -1

3. ✘ 1 and 2

4. ✘ -1 and 1

Question Number : 4 Question Id : 41809917404 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\text{adj } B = A$, $|P| = |Q| = 1$ then $\text{adj}(Q^{-1}BP^{-1})$ is

Options :

1. ✘ PQ

2. ✘ QAP

3. ✔ PAQ

4. ✘ $PA^{-1}Q$

Question Number : 5 Question Id : 41809917405 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of x if the matrix $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$ satisfies the equation

$$A^T A = I$$

Options :

1. ✔ $\pm \frac{1}{\sqrt{2}}$

2. ✘ $\pm \frac{1}{\sqrt{3}}$

3. ✘ $\pm \frac{1}{\sqrt{6}}$

4. ✘ $\pm \frac{1}{2\sqrt{2}}$

Question Number : 6 Question Id : 41809917406 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\frac{(x+1)}{(x-a)(x-3)} = \frac{2}{x-a} + \frac{b}{x-3}$ then $(a, b) =$

Options :

1. ✘ $(-4, 1)$

2. ✔ $(7, -1)$

3. ✘ $(4, 1)$

4. ✘ $(-4, -1)$

Question Number : 7 Question Id : 41809917407 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\frac{(x+1)^2}{x^3+x} = \frac{A}{x} + \frac{Bx+C}{x^2+1}$, then $\sin^{-1}\left(\frac{A}{C}\right) =$

Options :

1. ✘ $\frac{\pi}{2}$

2. ✘ $\frac{\pi}{3}$

3. ✘ $\frac{\pi}{4}$

4. ✓ $\frac{\pi}{6}$

Question Number : 8 Question Id : 41809917408 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $4n\alpha = \pi$, then $\cot\alpha \cot 2\alpha \cot 3\alpha \dots \cot(2n-1)\alpha$ is equal to

Options :

1. ✓ 1

2. ✗ -1

3. ✗ ∞

4. ✗ π

Question Number : 9 Question Id : 41809917409 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\frac{\tan 3A}{\tan A} = k$, then $\frac{\sin 3A}{\sin A}$ is equal to

Options :

1. ✗ $\frac{2k}{k-1}, k \in R$

2. ✘ $\frac{2k}{k-1}, k \in [1/3, 3]$

3. ✔ $\frac{2k}{k-1}, k \notin [1/3, 3]$

4. ✘ $\frac{k-1}{2k}, k \notin [1/3, 3]$

Question Number : 10 Question Id : 41809917410 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If two angles of a ΔABC are 45° and 60° then the ratio of smallest to greatest sides are

Options :

1. ✔ $(\sqrt{3}-1) : 1$

2. ✘ $\sqrt{3} : \sqrt{2}$

3. ✘ $1 : \sqrt{3}$

4. ✘ $\sqrt{3} : 1$

Question Number : 11 Question Id : 41809917411 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A



Time : 0

If $\sin^{-1} x + \sin^{-1} y = \frac{2\pi}{3}$ then $\cos^{-1} x + \cos^{-1} y =$

Options :

1. ✘ $\frac{2\pi}{3}$

2. ✔ $\frac{\pi}{3}$

3. ✘ $\frac{\pi}{6}$

4. ✘ π

Question Number : 12 Question Id : 41809917412 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\tan\{\sin^{-1}(\cos(\sin^{-1} x))\} \tan\{\cos^{-1}(\sin(\cos^{-1} x))\}$, where

$0 < x < \pi/2$, is equal to

Options :

1. ✘ 0

2. ✔ 1

3. ✘ -1

4. ✘ 2

Question Number : 13 Question Id : 41809917413 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $0 \leq x, y \leq 2\pi$ and $\sin x + \sin y = 2$, then $x + y =$

Options :

1. ✔ π

2. ✘ $\frac{\pi}{2}$

3. ✘ $\frac{\pi}{4}$

4. ✘ 3π

Question Number : 14 Question Id : 41809917414 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\sec \alpha$ and $\operatorname{cosec} \alpha$ are the roots of $x^2 - px + q = 0$, then

Options :

1. ✘ $p^2 = q(q - 2)$

2. ✓ $p^2 = q(q+2)$

3. ✗ $p^2 + q^2 = 2q$

4. ✗ $p^2 + q^2 = q$

Question Number : 15 Question Id : 41809917415 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\cos\left(\frac{1}{2}\cos^{-1}\frac{1}{8}\right)$ is

Options :

1. ✓ $\frac{3}{4}$

2. ✗ $\frac{3}{8}$

3. ✗ $\frac{1}{16}$

4. ✗ $\frac{1}{4}$

Question Number : 16 Question Id : 41809917416 Display Question Number :



Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If in ΔABC , sides a, b, c are in A.P., then

Options :

1. ✘ $B > 60^\circ$

2. ✔ $B \leq 60^\circ$

3. ✘ $B = |A - C|$

4. ✘ $B = 90^\circ$

Question Number : 17 Question Id : 41809917417 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In ΔABC if $b^2 + c^2 = 2a^2$, then the value of $\frac{\cot A}{\cot B + \cot C}$ is

Options :

1. ✔ $\frac{1}{2}$

2. ✘ $\frac{3}{2}$

3. ✘

$$\frac{5}{2}$$

4. ✘ $\frac{5}{3}$

Question Number : 18 Question Id : 41809917418 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Given that $z = (1 + i\sqrt{3})^{100}$, then $\left(\frac{\operatorname{Re}(z)}{\operatorname{Im}(z)}\right) =$

Options :

1. ✘ 2^{100}

2. ✘ 2^{50}

3. ✔ $\frac{1}{\sqrt{3}}$

4. ✘ $\sqrt{3}$

Question Number : 19 Question Id : 41809917419 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sum of the common roots of the equations

$$z^3 + 2z^2 + 2z + 1 = 0 \text{ and } z^{1985} + z^{100} + 1 = 0 \text{ is}$$

Options :

1. ✓ -1

2. ✗ 1

3. ✗ 0

4. ✗ 2

Question Number : 20 Question Id : 41809917420 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Equation of the circle which passes through $(1, 0)$ and $(0, 1)$ and has its radius as small as possible is

Options :

1. ✓ $x^2 + y^2 - x - y = 0$

2. ✗ $x^2 + y^2 = 1$

3. ✗ $2x^2 + 2y^2 - 3x - 3y + 1 = 0$

4. ✘ $x^2 + y^2 - 4x - 4y + 3 = 0$

Question Number : 21 Question Id : 41809917421 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The focal distance of the point (x, y) on the parabola $x^2 - 8x + 16y = 0$ is

Options :

1. ✘ $|x - 5|$

2. ✘ $|y - 5|$

3. ✘ $|x + 5|$

4. ✔ $|y + 5|$

Question Number : 22 Question Id : 41809917422 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area of the greatest rectangle that can be inscribed in the ellipse

$$\frac{x^2}{9} + \frac{y^2}{4} = 1 \text{ is}$$

Options :

1. ✔ 12 sq. units

2. ✘ 8 sq. units

3. ✘ 15 sq. units

4. ✘ 4 sq. units

Question Number : 23 Question Id : 41809917423 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The eccentricity of the ellipse $16x^2 + 25y^2 = 400$ is

Options :

1. ✘ $2/3$

2. ✔ $3/5$

3. ✘ $4/3$

4. ✘ $1/5$

Question Number : 24 Question Id : 41809917424 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The axes of an ellipse are coordinate axes, distance between directrices is 32.

Then the equation of the ellipse, if the distance between the foci is 8 is

Options :

1. ✘ $\frac{x^2}{64} + \frac{y^2}{32} = 1$

2. ✘ $\frac{x^2}{64} + \frac{y^2}{16} = 1$

3. ✔ $\frac{x^2}{64} + \frac{y^2}{48} = 1$

4. ✘ $\frac{x^2}{64} + \frac{y^2}{8} = 1$

Question Number : 25 Question Id : 41809917425 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The length of the transverse axis of the hyperbola $4x^2 - 9y^2 + 8x + 40 = 0$ is

Options :

1. ✘ 8

2. ✘ 6

3. ✔ 4

4. ✘ 5

Question Number : 26 Question Id : 41809917426 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $f(x) = \frac{1}{3} \left(f(x+1) + \frac{5}{f(x+2)} \right)$ and $f(x) > 0$ then for all $x \in R$, then

for $\lim_{x \rightarrow \infty} f(x) =$

Options :

1. ✘ 0

2. ✘ $\sqrt{\frac{2}{5}}$

3. ✔ $\sqrt{\frac{5}{2}}$

4. ✘ ∞

Question Number : 27 Question Id : 41809917427 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If α and β are the roots of $ax^2 + bx + c = 0$ then

$\lim_{x \rightarrow \alpha} (1 + ax^2 + bx + c)^{1/(x-\alpha)}$ is

Options :

1. ✘ $a(\alpha - \beta)$

2. ✘ $\ln |a(\alpha - \beta)|$

3. ✔ $e^{a(\alpha - \beta)}$

4. ✘ $e^{|a(\alpha - \beta)|}$

Question Number : 28 Question Id : 41809917428 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The derivative of $\sin^{-1}\left(\frac{2x}{1+x^2}\right)$ with respect to $\tan^{-1}\left(\frac{2x}{1-x^2}\right)$

Options :

1. ✘ 0

2. ✔ 1

3. ✘ $\frac{1}{1-x^2}$

4. ✘ $\frac{1}{1+x^2}$

Question Number : 29 Question Id : 41809917429 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $x^y \cdot y^x = 16$ then $\frac{dy}{dx}$ at (2,2) is

Options :

1. ✔ -1

2. ✘ 0

3. ✘ 1

4. ✘ -2

Question Number : 30 Question Id : 41809917430 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area of the triangle formed by positive x – axis , and the normal and

tangent to the circle $x^2 + y^2 = 4$ at $(1, \sqrt{3})$ is

Options :

1. ✘

$\sqrt{3}$ sq. units

2. ✓ $2\sqrt{3}$ sq. units

3. ✗ $4\sqrt{3}$ sq. units

4. ✗ $\sqrt{3}/2$ sq. units

Question Number : 31 Question Id : 41809917431 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $y = \log_{\sin x} (\tan x)$ then $\left(\frac{dy}{dx}\right)_{\pi/4} =$

Options :

1. ✗ $\frac{4}{\log 2}$

2. ✗ $-4 \log 2$

3. ✓ $\frac{-4}{\log 2}$

4. ✗ $2 \log 4$

Question Number : 32 Question Id : 41809917432 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If there is an error of 0.05 cm in the side of a cube 10 cm, then the error in its surface area is

Options :

1. ✓ 6 cm²

2. ✗ 5 cm²

3. ✗ 12 cm²

4. ✗ 3 cm²

Question Number : 33 Question Id : 41809917433 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The curves $4x^2 + 9y^2 = 72$ and $x^2 - y^2 = 5$ at $(3, 2)$

Options :

1. ✗ Touch each other

2. ✓ Cut orthogonally

3.

✘ Intersect at 45°

4. ✘ Intersect at 60°

Question Number : 34 Question Id : 41809917434 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\text{If } u = x^y \text{ then } \frac{\partial^2 u}{\partial x \partial y} =$$

Options :

1. ✓ $x^{y-1}(1 + y \log x)$

2. ✘ $y^{x-1}(1 + y \log x)$

3. ✘ $y^{x-1}(1 - x \log y)$

4. ✘ $x^{y-1}(1 - y \log x)$

Question Number : 35 Question Id : 41809917435 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\text{If } u = \tan^{-1}(y/x) \text{ then } x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$$

Options :

1. ✓ 0

2. ✗ $\sin 2u$

3. ✗ $\cos u$

4. ✗ $2 \tan^{-1} u$

Question Number : 36 Question Id : 41809917436 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\text{If } \int f(x) \cos x \, dx = \frac{1}{2} [f(x)]^2 + c \text{ then } f(x) =$$

Options :

1. ✗ x

2. ✓ $\sin x$

3. ✗ $\cos x$

4. ✗ $\tan x$

Question Number : 37 Question Id : 41809917437 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int_0^{11} [x]^3 dx$, where $[\bullet]$ denotes the greatest integer function, is

Options :

1. ✘ 0

2. ✘ 14400

3. ✘ 2200

4. ✔ 3025

Question Number : 38 Question Id : 41809917438 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The triangle formed by tangent to the curve $f(x) = x^2 + bx - b$ at the point $(1,1)$ and the coordinate axes lies in the first quadrant. If its area is 2 sq.units then the value of b is

Options :

1. ✔ -3

2. ✘ -2

3.

✘ -1

4. ✘ 0

Question Number : 39 Question Id : 41809917439 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $y = \int \frac{dx}{(1+x^2)^{\frac{3}{2}}}$ and $y=0$ when $x=0$ then the value of y when $x=1$ is

Options :

1. ✔ $\frac{1}{\sqrt{2}}$

2. ✘ $\sqrt{2}$

3. ✘ $2\sqrt{2}$

4. ✘ $3\sqrt{2}$

Question Number : 40 Question Id : 41809917440 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\int \frac{dx}{\cos^3 x \sqrt{\sin 2x}} = a(\tan^2 x + b)\sqrt{\tan x} + c$, then

Options :

$$a = \frac{\sqrt{2}}{5}, b = \frac{1}{\sqrt{5}}$$

1. ✘

$$a = \frac{\sqrt{2}}{5}, b = 5$$

2. ✔

$$a = \frac{\sqrt{2}}{5}, b = -\frac{1}{\sqrt{5}}$$

3. ✘

$$a = \frac{\sqrt{2}}{5}, b = \sqrt{5}$$

4. ✘

Question Number : 41 Question Id : 41809917441 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int_{-1}^1 \tan^{-1} x \, dx$ is

Options :

1. ✔ 0

2. ✘ $\frac{\pi}{4}$

3. ✘ $-\frac{\pi}{4}$

4. ✘ $\frac{\pi}{2}$

Question Number : 42 Question Id : 41809917442 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $S_n = \left[\frac{1}{1+\sqrt{n}} + \frac{1}{2+\sqrt{2n}} + \frac{1}{3+\sqrt{3n}} + \dots + \frac{1}{n+\sqrt{n^2}} \right]$ then $\lim_{n \rightarrow \infty} S_n =$

Options :

1. ✘ $\log 2$

2. ✔ $\log 4$

3. ✘ $\log 6$

4. ✘ $\log 8$

Question Number : 43 Question Id : 41809917443 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The volume of the solid generated by revolving the ellipse $\frac{x^2}{9} + \frac{y^2}{16} = 1$ about

the minor axis is _____ cubic units.

Options :

1. ✘ 128π

2. ✘ 64π

3. ✔ 48π

4. ✘ 16π

Question Number : 44 Question Id : 41809917444 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The differential equation of all parabolas whose axis are parallel to y-axis is

Options :

1. ✔ $\frac{d^3 y}{dx^3} = 0$

2. ✘ $\frac{d^2 y}{dx^2} = C$

3. ✘ $\frac{d^3 y}{dx^3} + \frac{d^2 y}{dx^2} = 0$

4. ✘ $\frac{d^2 y}{dx^2} + 2 \frac{dy}{dx} = C$

Question Number : 45 Question Id : 41809917445 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Integrating factor of the differential equation $\cos x \frac{dy}{dx} + y \sin x = 1$ is

Options :

1. ✘ $\cos x$

2. ✘ $\tan x$

3. ✔ $\sec x$

4. ✘ $\sin x$

Question Number : 46 Question Id : 41809917446 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The differential equation associated with the primitive $ax^2 + by^2 = 1$ is

Options :

1. ✘ $x = y \frac{dy}{dx}$

2. ✘ $x + y \frac{dy}{dx} = 0$

3. ✔ $x \left(\frac{dy}{dx} \right)^2 + xy \frac{d^2y}{dx^2} = y \frac{dy}{dx}$

4. ✘ $x = y \frac{d^2y}{dx^2}$

Question Number : 47 Question Id : 41809917447 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The primitive for the differential equation $x dy - (y - x) dx = 0$ is

Options :

1. ✘ $\frac{x}{y} + \log|x| = C$

2. ✔ $\frac{y}{x} + \log|x| = C$

3. ✘ $\frac{x}{y} \log|x| = C$

$$x^2 + y^2 = C$$

4. ✘

Question Number : 48 Question Id : 41809917448 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The degree of the differential equation $y = x \frac{dy}{dx} + \sqrt{1 + \left(\frac{dy}{dx}\right)^2}$

Options :

1. ✘ 1

2. ✔ 2

3. ✘ 4

4. ✘ 3

Question Number : 49 Question Id : 41809917449 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The order of the differential equation corresponding to the primitive

$$y = ae^x + be^{2x} + ce^{3x} \text{ where } a, b \text{ and } c \text{ are arbitrary constants}$$

Options :

1. ✘

1

2. ✘ 2

3. ✔ 3

4. ✘ 4

Question Number : 50 Question Id : 41809917450 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The complimentary function of the differential equation

$$\frac{d^2y}{dx^2} + 4 \frac{dy}{dx} + 4y = 4 \cos x \text{ is}$$

Options :

1. ✘ $y = c_1 \cos 2x + c_2 \sin 2x$

2. ✔ $y = (c_1 + c_2 x)e^{-2x}$

3. ✘ $y = c_1^2 + 4c_2 + 4c_3$

4. ✘ $y = 4 \cos c_1 x$



Physics

Section Id :	418099350
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 51 Question Id : 41809917451 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The dimension of the ratio of angular momentum and linear momentum is

Options :

1. ✘ L^0

2. ✔ L^1

3. ✘ L^2

L^{-1}

4. ✘

Question Number : 52 Question Id : 41809917452 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

One Fermi is equivalent to

Options :

10^{-12} meter

1. ✘

10^{12} meter

2. ✘

10^{-15} meter

3. ✔

10^{15} meter

4. ✘

Question Number : 53 Question Id : 41809917453 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A cat is situated at point A (0,3,4) and a rat is situated at point B (5,3,-8).

The cat is free to move but the rat is always at rest. Find the minimum

distance travelled by cat to catch the rat

Options :

5 units

1. ✘

12 units

2. ✘

13 units

3. ✔

17 units

4. ✘

Question Number : 54 Question Id : 41809917454 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Find the values of x and y for which vectors $\vec{A} = (6\hat{i} + x\hat{j} - 2\hat{k})$ and

$\vec{B} = (5\hat{i} - 6\hat{j} - y\hat{k})$ may be parallel

Options :

$$x=0, y=\frac{2}{3}$$

1. ✘

$$x=-\frac{36}{5}, y=\frac{5}{3}$$

2. ✔

$$x=-\frac{15}{3}, y=\frac{23}{5}$$

3. ✘



$$x = \frac{36}{5}, y = \frac{15}{4}$$

4. ✘

Question Number : 55 Question Id : 41809917455 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The velocity of a body moving along a straight line with uniform deceleration 'a' reduces by $\frac{3}{4}$ of its initial velocity. The total time of motion of the body is

Options :

1. ✓ $\frac{3u}{4a}$

2. ✘ $\frac{4a}{3u}$

3. ✘ $3u \times 4a$

4. ✘ zero

Question Number : 56 Question Id : 41809917456 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A stone thrown vertically upwards with a speed of 'u' m/s attains a height 'h₁'. Another stone thrown vertically upwards from the same point with a speed of $\frac{u}{3}$ m/s attains a height 'h₂'. Choose the correct relation

Options :

1. ✓ $h_2 = \frac{h_1}{9}$

2. ✗ $h_2 = \frac{h_1}{19}$

3. ✗ $h_2 = \frac{h_1}{3}$

4. ✗ $h_2 = 3h_1$

Question Number : 57 Question Id : 41809917457 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The horizontal range of a projectile is $4\sqrt{3}$ times of its maximum height. Its angle of projection will be

Options :

1. ✓ 30°

2. ✘ 60°

3. ✘ 90°

4. ✘ 45°

Question Number : 58 Question Id : 41809917458 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The range of a projectile fired at an angle of 15° is 30m. If it is fired with the same speed at an angle of 45° , its range will be

Options :

1. ✘ 50m

2. ✘ 30m

3. ✔ 60m

4. ✘ 100m

Question Number : 59 Question Id : 41809917459 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When a body slides down an inclined plane with coefficient of friction as μ , then its acceleration is given by

Options :

1. ✘ $g(\mu \sin \theta + \cos \theta)$

2. ✘ $g(\mu \sin \theta - \cos \theta)$

3. ✘ $g(\sin \theta + \mu \cos \theta)$

4. ✔ $g(\sin \theta - \mu \cos \theta)$

Question Number : 60 Question Id : 41809917460 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A body is in equilibrium on a rough inclined plane under its own weight. If the angle of inclination of the inclined plane is ' α ' and the angle of friction is ' λ ', then

Options :

1. ✘ $\alpha > \lambda$

2. ✘ $\alpha > \lambda/2$

3. ✔ $\alpha = \lambda$

4. ✘ $\alpha \geq \lambda$

Question Number : 61 Question Id : 41809917461 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A ball of mass 1 kg collides with a wall with speed 8 ms^{-1} and rebounds on the same line with the same speed. If mass of the wall is taken as infinite, the work done by the ball on the wall is

Options :

1. ✘ 6 J

2. ✘ 8 J

3. ✘ 9 J

4. ✔ zero

Question Number : 62 Question Id : 41809917462 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A pump motor is used to deliver water at a certain rate from a given pipe.

To obtain thrice as much water from the same pipe in the same time, power of the motor has to be increased

Options :

3 times

1. ✘

9 times

2. ✘

27 times

3. ✔

81 times

4. ✘

Question Number : 63 Question Id : 41809917463 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The energy required to accelerate a car from rest to 10 ms^{-1} is E. What energy will be required to accelerate the car from 10 ms^{-1} to 20 ms^{-1} ?

Options :

1. ✘ E

2. ✓ 3E

3. ✘ 5E

4. ✘ 7E

Question Number : 64 Question Id : 41809917464 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The time period of a simple pendulum of infinite length is (R_e = radius of earth)

Options :

1. ✓ $T = 2\pi \sqrt{\frac{R_e}{g}}$

2. ✘ $T = 2\pi \sqrt{\frac{2R_e}{g}}$

3. ✘ $T = 2\pi \sqrt{\frac{R_e}{2g}}$

4. ✘ $T = \infty$



Question Number : 65 Question Id : 41809917465 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A particle executes SHM of amplitude 5 cm and period 3 s. The velocity of the particle at a distance 4 cm from the mean position (take $\pi = 3$) is

Options :

1. ✘ 8 cm s^{-1}

2. ✘ 12 cm s^{-1}

3. ✘ 4 cm s^{-1}

4. ✔ 6 cm s^{-1}

Question Number : 66 Question Id : 41809917466 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A particle is executing SHM with amplitude a and has maximum velocity ' v '. Its speed at displacement $a/2$ will be

Options :

1. ✔ $0.866 v$

2. ✘ $v/2$

3. ✘ v

4. ✘ $v/4$

Question Number : 67 Question Id : 41809917467 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A whistle of frequency 1000 Hz is sounded on a car travelling towards a cliff with velocity of 18 m s^{-1} normal to the cliff. If velocity of sound = 330 m s^{-1} , then the apparent frequency of the echo as heard by the car driver is nearly

Options :

1. ✔ 1115 Hz

2. ✘ 115 Hz

3. ✘ 67 Hz

4. ✘ 47.2 Hz

Question Number : 68 Question Id : 41809917468 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An open window is a perfect

Options :

Reflector of sound

1. ✘

Absorber of sound

2. ✔

Scatterer

3. ✘

Refractor

4. ✘

Question Number : 69 Question Id : 41809917469 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A gas is found to obey $P^2V = \text{constant}$. The initial temperature and volume are T_0 & V_0 . If the gas expands to volume $2V_0$, then the final temperature is

Options :

1. ✔ $\sqrt{2} T_0$



2. ✘ $2T_0$

3. ✘ $\frac{T_0}{2}$

4. ✘ $\frac{T_0}{\sqrt{2}}$

Question Number : 70 Question Id : 41809917470 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The constant in ideal gas equation is known as

Options :

1. ✔ Universal gas constant

2. ✘ Pressure constant

3. ✘ Temperature constant

4. ✘ Boltzmann constant

Question Number : 71 Question Id : 41809917471 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ratio of specific heats for a mono atomic gas is given by

Options :

1. ✘ $\frac{7}{5}$

2. ✘ $\frac{5}{2}$

3. ✔ $\frac{5}{3}$

4. ✘ $\frac{9}{5}$

Question Number : 72 Question Id : 41809917472 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Two identical samples of a gas are allowed to expand (i) isothermally (ii) adiabatically. Work done is

Options :

1. ✘ More in the adiabatic process

More in the isothermal process

2. ✓

Equal in both processes

3. ✗

No Work done in any process

4. ✗

Question Number : 73 Question Id : 41809917473 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The heat required to raise 0.5 Kg of sand from 30°C to 90°C is given by

(Specific Heat of sand = $830\text{ J/Kg }^{\circ}\text{C}$)

Options :

23450J

1. ✗

54560J

2. ✗

4578J

3. ✗

24900J

4. ✓



Question Number : 74 Question Id : 41809917474 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A ray of light will undergo total internal reflection if it

Options :

1. ✓ Travels from denser medium to rarer medium & angle of incidence should be greater than critical angle
2. ✗ Travels from rarer medium to denser medium & angle of incidence should be greater than critical angle
3. ✗ Travels from denser medium to rarer medium & angle of incidence should be less than critical angle
4. ✗ Travels from rarer medium to denser medium & angle of incidence should be less than critical angle

Question Number : 75 Question Id : 41809917475 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The expulsion of a magnetic field from the interior of a superconductor , a phenomenon is known as

Options :

Isotopic effect

1. ✘

BCS theory

2. ✘

Meissner effect

3. ✔

London theory

4. ✘

Chemistry

Section Id :	418099351
Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 76 Question Id : 41809917476 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0



How many electrons in an atom may have the quantum numbers, $n=4$,

$m = -\frac{1}{2}$?

Options :

1. ✘ 1

2. ✘ 2

3. ✔ 16

4. ✘ 32

Question Number : 77 Question Id : 41809917477 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Balmer series of Hydrogen atom corresponds to which spectral region?

Options :

1. ✘ X-ray region

2. ✘ Ultraviolet region

3. ✘ Infrared region

4. ✔ Visible region



Question Number : 78 Question Id : 41809917478 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The electronic configuration of the Cu atom violates which principle?

Options :

1. ✘ Hund's rule
2. ✘ Pauli Exclusion Principle
3. ✔ Aufbau Principle
4. ✘ Heisenberg's Uncertainty Principle

Question Number : 79 Question Id : 41809917479 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

As compared to covalent compounds, ionic compounds generally have:

Options :

1. ✘ low melting points and low boiling points
2. ✔ high melting points and high boiling points
3. ✘ low melting points and high boiling points



4. ✘ high melting points and low boiling points

Question Number : 80 Question Id : 41809917480 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The octet rule is not valid for the molecule:

Options :

1. ✘ CO_2

2. ✘ H_2O

3. ✘ O_2

4. ✔ CO

Question Number : 81 Question Id : 41809917481 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Two solutions of a substance (non-electrolyte) are mixed in the following manner: 480 mL of 1.5 M first solution, 520 mL of 1.2 M second solution.

What is the molarity of the final mixture?

Options :

1. ✘ 1.20 M

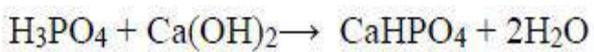
2. ✘ 1.50 M

3. ✘ 2.70 M

4. ✔ 1.344 M

Question Number : 82 Question Id : 41809917482 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The equivalent mass of H_3PO_4 in the following equation (let M be the mass of H_3PO_4):



Options :

1. ✘ M

2. ✔ M/2

3. ✘ M/3

4. ✘ 2M



Question Number : 83 Question Id : 41809917483 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The normality of 4% (mass/volume) NaOH solution is

Options :

1. ✘ 0.1 N

2. ✔ 1.0 N

3. ✘ 0.5 N

4. ✘ 0.01 N

Question Number : 84 Question Id : 41809917484 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following cannot function as both Bronsted acid and base?

Options :

1. ✔ HCl

2. ✘ NH₃

3. ✘ HSO₄⁻





4. ✘

Question Number : 85 Question Id : 41809917485 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following will make a basic buffer?

Options :

1. ✓ 100 mL of 0.1 M HCl + 200 mL of 0.1 M NH_4OH

2. ✘ 100 mL of 0.1 M HCl + 100 mL of 0.1 M NH_4OH

3. ✘ 50 mL of 0.1 M NaOH + 25 mL of 0.1 M CH_3COOH

4. ✘ 100 mL of 0.1 M CH_3COOH + 100 mL of 0.1 M NaOH

Question Number : 86 Question Id : 41809917486 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Hydrogen gas is not liberated when the following metal is added to dil. HCl.

Options :

1. ✓ Mg

2.

✘ Zn

3. ✘ Ag

4. ✘ Cu

Question Number : 87 Question Id : 41809917487 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The reduction potential of hydrogen half-cell will be negative if:

Options :

1. ✘ $p(\text{H}_2) = 1 \text{ atm}$ and $[\text{H}^+] = 1 \text{ M}$

2. ✘ $p(\text{H}_2) = 2 \text{ atm}$ and $[\text{H}^+] = 2 \text{ M}$

3. ✘ $p(\text{H}_2) = 1 \text{ atm}$ and $[\text{H}^+] = 2 \text{ M}$

4. ✔ $p(\text{H}_2) = 2 \text{ atm}$ and $[\text{H}^+] = 1 \text{ M}$

Question Number : 88 Question Id : 41809917488 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0



3 faraday of electricity are passed through molten Al_2O_3 , aqueous solution of CuSO_4 and molten NaCl taken in three different electrolytic cells. The amount of Al, Cu and Na deposited at the cathodes will be in the ratio of:

Options :

1. ✘ 1 mole : 2 mole : 3mole
2. ✘ 3 mole : 2 mole : 1 mole
3. ✘ 1.5 mole : 2 mole : 3 mole
4. ✔ 1 mole : 1.5 mole : 3 mole

Question Number : 89 Question Id : 41809917489 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the EMF of cell represented as $\text{Zn(s)} / \text{Zn}^{2+}(\text{Aq}) \parallel \text{H}^+(1\text{M})$

$/\text{H}_2(1\text{atm})$ if $E^0_{\text{Zn}^{2+}/\text{Zn}} = -0.7618 \text{ V}$

Options :

1. ✔ + 0.7618 V
2. ✘ 0.0 V
3. ✘ -0.7618 V

4. ✘ +0.540 V

Question Number : 90 Question Id : 41809917490 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Ion-exchanger, the exhausted cation exchange resin can be regenerated by washing with:

Options :

1. ✘ dil. NaOH

2. ✔ dil. HCl

3. ✘ Distilled water

4. ✘ Brakish water

Question Number : 91 Question Id : 41809917491 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is powerful disinfectant?

Options :

1. ✘ O₂

2.

✓ Cl₂

3. ✗ N₂

4. ✗ CaOCl₂

Question Number : 92 Question Id : 41809917492 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A sample of water contain temporary hardness of 56.8 mg/L. Express the temporary hardness in terms of e (Clark degrees)

Options :

1. ✗ 56.8 e

2. ✓ 3.976 e

3. ✗ 5.68 e

4. ✗ 811.43 e

Question Number : 93 Question Id : 41809917493 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0



Tinning is done by:

Options :

1. ✘ Electroplating

2. ✘ Spraying

3. ✔ Hot dipping

4. ✘ Cementation

Question Number : 94 Question Id : 41809917494 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the oxygen supply is limited during the rusting of iron, corrosion product is:

Options :

1. ✘ Fe_2O_3

2. ✘ $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$

3. ✘ $\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$

4. ✔ Fe_3O_4



Question Number : 95 Question Id : 41809917495 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Buna-N rubber is made from:

Options :

1. ✘ Butadiene and formaldehyde
2. ✘ Isoprene and Phenol
3. ✔ Butadiene and acrylonitrile
4. ✘ Phenol and styrene

Question Number : 96 Question Id : 41809917496 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A good example of condensation polymer is:

Options :

1. ✘ Teflon
2. ✘ Polythene

3. ✓ Bakelite

4. ✘ Polypropylene

Question Number : 97 Question Id : 41809917497 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Vulcanisation of rubber is mainly by the addition of:

Options :

1. ✘ Oxygen gas

2. ✘ Magnesium oxide

3. ✓ Sulphur

4. ✘ Zinc oxide

Question Number : 98 Question Id : 41809917498 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

During the refining of petroleum, which of the following is used to remove sulphur impurity:

Options :

Copper Oxide

1. ✓

Copper Sulphide

2. ✘

Magnesium chloride

3. ✘

Magnesium sulphate

4. ✘

Question Number : 99 Question Id : 41809917499 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the oxide of nitrogen is not a common pollutant?

Options :

N_2O_5

1. ✓

N_2O

2. ✘

NO

3. ✘

NO_2

4. ✘

Question Number : 100 Question Id : 41809917500 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A



Time : 0

DDT is:

Options :

1. ✘ Nitrogen containing insecticide
2. ✘ Biodegradable pollutant
3. ✔ Non-Biodegradable pollutant
4. ✘ An antibiotic

Agricultural Engineering

Section Id :	418099352
Section Number :	4
Mandatory or Optional :	Mandatory
Number of Questions :	100
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 101 Question Id : 41809917501 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0



The unit of a lathe which houses the lathe spindle and control levers for speed selection is called a

Options :

1. ✓ Head stock
2. ✗ Tail unit
3. ✗ Carriage
4. ✗ Feed box

Question Number : 102 Question Id : 41809917502 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Grinding operation is used for

Options :

1. ✗ Removing material
2. ✗ Dressing
3. ✓ Finishing
4. ✗ Forming



Question Number : 103 Question Id : 41809917503 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The tooth spacing in a saw is called

Options :

1. ✘ Saw width
2. ✘ Pitch
3. ✘ Tooth back
4. ✔ Tooth gullet

Question Number : 104 Question Id : 41809917504 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When sand is in its natural moist state it is known as

Options :

1. ✔ Green Sand
2. ✘ Facing sand
3. ✘ Loamy Sand

4. ✘ Dry sand

Question Number : 105 Question Id : 41809917505 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bevel square is swivelled to any angle from 0 degrees to

Options :

1. ✘ 15

2. ✘ 45

3. ✘ 90

4. ✔ 180

Question Number : 106 Question Id : 41809917506 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Centre head in combination square is used to measure and locate

Options :

1. ✘ Right angle

2. ✘ Angles up to 180°

3. ✓ Centre of rods

4. ✘ Vertical heights

Question Number : 107 Question Id : 41809917507 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The forces which meet at one point are known as _____ force and may not collinear

Options :

1. ✘ Coplanar

2. ✘ Collinear

3. ✓ Concurrent

4. ✘ Non- Concurrent

Question Number : 108 Question Id : 41809917508 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ratio of stress to strain for any given material is called

Options :

1. ✘ Yield point

2. ✘ Elastic region

3. ✔ Modulus of elasticity

4. ✘ Rigidity modulus

Question Number : 109 Question Id : 41809917509 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sweep pattern is used for

Options :

1. ✘ Green sand moulding

2. ✘ Dry sand moulding

3. ✔ Symmetrical moulding

4. ✘ Bench Moulding

Question Number : 110 Question Id : 41809917510 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The common firing order of a 4-stroke, 6 cylinder diesel engine is



Options :

1. ✘ 2-5-3-6-1-4
2. ✘ 1-4-2-3-6-5
3. ✔ 1-5-3-6-2-4
4. ✘ 1-4-2-6-5-3

Question Number : 111 Question Id : 41809917511 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Blue smoke is produced in engine due to

Options :

1. ✘ Excess fuel consumption
2. ✘ Overheating of engine
3. ✔ Combustion of lubricating oil with fuel
4. ✘ Crank Shaft wear

Question Number : 112 Question Id : 41809917512 Display Question Number :



Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The mechanical efficiency of an engine is expressed as

Options :

1. ✘ $\text{IHP/BHP} \times 100$
2. ✔ $\text{BHP/IHP} \times 100$
3. ✘ $\text{IHP} - \text{BHP/IHP} \times 100$
4. ✘ $\text{FHP/IHP} \times 100$

Question Number : 113 Question Id : 41809917513 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Density of diesel fuel is approximately (kg/m^3)

Options :

1. ✘ 525
2. ✔ 875
3. ✘ 1000
4. ✘ 1200



Question Number : 114 Question Id : 41809917514 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of removal of burnt or exhaust gas from the engine cylinder is known as

Options :

1. ✘ Drainage
2. ✔ Scavenging
3. ✘ Gas lasting
4. ✘ Turbocharging

Question Number : 115 Question Id : 41809917515 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Passive earth pressure is depend upon

Options :

1. ✘ The moment of wall away from soil
2. ✔ The moment of wall towards the soil
3. ✘ Downward movement of wall on the soil

4. ✘ Upward movement of wall on the soil

Question Number : 116 Question Id : 41809917516 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The formula for estimation of evapo transpiration using only temperature and day light is knows

Options :

1. ✘ Thornthwaite formula

2. ✘ Penman formula

3. ✘ Christain formula

4. ✔ Blaney Criddle formula

Question Number : 117 Question Id : 41809917517 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A unit hydrograph has

Options :

1. ✘ One unit of peak discharge

2. ✘ One unit of time base of direct runoff

3. ✘ One unit of rainfall duration

4. ✔ One unit of direct runoff

Question Number : 118 Question Id : 41809917518 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Darcy's Law is valid under the condition of

Options :

1. ✔ Laminar flow with Reynolds number < 10

2. ✘ Reynolds number > 10

3. ✘ Newtonian flow

4. ✘ Steady flow

Question Number : 119 Question Id : 41809917519 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A rainfall is called as light rainfall when its intensity is

Options :

1. ✓ Less than 2.5 mm/hr

2. ✗ Around 2.5 m/hr

3. ✗ Less than 2.5 cm/hr

4. ✗ Greater than 2.5 m/hr

Question Number : 120 Question Id : 41809917520 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Piezometer is used to measure

Options :

1. ✓ Static pressure of a flowing fluid

2. ✗ Dynamic pressure of a flowing fluid

3. ✗ Total pressure of a flowing fluid

4. ✗ Surface tension of a flowing fluid

Question Number : 121 Question Id : 41809917521 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0



If for a fluid in motion, the pressure at a point is same in all directions, then fluid is

Options :

1. ✘ Real fluid
2. ✘ Newtonian fluid
3. ✘ Non Newtonian fluid
4. ✔ Ideal fluid

Question Number : 122 Question Id : 41809917522 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a fluid flow the line of constant piezometric head pass through two points which have the same

Options :

1. ✘ Elevation
2. ✘ Pressure
3. ✘ Velocity
4. ✔ Velocity potential



Question Number : 123 Question Id : 41809917523 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Lysimeter is used to measure

Options :

1. ✘ Infiltration
2. ✘ Evaporation
3. ✔ Evapotranspiration
4. ✘ Vapour pressure

Question Number : 124 Question Id : 41809917524 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The length of revenue chain is

Options :

1. ✘ 60ft
2. ✔ 33ft
3. ✘ 90 ft
4. ✘ 100 ft

Question Number : 125 Question Id : 41809917525 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of establishment intermediate points on a straight line between the terminal points is called

Options :

1. ✘ Chaining
2. ✔ Ranging
3. ✘ Offsetting
4. ✘ Pegging

Question Number : 126 Question Id : 41809917526 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The rod staff level reading taken on a point of know elevation called

Options :

1. ✘ Fore sight
2. ✔ Back sight
3. ✘ Plane sight

4. ✘ Bench Mark

Question Number : 127 Question Id : 41809917527 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Method of surveying in which the field work and plotting are done simultaneously is called

Options :

1. ✓ Plane tabling
2. ✘ Mapping
3. ✘ Compass surveying
4. ✘ Drawing

Question Number : 128 Question Id : 41809917528 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The longest of the chain lines used in making survey is generally called as

Options :

1. ✓ Base line

2.

✘ Man line

3. ✘ Check line

4. ✘ Tie line

Question Number : 129 Question Id : 41809917529 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Geologic erosion is also known as

Options :

1. ✘ Accelerated erosion

2. ✔ Natural erosion

3. ✘ Off time erosion

4. ✘ Vegetative erosion

Question Number : 130 Question Id : 41809917530 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Detachment and transportation of soil particle is greater in



Options :

1. ✘ Splash erosion
2. ✔ Rill erosion
3. ✘ Sheet erosion
4. ✘ Both Splash and Rill erosion

Question Number : 131 Question Id : 41809917531 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Contour bunding is used _____.

Options :

1. ✘ To stop winds in sandy deserts
2. ✘ To irrigate desert areas
3. ✔ To prevent erosion in hilly areas
4. ✘ To increase rain water run off

Question Number : 132 Question Id : 41809917532 Display Question Number :



Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At constant discharge if the diameter of pipe is reduced to half other factor remaining unchanged, the frictional head loss will increased by

Options :

1. ✓ 4 times
2. ✗ 8 times
3. ✗ 16 times
4. ✗ 32 times

Question Number : 133 Question Id : 41809917533 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bench terraces are most effective to control the

Options :

1. ✓ Runoff
2. ✗ Infiltration
3. ✗ Slope
4. ✗ Vegetation

Question Number : 134 Question Id : 41809917534 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Wind erosion is common in

Options :

1. ✘ Humid region
2. ✘ Arid zones
3. ✔ Arid and semi arid zones
4. ✘ Arid and humid zones

Question Number : 135 Question Id : 41809917535 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Indirect method of finding velocity of water flow

Options :

1. ✔ Weirs & Notches
2. ✘ Dilution Method
3. ✘ Ultrasonic method

Area-velocity method

4. ✘

Question Number : 136 Question Id : 41809917536 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The velocity of water in a stream or river can be measured by

Options :

1. ✘ Water meter

2. ✘ Persian wheel

3. ✔ Current meter

4. ✘ Meter scale

Question Number : 137 Question Id : 41809917537 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The vertical distance between the water surface at the source and at the outlet in a pumping system is

Options :

1. ✘ Static suction head

2. ✔ Total static head



3. ✘ Static discharge head

4. ✘ Frictional head

Question Number : 138 Question Id : 41809917538 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

India average rainfall is about

Options :

1. ✘ 100 mm

2. ✔ 119.4 mm

3. ✘ 190 mm

4. ✘ 159.4 mm

Question Number : 139 Question Id : 41809917539 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For irrigation slopy lands _____ furrows are generally used

Options :

1. ✘ Ridges

2. ✘ Cross

3. ✔ Contour

4. ✘ Zig-Zag

Question Number : 140 Question Id : 41809917540 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sprinkler heads are especially adopted to irrigation of lawns

Options :

1. ✔ Pop- up

2. ✘ Rotational

3. ✘ Pop-down

4. ✘ Rain gun

Question Number : 141 Question Id : 41809917541 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The overlap of sprinklers increases with

Options :

1.

- ✘ Decreases with wind velocity
- 2. ✔ Increases with wind velocity
- 3. ✘ Decreases with rotational speed of head
- 4. ✘ Increases with rotational speed of head

Question Number : 142 Question Id : 41809917542 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In comparison to surface irrigation methods and sprinkler method, drip irrigation can achieve _____ more application efficiency

Options :

- 1. ✔ 90%
- 2. ✘ 70%
- 3. ✘ 80 %
- 4. ✘ 75%

Question Number : 143 Question Id : 41809917543 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The discharge of emitter usually ranges from _____ liters per hour in drip irrigation system.

Options :

1. ✘ 0.5-2

2. ✔ 2-10

3. ✘ 20-30

4. ✘ 40-50

Question Number : 144 Question Id : 41809917544 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Drainage through tile drainage system is

Options :

1. ✔ Horizontal

2. ✘ Vertical

3. ✘ Inclined

4. ✘ Pressurised

Question Number : 145 Question Id : 41809917545 Display Question Number :



Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Drip irrigation system operates on ____ pressure as compared to sprinkler system

Options :

1. ✘ High
2. ✘ Moderate
3. ✔ Lower
4. ✘ Very high

Question Number : 146 Question Id : 41809917546 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area where irrigation is must for irrigation is called

Options :

1. ✘ Humid
2. ✔ Arid region
3. ✘ Semiarid
4. ✘ Semi-humid

Question Number : 147 Question Id : 41809917547 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The vulnerability of soil to erosion is called

Options :

1. ✘ Infiltration

2. ✔ Erodibility

3. ✘ Erosivity

4. ✘ Evaporation

Question Number : 148 Question Id : 41809917548 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Perpendicular distance between point of share and lower portion of beam

Options :

1. ✔ Throat clearance

2. ✘ Side clearance

3. ✘ Vertical suction

4. ✘ Horizontal suction

Question Number : 149 Question Id : 41809917549 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The angle at which the plane of cutting edge of disc is inclined to the direction of travel is

Options :

1. ✘ Tilt angle

2. ✔ Disc angle

3. ✘ Gang angle

4. ✘ Disc inclination

Question Number : 150 Question Id : 41809917550 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The top portion of the turned furrow slice is called

Options :

1. ✘ Furrow

2. ✘ Furrow wall

3. ✓ Crown

4. ✘ Furrow slice

Question Number : 151 Question Id : 41809917551 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The main purpose of puddling is to

Options :

1. ✓ Reduce percolation of water

2. ✘ Kill weeds

3. ✘ Pulverize soil

4. ✘ Level the field

Question Number : 152 Question Id : 41809917552 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a paddy transplanter optimum numbers of seedling /hill transplanted are

Options :

1. ✘ 1 - 2

2.

✓ 2-3

3. ✗ 3-4

4. ✗ 4-5

Question Number : 153 Question Id : 41809917553 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Field capacity of a seed drill with 5 rows at 20 cm spacing moving at 2 kmph with field efficiency of 80%

Options :

1. ✓ 0.16 ha/h

2. ✗ 0.25 ha/h

3. ✗ 8 ha/h

4. ✗ 2 ha/h

Question Number : 154 Question Id : 41809917554 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Hallow cone nozzle have a spray angle of



Options :

1. ✘ $30 - 55^\circ$
2. ✘ $80 - 100^\circ$
3. ✘ $70 - 155^\circ$
4. ✔ $60 - 95^\circ$

Question Number : 155 Question Id : 41809917555 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ratio of reel peripheral speed to forward speed of combine is called

Options :

1. ✘ Velocity ratio
2. ✔ Reel speed index
3. ✘ Kinematic index
4. ✘ Cutting index

Question Number : 156 Question Id : 41809917556 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A



Time : 0

Olpad thresher is used for

Options :

1. ✘ Gram
2. ✘ Paddy
3. ✔ Wheat
4. ✘ Maize

Question Number : 157 Question Id : 41809917557 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Reel speed index of combine machine is

Options :

1. ✘ 1.00-1.10
2. ✘ 1.10-1.25
3. ✔ 1.25 -1.50
4. ✘ 1.50-1.75



Question Number : 158 Question Id : 41809917558 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

As per BIS the combine losses should be maximum of _____ for wheat and paddy

Options :

1. ✘ 1 %

2. ✔ 2.5%

3. ✘ 5 %

4. ✘ 10%

Question Number : 159 Question Id : 41809917559 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a given spray sample

Options :

1. ✘ $VMD = NMD$

2. ✘ $VMD < NMD$

3. ✔ $VMD > NMD$

4. ✘ $VMD \leq NMD$

Question Number : 160 Question Id : 41809917560 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Machine used to cut herbage crops

Options :

1. ✘ Reaper

2. ✘ Binder

3. ✔ Mower

4. ✘ Reaper and Binder

Question Number : 161 Question Id : 41809917561 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A ferrule is provided for

Options :

1. ✔ Sickle

2. ✘ Khurpi

3. ✘ Spade

Vertical conveyer reaper

4. ✘

Question Number : 162 Question Id : 41809917562 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

This type of greenhouse is constructed on hilly terrain

Options :

1. ✘ Lean to Type

2. ✔ Uneven span type

3. ✘ Even span type

4. ✘ Ridge & furrow type

Question Number : 163 Question Id : 41809917563 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Most crops respond favorably to CO₂ levels in the range of _____ ppm

Options :

1. ✔ Below 200ppm

2. ✘ Below 200 -250 ppm



3. ✘ Below 300ppm

4. ✘ Below 350ppm

Question Number : 164 Question Id : 41809917564 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Greenhouse structures should be designed to resist a --- wind velocity

Options :

1. ✘ 130 cm/Sec

2. ✘ 130 km/Sec

3. ✘ 130 m/h

4. ✔ 130 km/h

Question Number : 165 Question Id : 41809917565 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Rollup side passive ventilation on plastic greenhouses is only effective in _____ greenhouses.

Options :

1. ✘ Ridge and Furrow



2. ✓ Free standing greenhouses

3. ✗ Gutter connected

4. ✗ Lean to type

Question Number : 166 Question Id : 41809917566 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Now-a-days, the pads of Fan-and Pad cooling system is commonly made of

Options :

1. ✓ cross-fluted-cellulose material

2. ✗ Wood material

3. ✗ Grass material

4. ✗ LDPE

Question Number : 167 Question Id : 41809917567 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Intensity of radiations can be reduced by providing _____ (partial or full) over the growing area.



Options :

1. ✘ Polyethylene
2. ✔ Shade net
3. ✘ Sheet
4. ✘ Glass

Question Number : 168 Question Id : 41809917568 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The SI unit of current is

Options :

1. ✘ Volt
2. ✔ Ampere
3. ✘ Ohm
4. ✘ N

Question Number : 169 Question Id : 41809917569 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The SI unit of Resistance

Options :

1. ✘ Volt
2. ✘ Ampere
3. ✔ Ohm
4. ✘ Ohm-m

Question Number : 170 Question Id : 41809917570 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The average force, that a draft animal can exert is approximately

Options :

1. ✔ 1/10 of its body weight
2. ✘ 50 kg
3. ✘ 75 kg
4. ✘ 100 kg

Question Number : 171 Question Id : 41809917571 Display Question Number :



Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The power loss in PTO drive is usually

Options :

1. ✘ Less than 2%
2. ✔ Less than 5%
3. ✘ Less than 8%
4. ✘ Less than 10%

Question Number : 172 Question Id : 41809917572 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pyrheliometer is used to measure

Options :

1. ✔ Beam radiation
2. ✘ Total radiation
3. ✘ Global radiation
4. ✘ Diffused radiation

Question Number : 173 Question Id : 41809917573 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Minimum wind speed required for wind mill for proper working is

Options :

1. ✘ 5 kmph
2. ✔ 10 kmph
3. ✘ 15 kmph
4. ✘ 20 kmph

Question Number : 174 Question Id : 41809917574 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The fraction of free flow wind power that can be extracted by a rotor is called

Options :

1. ✘ Power of rotor
2. ✘ Efficiency factor
3. ✘ Lift factor

4. ✓ Power coefficient

Question Number : 175 Question Id : 41809917575 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Solar cells are made of

Options :

1. ✓ Silicon

2. ✗ Silver

3. ✗ Bromide

4. ✗ Carbon

Question Number : 176 Question Id : 41809917576 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Standard value of solar constant is

Options :

1. ✗ 1253 w/m^2

2. ✗ 1453 w/m^2

3. ✓ 1367 w/m²

4. ✘ 1353 w/m²

Question Number : 177 Question Id : 41809917577 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Maximum efficiency is obtained in

Options :

1. ✘ Flat plate collector

2. ✘ Evacuated tube collector

3. ✘ Line focusing collector

4. ✓ Paraboloid dish collector

Question Number : 178 Question Id : 41809917578 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a tractor for best results stroke bore ratio should be equal to

Options :

1. ✘ 1.00

2. ✓ 1.25

3. ✘ 1.50

4. ✘ 1.75

Question Number : 179 Question Id : 41809917579 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Inflation pressure in rear wheel of the tractor varies between

Options :

1. ✓ 0.8 to 1.5 kg/cm²

2. ✘ 2.0 to 2.5 kg/cm²

3. ✘ 2.5 to 3.5 kg/cm²

4. ✘ 1.5 to 2.0 kg/cm²

Question Number : 180 Question Id : 41809917580 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The differential lock of tractor is a

Options :

1. ✓ Torque equalizing device
2. ✘ Power equalizing
3. ✘ Energy equalizing device
4. ✘ Traction equaling device

Question Number : 181 Question Id : 41809917581 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The most common type of cooling system found in general purpose tractors is

Options :

1. ✘ Air cooling
2. ✘ Thermo-siphon system
3. ✘ Open jacket system
4. ✓ Force feed water circulation system

Question Number : 182 Question Id : 41809917582 Display Question Number :



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Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following gasifier is most suitable for engine use

Options :

1. ✘ Updraft
2. ✔ Downdraft
3. ✘ Cross draft
4. ✘ Fluidized bed

Question Number : 183 Question Id : 41809917583 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which is of the following is not an floating drum type biogas plant

Options :

1. ✘ Ganesh model
2. ✔ Deen bandhu model
3. ✘ KVIC model
4. ✘ Pragati model

Question Number : 184 Question Id : 41809917584 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The total solid content of the influent for optimum biogas production

Options :

1. ✘ 4-8%
2. ✔ 8-12%
3. ✘ 12-16%
4. ✘ 16-20%

Question Number : 185 Question Id : 41809917585 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Gasification of biomass is _____ conversion process

Options :

1. ✔ Thermochemical
2. ✘ Biochemical
3. ✘ Chemical

Micro chemical

4. ✘

Question Number : 186 Question Id : 41809917586 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The type of gasifier which produces nearly tar free producer gas is

Options :

1. ✘ Counter current gasifier

2. ✔ Co-current gasifier

3. ✘ Cross draught gasifier

4. ✘ Fluidized bed gasifier

Question Number : 187 Question Id : 41809917587 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A spiral separator works on the basis of

Options :

1. ✔ Roundness

2. ✘ Length



3. ✘ Thickness

4. ✘ Width

Question Number : 188 Question Id : 41809917588 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The number of holes per square inch in a 20 mesh screen will be

Options :

1. ✘ 20

2. ✘ 200

3. ✔ 400

4. ✘ 800

Question Number : 189 Question Id : 41809917589 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The property which deals with deformation and flow of the material under the action of applied force is

Options :

1. ✔ Rheological

2.

✘ Frictional

3. ✘ Gravitational

4. ✘ Mechanical

Question Number : 190 Question Id : 41809917590 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Separation of liquids from solids by the application of pressure is known a

Options :

1. ✘ Extraction

2. ✓ Expression

3. ✘ Filtration

4. ✘ Leaching

Question Number : 191 Question Id : 41809917591 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The percentage of oil present in rice bran is _____

Options :

1. ✓ 18-20%

2. ✘ 10-12%

3. ✘ 12-14%

4. ✘ 14-16%

Question Number : 192 Question Id : 41809917592 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Drying is a _____ process

Options :

1. ✘ Heat transfer

2. ✘ Mass transfer

3. ✓ Heat and mass transfer

4. ✘ Momentum transfer

Question Number : 193 Question Id : 41809917593 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Amount of moisture present in a unit volume of air is known as

Options :

1. ✘ Relative humidity
2. ✘ Specific humidity
3. ✔ Absolute humidity
4. ✘ Humidity

Question Number : 194 Question Id : 41809917594 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Psychrometric chart is a graphical representation of which properties of air

Options :

1. ✘ Chemical
2. ✘ Aerodynamic
3. ✘ Hygroscopic
4. ✔ Thermodynamic

Question Number : 195 Question Id : 41809917595 Display Question Number : Yes Is Question



Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The efficiency of cyclone separator is increased by

Options :

1. ✓ Increasing the air inlet velocity
2. ✗ Decreasing the size of the particles
3. ✗ Reducing the size of the separator
4. ✗ Reducing the air outlet diameter

Question Number : 196 Question Id : 41809917596 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The energy required in grinding large solid particles is inversely proportional to

Options :

1. ✓ Diameter
2. ✗ Density
3. ✗ Strength
4. ✗ Shape



Question Number : 197 Question Id : 41809917597 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of inactivation of enzymes is called

Options :

1. ✘ Leaching
2. ✘ Pasteurization
3. ✔ Blanching
4. ✘ Sterilization

Question Number : 198 Question Id : 41809917598 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Dry ice is known as _____

Options :

1. ✘ CO_2
2. ✔ Solid CO_2
3. ✘ SO_2

4. ✘ Solid SO₂

Question Number : 199 Question Id : 41809917599 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of obtaining kernels from the stripped groundnut pods is known as

Options :

1. ✘ Milling

2. ✔ Decorticating

3. ✘ Hulling

4. ✘ Polishing

Question Number : 200 Question Id : 41809917600 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of removal of ground nut pods from the plants is called

Options :

1. ✘ Dehulling

2. ✘ Decortication

3. ✓ Stripping

4. ✘ Grading

