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 :	Electrical and Electronics Engineering 06th May 2025 Shift 1
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Electrical and Electronics Engineering

Group Number :	1
Group Id :	89040174
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Mathematics

Section Id :	890401287
Section Number :	1
Section type :	Online

Question Number : 1 Question Id : 89040114613 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$, then which of the following is true?

Options :

1. ✖ *The matrix is invertible*

2. ✔ *The matrix is singular*

3. ✖ The matrix is diagonalizable

4. ✖ The matrix is symmetric.

Question Number : 2 Question Id : 89040114614 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and the determinant of A is 5, then determinant of the matrix $2A$ is

Options :

1. ✖ 10

2. ✔ 20

3. ✖ 5

4. ✖ 25

Question Number : 3 Question Id : 89040114615 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the matrix A is of order 3x3 and the system of equations AX = B has a unique solution,

what can be concluded about the determinant of A?

Options :

1. ✖ The determinant of A is zero

2. ✔ The determinant of A is non-zero

3. ✖ The determinant of A must be 1 only

4. ✖ The determinant of A cannot be negative

Question Number : 4 Question Id : 89040114616 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} x & 3 \\ 2 & 4 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} -2 & 1.5 \\ 1 & -0.5 \end{bmatrix}$ then the value of x is

Options :

1. ✖ -2

2. ✔ 1

3. ✖ 1.5

4. ✖ -0.5

Question Number : 5 Question Id : 89040114617 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$, then $(AB)^T =$

Options :

1. ✖ $\begin{bmatrix} 0 & 0 \\ 3 & 4 \end{bmatrix}$

2. ✖ $\begin{bmatrix} 0 & 0 \\ 3 & 7 \end{bmatrix}$

3. ✔ $\begin{bmatrix} 3 & 7 \\ 0 & 0 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 3 & 6 \\ 0 & 0 \end{bmatrix}$

Question Number : 6 Question Id : 89040114618 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\dfrac{2x+5}{(x-1)(x+3)} = \dfrac{A}{(x-1)} + \dfrac{B}{(x+3)}$ then $A+B =$

Options :

1. ✖ -2

2. ✔ 2

3. ✖ 1

4. ✖ -1

Question Number : 7 Question Id : 89040114619 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\dfrac{3x-1}{(x-1)(x-2)(x-3)} = \dfrac{A}{(x-1)} + \dfrac{B}{(x-2)} + \dfrac{C}{(x-3)}$ then the values of (A, B, C) are

Options :

1. ✔ $(1, -5, 4)$

2. ✘ $(1, 5, 4)$

3. ✘ $(4, 5, 1)$

4. ✘ $(1, 4, 5)$

Question Number : 8 Question Id : 89040114620 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta = \dfrac{3}{5}$, then $\cos\theta =$

Options :

1. ✘ $\dfrac{4}{5}$ *but not* $-\dfrac{4}{5}$

2. ✔ $-\dfrac{4}{5}$ *or* $\dfrac{4}{5}$

3. ✘ $-\dfrac{4}{5}$ *but not* $\dfrac{4}{5}$

4. ✘ $\dfrac{3}{5}$ *but not* $-\dfrac{3}{5}$

Question Number : 9 Question Id : 89040114621 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\cos\theta \cosec\theta = -1$ *and* θ *lies in the second quadrant then* $\cos\theta =$

Options :

1. ✘

$$\frac{-\sqrt{3}}{2}$$

2. ✗ $\frac{\sqrt{2}}{2}$

3. ✓ $-\frac{\sqrt{2}}{2}$

4. ✗ $-\sqrt{2}$

Question Number : 10 Question Id : 89040114622 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $5\sin\theta = 4$ then the value of $\frac{Cosec\,\theta - cot\theta}{Cosec\,\theta + cot\theta}$ is

Options :

1. ✗ -1/4

2. ✗ -1/2

3. ✗ 1/2

4. ✓ 1/4

Question Number : 11 Question Id : 89040114623 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For real x and if $x + \frac{1}{x} = 2\cos\theta$ then $\cos\theta$ is

Options :

1. ✓ ± 1

2. ✗ 1/2

3. ✖ 1

4. ✖ $\pm\frac{1}{2}$

Question Number : 12 Question Id : 89040114624 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\sin^6\theta + \cos^6\theta + 3\sin^2\theta\cos^2\theta =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ -1

Question Number : 13 Question Id : 89040114625 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum value of $3\cos\theta + 4\sin\theta$ is

Options :

1. ✖ 2

2. ✖ 4

3. ✔ 5

4. ✖ 1

Question Number : 14 Question Id : 89040114626 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin 5x + \sin 3x + \sin x = 0$ then the value of x other than zero lying between $0 \le x \le \frac{\pi}{2}$ is

Options :

1. ✖ $\frac{\pi}{6}$

2. ✔ $\frac{\pi}{3}$

3. ✖ $\frac{\pi}{12}$

4. ✖ $\frac{\pi}{4}$

Question Number : 15 Question Id : 89040114627 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $tan^2 x = 1$ is

Options :

1. ✖ $n\pi + \frac{\pi}{4}$ only

2. ✔ $n\pi \pm \frac{\pi}{4}$

3. ✖ $2n\pi \pm \frac{\pi}{4}$

4. ✖ $n\pi - \frac{\pi}{4}$ only

Question Number : 16 Question Id : 89040114628 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\cos\dfrac{5\pi}{17} + \cos\dfrac{7\pi}{17} + 2\cos\dfrac{11\pi}{17}\cos\dfrac{\pi}{17}$ is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ −1

4. ✖ 1/2

Question Number : 17 Question Id : 89040114629 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta - \cos\theta = 4/5$ then the value of $\sin\theta + \cos\theta =$

Options :

1. ✖ $\dfrac{5}{\sqrt{34}}$

2. ✖ $-\dfrac{5}{\sqrt{34}}$

3. ✖ $-\dfrac{\sqrt{34}}{25}$

4. ✔ $\dfrac{\sqrt{34}}{5}$

Question Number : 18 Question Id : 89040114630 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The real part of $\dfrac{1+2i}{(2-i)^2}$ is

Options :

1. ✔ $-\dfrac{1}{5}$

2. ✘ $\dfrac{1}{5}$

3. ✘ $-\dfrac{2}{5}$

4. ✘ $\dfrac{2}{5}$

Question Number : 19 Question Id : 89040114631 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Modulus of the complex number $\dfrac{(1+i)^{10}}{(2i-4)^4}$ is equal to

Options :

1. ✔ $\dfrac{2}{25}$

2. ✘ $-\dfrac{2}{25}$

3. ✘ $\dfrac{1}{25}$

4. ✘ $-\dfrac{1}{25}$

Question Number : 20 Question Id : 89040114632 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a circle with center O, a 6cm long chord is at a distance 4 cm from the center.

Then the length of diameter is

Options :

1. ✗ 5 cm

2. ✓ 10 cm

3. ✗ 15 cm

4. ✗ 8 cm

Question Number : 21 Question Id : 89040114633 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the tangent from the point (5, 1) to the circle $x^2 + y^2 + 6x - 4y - 3 = 0$ is

Options :

1. ✗ 81

2. ✓ 7

3. ✗ 29

4. ✗ 21

Question Number : 22 Question Id : 89040114634 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If length of the tangent is 8 cm and the distance between the center of the circle and the

external point is 11 cm, then the area of the circle is

Options :

1. ✗ 100 cm

2. ✗ 197.14 cm

3. ✔ *179.14 cm*

4. ✘ *110.14 cm*

Question Number : 23 Question Id : 89040114635 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the parabola with focus (2, 0) and vertex (1, 0) is

Options :

1. ✘ $y^2 = 4x$

2. ✔ $y^2 = 4x - 4$

3. ✘ $y^2 = 4(x + 1)$

4. ✘ $y^2 = -4(x - 1)$

Question Number : 24 Question Id : 89040114636 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If (2,0) is the vertex and y-axis is the directrix of a parabola then its focus is

Options :

1. ✘ (2, 0)

2. ✘ (-2, 0)

3. ✔ (4, 0)

4. ✘ (-4, 0)

Question Number : 25 Question Id : 89040114637 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The *eccentricity of* the ellipse $16x^2 + 7y^2 = 112$ *is*

Options :

1. ✗ $\dfrac{4}{3}$

2. ✗ $\dfrac{7}{16}$

3. ✗ $\dfrac{3}{\sqrt{7}}$

4. ✔ $\dfrac{3}{4}$

Question Number : 26 Question Id : 89040114638 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim\limits_{n \to \infty} \dfrac{4x^3 - x + 1}{x^2 - 4x(1-x^2)} =$

Options :

1. ✗ 0

2. ✔ 1

3. ✗ -1

4. ✗ ∞

Question Number : 27 Question Id : 89040114639 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim\limits_{x \to 1}\left(\dfrac{x^3-1}{x-1}\right)$ is

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 3

4. ✖ Limit does not exist

Question Number : 28 Question Id : 89040114640 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The derivative of x^x with respective to x is

Options :

1. ✖ $x^x(x + logx)$

2. ✖ $x^x(x - logx)$

3. ✖ $x^x(1 - logx)$

4. ✔ $x^x(1 + logx)$

Question Number : 29 Question Id : 89040114641 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\dfrac{d}{dx}\left(tan^{-1}\dfrac{x}{a}\right) =$

Options :

1. ✗ $\dfrac{a}{a^2-x^2}$

2. ✗ $\dfrac{1}{a^2+x^2}$

3. ✗ $\dfrac{1}{a^2-x^2}$

4. ✓ $\dfrac{a}{a^2+x^2}$

Question Number : 30 Question Id : 89040114642 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $y = \sqrt{sinx + \sqrt{sinx + \sqrt{sinx + ---- \infty}}}$ then $\dfrac{dy}{dx} =$

Options :

1. ✗ $\dfrac{cosx}{1-2y}$

2. ✗ $\dfrac{sinx}{1-2y}$

3. ✗ $\dfrac{-sinx}{1-2y}$

4. ✓ $\dfrac{-cosx}{1-2y}$

Question Number : 31 Question Id : 89040114643 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Slope of the normal to the curve $x^{2/3} + y^{2/3} = 2$ at the point $(1, 1)$ is

Options :

1. ✖ -1

2. ✔ 1

3. ✖ $1/2$

4. ✖ $-1/2$

Question Number : 32 Question Id : 89040114644 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the curve $y = x^3$ at $(1, 1)$ is

Options :

1. ✖ $3x - y + 2 = 0$

2. ✖ $x - 10y - 50 = 0$

3. ✔ $3x - y - 2 = 0$

4. ✖ $x - 10y + 50 = 0$

Question Number : 33 Question Id : 89040114645 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For what value of x, the function $2x^3 + 3x^2 - 36x + 10$ has minimum

Options :

1. ✖ -2

2. ✖ -3

3. ✔

2

4. ✖ 1

Question Number : 34 Question Id : 89040114646 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = x^2 - y^2$ then $\dfrac{1}{x}\dfrac{\partial z}{\partial x} + \dfrac{1}{y}\dfrac{\partial z}{\partial y} =$

Options :

1. ✖ 1

2. ✖ $2x + 2y$

3. ✔ 0

4. ✖ $2x - 2y$

Question Number : 35 Question Id : 89040114647 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = e^{xy}$, then the value of $\dfrac{\partial^2 u}{\partial x^2} + \dfrac{\partial^2 u}{\partial y^2}$ at $(1, 1)$ is

Options :

1. ✖ e

2. ✔ $2e$

3. ✖ 1

4. ✖ 0

Question Number : 36 Question Id : 89040114648 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int (\log \sec x) \tan x \; dx \; is$

Options :

1. ✗ $\sec x + c$

2. ✗ $\log \sec x + c$

3. ✓ $\frac{1}{2} (\log \sec x)^2 + c$

4. ✗ $\log (\log \sec x)$

Question Number : 37 Question Id : 89040114649 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int \sin^2 x \; dx \; =$

Options :

1. ✗ $\frac{x}{2} + \frac{\sin 2x}{4} + c$

2. ✗ $\frac{x}{2} - \frac{\cos 2x}{4} + c$

3. ✗ $\frac{x}{2} + \frac{\cos 2x}{4} + c$

4. ✓ $\frac{x}{2} - \frac{\sin 2x}{4} + c$

Question Number : 38 Question Id : 89040114650 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{25 - x^2} =$$

Options :

1. ✖ $\frac{1}{5} \log \left| \frac{x-5}{x+5} \right| + c$

2. ✖ $\frac{1}{5} \log \left| \frac{x+5}{x-5} \right| + c$

3. ✔ $\frac{1}{10} \log \left| \frac{5+x}{5-x} \right| + c$

4. ✖ $\frac{1}{10} \log \left| \frac{5-x}{5+x} \right| + c$

Question Number : 39 Question Id : 89040114651 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int_0^1 x(1-x)^9 \, dx$ is

Options :

1. ✔ $\frac{1}{110}$

2. ✖ $\frac{1}{120}$

3. ✖ $\frac{-1}{110}$

4. ✖ $\frac{-1}{120}$

Question Number : 40 Question Id : 89040114652 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{-a}^{a} |x|\ dx\ =$

Options :

1. ✖ a

2. ✖ $2a$

3. ✖ 0

4. ✔ a^2

Question Number : 41 Question Id : 89040114653 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{0}^{\pi/2} \dfrac{\cos 2x}{\sin x + \cos x}\ dx\ =$

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ $\dfrac{\pi}{2}$

Question Number : 42 Question Id : 89040114654 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area bounded by the curve $y = 4x^2$, the x-axis, the line x=0 and the line x = 1 is

Options :

1. ✖ 2

2. ✗ 2/3

3. ✗ 1/3

4. ✓ 4/3

Question Number : 43 Question Id : 89040114655 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The RMS value of x^2 in $[0, 1]$ is

Options :

1. ✓ $\frac{1}{\sqrt{5}}$

2. ✗ $\frac{1}{5}$

3. ✗ $\frac{1}{\sqrt{3}}$

4. ✗ $\frac{1}{3}$

Question Number : 44 Question Id : 89040114656 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The degree of the differential equation $y' + y = \frac{5}{y'}$ is

Options :

1. ✗ 1

2. ✓ 2

3. ✖ 3

4. ✖ 4

Question Number : 45 Question Id : 89040114657 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The order of the differential equation whose general solution is y = a sin x + b cos x is

(where a and b are arbitrary constants)

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 1

4. ✖ 3

Question Number : 46 Question Id : 89040114658 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The differential equation $\frac{dy}{dx} = -\left(\frac{x+y}{1+x^2}\right)$ is

Options :

1. ✖ of Variable separable form

2. ✔ First order Linear equation

3. ✖ Homogeneous

4. ✖ Exact differentia Equation

Question Number : 47 Question Id : 89040114659 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} = 1 + y^2$ is

Options :

1. ✖ $y = tanx + c$

2. ✔ $y = \tan(x + c)$

3. ✖ $y = tanx$

4. ✖ $y = -\tan(x + c)$

Question Number : 48 Question Id : 89040114660 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} + \frac{y}{x} = x^2$ under the condition that y(1) = 1 is

Options :

1. ✖ $4xy = x^3 + 3$

2. ✔ $4xy = x^4 + 3$

3. ✖ $4xy = x^3 - 3$

4. ✖ $4xy = x^4 - 3$

Question Number : 49 Question Id : 89040114661 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{d^3y}{dx^3} + 3\frac{d^2y}{dx^2} + 2\frac{dy}{dx} = 0$ is

Options :

1. ✔ $y = a + be^{-x} + ce^{-2x}$

2. ✗ $y = a + be^x + ce^{2x}$

3. ✗ $y = ae^{-x} + be^{-2x} + ce^x$

4. ✗ $y = a + be^{-2x} + ce^{-3x}$

Question Number : 50 Question Id : 89040114662 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = e^{-2x}$ is

Options :

1. ✔ $-xe^{-2x}$

2. ✗ xe^{-2x}

3. ✗ $-\frac{x}{2}e^{-2x}$

4. ✗ $\frac{x}{2}e^{-2x}$

Physics

Section Id :	890401288
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory

Question Number : 51 Question Id : 89040114663 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If we choose velocity V, length L and force F as fundamental physical quantities then how would you express power in terms of V, L and F ?

Options :

1. ✔ $F^1 L^0 V^1$

2. ✘ $F^1 L^{-1} V^1$

3. ✘ $F^1 L^{-1} V^2$

4. ✘ $F^1 L^{-2} V^3$

Question Number : 52 Question Id : 89040114664 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which pair of physical quantities have same dimensional formula

Options :

1. ✘ Torque and momentum

2. ✘ Surface tension and tension

3. ✔ Pressure and modulus of elasticity

4. ✘ Force constant and Planck's constant

Question Number : 53 Question Id : 89040114665 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A + B = C$ and $A^2 + B^2 = C^2$ then the angle between vectors A and B is

Options :

1. ✖ $0°$

2. ✖ $60°$

3. ✔ $90°$

4. ✖ $120°$

Question Number : 54 Question Id : 89040114666 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area of rectangle with sides as $A = 3i + 4j$ and $B = i + 3j$ is

Options :

1. ✔ $5\sqrt{10}$ units

2. ✖ 10 units

3. ✖ $2\sqrt{10}$ units

4. ✖ $10\sqrt{5}$ units

Question Number : 55 Question Id : 89040114667 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a pebble is thrown vertically upwards from the top of a tower with velocity 5 m/s. It strikes the ground after 3 seconds. With what velocity the pebble strikes the ground? (take $g = 10 \ ms^{-2}$)

Options :

1. ✗   10 m/s

2. ✗   20 m/s

3. ✓   25 m/s

4. ✗   30 m/s

Question Number : 56 Question Id : 89040114668 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a body released from the top of a tower of height H meter takes T seconds to reach the ground, where is the body at time T/2 seconds from the ground ?

Options :

1. ✗ $\dfrac{H}{2}$

2. ✗ $\dfrac{H}{4}$

3. ✓ $\dfrac{3H}{4}$

4. ✗ $\dfrac{2H}{3}$

Question Number : 57 Question Id : 89040114669 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body starts from rest and travels with uniform acceleration. If the distance covered in first 2 seconds is 'x' and next 2 seconds is 'y', then

Options :

1. ✖ $y = x$

2. ✖ $y = 2x$

3. ✔ $y = 3x$

4. ✖ $y = 4x$

Question Number : 58 Question Id : 89040114670 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A juggler throws ball into air. He throws one whenever the previous one is at its highest point. How high do the balls rise if he throws n balls each second ?

Options :

1. ✔ $\dfrac{g}{2n^2}$

2. ✖ $\dfrac{g}{n}$

3. ✖ $\dfrac{g}{2n}$

4. ✖ $\dfrac{n^2}{g}$

Question Number : 59 Question Id : 89040114671 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A block of mass m is lying on an inclined plane. The coefficient of friction between the plane and the block is μ. The force required to move the block up the inclined plane will be

Options :

1. ✖ $mg \sin \theta - \mu \, mg \cos \theta$

2. ✔ $mg \sin \theta + \mu \, mg \cos \theta$

3. ✖ $mg \cos \theta - \mu \, mg \sin \theta$

4. ✖ $mg \cos \theta + \mu \, mg \sin \theta$

Question Number : 60 Question Id : 89040114672 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The time taken by a body to slide down the smooth inclined plane is 4sec. The time taken by a body to slide 1/4th of the length of the plane is

Options :

1. ✖ 1 sec

2. ✔ 2 sec

3. ✖ 3 sec

4. ✖ 0.5 sec.

Question Number : 61 Question Id : 89040114673 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body of mass 2 Kg changes its velocity from (3 i - 4 j) m/s to (6j + 2 k) m/s. what is the change in kinetic energy of the body?

Options :

1. ✔ 15 J

2. ✘ 12 J

3. ✘ 18 J

4. ✘ 20 J

Question Number : 62 Question Id : 89040114674 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

At her maximum height a girl in a swing is 3m above the ground and at the lowest point she is 2m above the ground. Her maximum velocity is

Options :

1. ✘ $\sqrt{29.4}$ m/s

2. ✘ $\sqrt{9.8}$ m/s

3. ✔ $\sqrt{19.6}$ m/s

4. ✘ 9.8 m/s

Question Number : 63 Question Id : 89040114675 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

An engine delivers 1000 watt of power with 80% efficiency. The input power is

Options :

1. ✗ 800 W

2. ✗ 1000 W

3. ✓ 1250 W

4. ✗ 1500 W

Question Number : 64 Question Id : 89040114676 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a seconds pendulum on the earth is taken to a planet whose gravity is half of the gravity on earth , its time period on that planet is

Options :

1. ✗ 2 sec

2. ✗ 4 sec

3. ✗ $4\sqrt{2}$ sec

4. ✓ $2\sqrt{2}$ sec

Question Number : 65 Question Id : 89040114677 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amplitude of a simple harmonic oscillator is A. When the velocity of particle is half of its maximum velocity, then its position is at

Options :

1. ✗ $\dfrac{A}{2}$

2. ✗

$$\frac{\sqrt{3}\,A}{4}$$

3. ✖ $\frac{A}{4}$

4. ✔ $\frac{\sqrt{3}\,A}{2}$

Question Number : 66 Question Id : 89040114678 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The displacement of a particle executing SHM is $x = 3\sin 2t + 4\cos 2t$.

The amplitude of particle is

Options :

1. ✖ 7

2. ✖ 3

3. ✖ 4

4. ✔ 5

Question Number : 67 Question Id : 89040114679 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The beats are produced by two sound sources of same amplitude and of nearly

equal frequencies. The maximum intensity of beats will be _____ when

compared to that of one source is

Options :

1. ✖ Same

2. ✖ Double

3. ✔ Four times

4. ✘ Eight times

Question Number : 68 Question Id : 89040114680 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A siren emitting sound of frequency 800 Hz is going away from a static listener

with a speed of 30 m/s. Frequency of sound heard by the listener is

(Velocity of sound in air = 340 m/s)

Options :

1. ✘ 286.5 Hz

2. ✘ 418.2 Hz

3. ✔ 733.3 Hz

4. ✘ 644.5 Hz

Question Number : 69 Question Id : 89040114681 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During the melting of a slab of ice at 273K at atmospheric pressure

Options :

1. ✘ Positive work is done by the ice-water system on the atmosphere

2. ✔ Positive work is done on the ice-water system by the atmosphere

3. ✘ Negative work is done on the ice-water system by the atmosphere

4. ✘ The internal energy of the ice-water system decreases

Question Number : 70 Question Id : 89040114682 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A gas is compressed at a constant pressure of 50 N/m^2 from a volume of 10 m^3 to a volume of 4 m^3. Energy of 100 J is then added to the gas by heating. Its internal energy is

Options :

1. ✔ Increases by 400 J

2. ✘ Increases by 200 J

3. ✘ Increases by 100 J

4. ✘ Decreases by 200 J

Question Number : 71 Question Id : 89040114683 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A vessel containing 10 liters of an ideal gas at a pressure of 760 mm of Hg is connected to an evacuated 9 liter vessel. The resultant pressure is

Options :

1. ✔ 400 mm of Hg

2. ✘ 1440 mm of Hg

3. ✘ 40 mm of Hg

4. ✘ 760 mm of Hg

Question Number : 72 Question Id : 89040114684 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A sealed glass jar is full of water. When its temperature is decreased to 0° C

Options :

1. ✖ The glass jar remains as it is with ice

2. ✖ The glass jar remains as it is with water

3. ✖ Glass jar contains half the amount of ice mixed with water

4. ✔ The glass jar breaks due to the formation of ice

Question Number : 73 Question Id : 89040114685 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A bubble rises from the bottom of a lake 90 m deep on reaching the surface, its volume becomes (Atmospheric pressure is 10 m of water)

Options :

1. ✖ 4 times

2. ✖ 8 times

3. ✔ 10 times

4. ✖ 3 times

Question Number : 74 Question Id : 89040114686 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An endoscope is employed by a physician to view the internal parts of a body organ. It is based on the principle of

Options :

1. ✖ Refraction

2. ✖ Reflection

3. ✖ Dispersion

4. ✔ Total internal reflection

Question Number : 75 Question Id : 89040114687 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Light of wavelength 5000 A° falls on a sensitive plate with photo electric work

function of 1.9 eV. The kinetic energy of the emitted photoelectron will be

Options :

1. ✔ 0.58 eV

2. ✖ 2.48 eV

3. ✖ 1.24 eV

4. ✖ 1.16 eV

Chemistry

Section Id :	890401289
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401313

Question Number : 76 Question Id : 89040114688 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 1 to Z=20. The number of

elements with only one unpaired electron in their ground state is

Options :

1. ✖ 10

2. ✖ 6

3. ✔ 8

4. ✖ 12

Question Number : 77 Question Id : 89040114689 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the orbital which has lobes not orienting on the axis

Options :

1. ✖ P_x

2. ✖ P_y

3. ✖ $d_{x^2-y^2}$

4. ✔ d_{yz}

Question Number : 78 Question Id : 89040114690 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If n, l, m and s represent the symbols of quantum numbers, the impossible

quantum number set for the electron in terms of n, l, m and s respectively is

Options :

1. ✔ 2, 0, -1, +1/2

2. ✘ 3, 0, 0, -1/2

3. ✘ 4, 1, +1, +1/2

4. ✘ 3, 2, -1, -1/2

Question Number : 79 Question Id : 89040114691 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 8, 9, 11, 19 and 20. The number

of ionic compounds possible with the elements having these atomic numbers is

Options :

1. ✔ 6

2. ✘ 5

3. ✘ 10

4. ✘ 8

Question Number : 80 Question Id : 89040114692 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which of the molecules lone pair, bond pair of electrons ratio is 2:3 ?

Options :

1. ✖ Cl_2

2. ✖ O_2

3. ✖ HCl

4. ✔ N_2

Question Number : 81 Question Id : 89040114693 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many moles of urea is present in 250 ml of 0.2 M solution of it?

Options :

1. ✖ 0.03

2. ✖ 0.04

3. ✔ 0.05

4. ✖ 0.06

Question Number : 82 Question Id : 89040114694 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

x ml of 0.1 M NaOH solution is diluted with distilled water to get 250 ml of 0.01 M solution.

The value of x (in ml) is

Options :

1. ✖ 12.5

2. ✔ 25

3. ✖ 37.5

4. ✖ 50

Question Number : 83 Question Id : 89040114695 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

3×10^{22} molecules of Na_2CO_3 (molecular weight = 106) present in 500 ml of solution.

The normality of the solution formed is $(N = 6 \times 10^{23} \text{ mol}^{-1})$

Options :

1. ✖ 0.1 N

2. ✔ 0.2 N

3. ✖ 0.4 N

4. ✖ 0.05 N

Question Number : 84 Question Id : 89040114696 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair containing only Lewis acids

Options :

1. ✔ BF_3, NH_3

2. ✖ H^+, BF_3

3. ✖ F^-, H_2O

4. ✖ NH_4^+, NH_3

Question Number : 85 Question Id : 89040114697 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

4 g of NaOH is dissolved in 1.0 L solution. The pH of solution is

Options :

1. ✔ 13

2. ✘ 1

3. ✘ 12

4. ✘ 7.4

Question Number : 86 Question Id : 89040114698 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Number of coulombs corresponding to 1 mol of electrons approximately is equal to

Options :

1. ✘ 1.93×10^5

2. ✔ 9.65×10^4

3. ✘ 1.93×10^4

4. ✘ 9.65×10^5

Question Number : 87 Question Id : 89040114699 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Aqueous solution of which of the following does not act as electrolyte?

Options :

1. ✔ Urea

2. ✘ Copper Sulphate

3. ✘ Silver Nitrate

4. ✘ Sodium Chloride

Question Number : 88 Question Id : 89040114700 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amount of silver (in mg) deposited when 9.65 coulombs of electricity is passed through

an aqueous solution of silver nitrate is (Ag=108 u) (1F=96500 C mol^{-1})

Options :

1. ✘ 16.2

2. ✘ 21.2

3. ✔ 10.8

4. ✘ 6.4

Question Number : 89 Question Id : 89040114701 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The standard electrode potentials of Zn, Ag and Cu are -0.76, +0.80 and +0.34 V

respectively. Identify the correct statement from the following.

Options :

1. ✘ Ag can oxidize Zn and Cu

2. ✖ Ag can reduce Zn^{2+} and Cu^{2+}

3. ✔ Zn can reduce Ag^+ and Cu^{2+}

4. ✖ Cu can oxidize Zn and Ag

Question Number : 90 Question Id : 89040114702 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the removal of permanent hardness of water by permutit process, Na^+ ions of permutit are exchanged with which ions of water ?

Options :

1. ✖ K^+, Ba^{2+}

2. ✖ Fe^{2+}, K^+

3. ✔ Ca^{2+}, Mg^{2+}

4. ✖ Zn^{2+}, Cu^{2+}

Question Number : 91 Question Id : 89040114703 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the degree of hardness (in ppm) of a sample containing 19 mg of $MgCl_2$ (Molecular Weight = 95) in 2 kg water sample? (express it in terms of equivalents of $CaCO_3$)

Options :

1. ✔ 10

2. ✖ 20

3. ✗ 30

4. ✗ 40

Question Number : 92 Question Id : 89040114704 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of chlorides responsible for permanent hardness of water.

Options :

1. ✗ NaCl, KCl

2. ✗ $CaCl_2$, KCl

3. ✗ $AlCl_3$, $MgCl_2$

4. ✓ $MgCl_2$, $CaCl_2$

Question Number : 93 Question Id : 89040114705 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The cell formed in bent pipes is an example of

Options :

1. ✗ Concentration Cell

2. ✗ Composition Cell

3. ✓ Stress Cell

4. ✗ Electrolytic Cell

Question Number : 94 Question Id : 89040114706 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Tarnishing of silver is due to formation of

Options :

1. ✖ Its sulphate layer

2. ✖ Its nitrate layer

3. ✔ Its sulphide layer

4. ✖ Its chloride layer

Question Number : 95 Question Id : 89040114707 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a co-polymer?

Options :

1. ✖ Buna-S rubber

2. ✔ Neoprene rubber

3. ✖ Bakelite

4. ✖ Urea – Formaldehyde

Question Number : 96 Question Id : 89040114708 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The monomer involved in the formation of polystyrene is

Options :

1. ✖ $CH_2 = CH - Cl$

2. ✖ $CH_2 = CH - CN$

3. ✔ $CH_2 = CH - C_6H_5$

4. ✖ $CH_2 = CH - CH_3$

Question Number : 97 Question Id : 89040114709 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

We can overcome the undesirable properties of natural rubber by heating natural rubber with

Options :

1. ✖ Carbon

2. ✔ Sulphur

3. ✖ Phosphorus

4. ✖ Silicon

Question Number : 98 Question Id : 89040114710 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Liquefied petroleum gas (LPG) mainly contains

Options :

1. ✖ Methane, Ethane

2. ✖ Ethane, Propane

3. ✔ Butane, Isobutane

4. ✖ Ethene, Ethyne

Question Number : 99 Question Id : 89040114711 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Greenhouse effect is caused by

Options :

1. ✖ NO_2

2. ✖ CO

3. ✖ NO

4. ✔ CO_2

Question Number : 100 Question Id : 89040114712 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which compound is mainly responsible for the depletion of ozone layer?

Options :

1. ✖ CO_2

2. ✖ CH_4

3. ✖ CH_3OH

4. ✔ CF_2Cl_2

Electrical and Electronics Engineering

Section Id :   890401290

Question Number : 101 Question Id : 89040114713 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two resistors R_1 and R_2 give combined resistance of 4.5 Ω when in series and 1 Ω when in parallel. The resistances are _____

Options :

1. ✖ 2 Ω and 2.5 Ω

2. ✖ 1 Ω and 3.5 Ω

3. ✔ 1.5 Ω and 3 Ω

4. ✖ 4 Ω and 0.5 Ω

Question Number : 102 Question Id : 89040114714 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Three resistances each of R Ω are connected to form a triangle. The resistance between any two terminals will be _____

Options :

1. ✖ R Ω

2. ✖ 3/2 R Ω

3. ✗ 3R Ω

4. ✓ 2/3 R Ω

Question Number : 103 Question Id : 89040114715 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Cells are connected in parallel in order to increase the _____

Options :

1. ✗ Life of the cells

2. ✗ Efficiency

3. ✓ Current capacity

4. ✗ Voltage rating

Question Number : 104 Question Id : 89040114716 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to Faraday's law of electromagnetic induction an emf is induced in a conductor whenever it

Options :

1. ✗ Lies in a magnetic field

2. ✗ Lies perpendicular to the magnetic field

3. ✓ Cuts the magnetic flux

4. ✗ Moves parallel to the direction of magnetic field

Question Number : 105 Question Id : 89040114717 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following relation is not correct?

Options :

1. ✔ $P = \dfrac{V}{R^2}$

2. ✖ $P = VI$

3. ✖ $I = \sqrt{\dfrac{P}{R}}$

4. ✖ $V = \sqrt{PR}$

Question Number : 106 Question Id : 89040114718 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Diamagnetic material possess

Options :

1. ✖ Permanent diploes

2. ✔ Induced dipoles

3. ✖ Both permanent and induced dipoles

4. ✖ Neither permanent nor induced dipoles

Question Number : 107 Question Id : 89040114719 Question Type : MCQ Option Shuffling : No

When a dielectric is subjected to an alternating electric field of angular frequency 'ω', its power loss is proportional to _____

Options :

1. ✔ ω

2. ✖ ω^2

3. ✖ $1/\omega$

4. ✖ $1/\omega^2$

Question Number : 108 Question Id : 89040114720 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The principle of dynamically induced emf is utilized in _____

Options :

1. ✖ Transformer

2. ✖ Choke

3. ✔ Generator

4. ✖ Thermocouple

Question Number : 109 Question Id : 89040114721 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Wave winding is employed in a DC machine of _____

Options :

1. ✗ High current and low voltage rating

2. ✓ Low current and high voltage rating

3. ✗ High current and high voltage rating

4. ✗ Low current and low voltage rating

Question Number : 110 Question Id : 89040114722 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a 4 pole, 25 kW, 200 V wave wound DC shunt generator the current in each parallel path will be _____

Options :

1. ✓ 62.5 A

2. ✗ 125 A

3. ✗ 31.25 A

4. ✗ 250 A

Question Number : 111 Question Id : 89040114723 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following DC generators will be in a position to build up without

any residual magnetism in the field?

Options :

1. ✗ Series

2. ✗ Shunt

3. ✔ Separately excited

4. ✘ Compound

Question Number : 112 Question Id : 89040114724 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following DC motors, on removal of load will run at the maximum speed?

Options :

1. ✔ Series

2. ✘ Shunt

3. ✘ Cumulative compound

4. ✘ Differential compound

Question Number : 113 Question Id : 89040114725 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 4-point starter is used to start and control speed of a _____

Options :

1. ✘ DC shunt motor with armature resistance control

2. ✔ DC shunt motor with field weakening control

3. ✘ DC series motor

4. ✘ DC compound motor

Question Number : 114 Question Id : 89040114726 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

DC machines are generally designed for maximum efficiency around

Options :

1. ✔ Full load

2. ✖ 10%

3. ✖ 50%

4. ✖ 25%

Question Number : 115 Question Id : 89040114727 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following tests can be conducted on other than shunt machines?

Options :

1. ✖ Swinburne's test

2. ✖ Retardation test

3. ✔ Field's test

4. ✖ Back to back test

Question Number : 116 Question Id : 89040114728 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Moving iron and PMMC instruments can be distinguished from each other by looking at

Options :

1. ✖ Pointer

2. ✖ Terminal size

3. ✔ Scale

4. ✖ Scale range

Question Number : 117 Question Id : 89040114729 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Dynamometer type wattmeters are suitable for

Options :

1. ✔ Both AC and DC circuits

2. ✖ Only AC circuits

3. ✖ Only DC circuits

4. ✖ Only high voltage AC circuits

Question Number : 118 Question Id : 89040114730 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Measuring and balancing thermocouples are used in a

Options :

1. ✖ Peak responding volt meter

2. ✖ Peak to peak responding volt meter

3. ✖ Average responding volt meter

4. ✔ RMS responding volt meter

Question Number : 119 Question Id : 89040114731 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An integrating DVM measures

Options :

1. ✖ Peak value of input voltage

2. ✖ RMS value of input voltage

3. ✔ True average of the input voltage

4. ✖ Variance of the input voltage

Question Number : 120 Question Id : 89040114732 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Power factor of a practical inductor is

Options :

1. ✖ Unity

2. ✖ Zero

3. ✔ Lagging

4. ✖

Leading

Question Number : 121 Question Id : 89040114733 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a AC series RLC circuit, the voltage across R and L is 20 V, voltage across L

and C is 9 V and voltage across RLC is 15 V. What is the voltage across 'C'?

Options :

1. ✔ 7 V

2. ✖ 12 V

3. ✖ 16 V

4. ✖ 21 V

Question Number : 122 Question Id : 89040114734 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The rated voltage of a 3-phase power system is given as

Options :

1. ✖ RMS phase voltage

2. ✖ Peak phase voltage

3. ✔ RMS line-to-line voltage

4. ✖ Peak line-to-line voltage

Question Number : 123 Question Id : 89040114735 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Resonant frequency f_r of a series RLC circuit is related to half power frequencies f_1 and f_2 as _____

Options :

1. ✔ $$f_r = \frac{f_1 + f_2}{2}$$

2. ✖ $$f_r = \sqrt{f_1 f_2}$$

3. ✖ $$f_r = f_2 - f_1$$

4. ✖ $$f_r = \sqrt{f_1} + \sqrt{f_2}$$

Question Number : 124 Question Id : 89040114736 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

W_1 and W_2 are the readings of two watt meters used to measure power of a 3-phase balanced load. The reactive power drawn by the load is

Options :

1. ✖ $$W_1 + W_2$$

2. ✖ $$W_1 - W_2$$

3. ✖ $$\sqrt{3}(W_1 + W_2)$$

4. ✔ $$\sqrt{3}(W_1 - W_2)$$

Question Number : 125 Question Id : 89040114737 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The main purpose of performing open circuit test on a transformer is to measure its

Options :

1. ✖ Copper loss

2. ✔ Core loss

3. ✖ Total loss

4. ✖ Insulation resistance

Question Number : 126 Question Id : 89040114738 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Why is the core of the transformer built up of laminations?

Options :

1. ✔ To reduce eddy current loss

2. ✖ For convenience of fabrication

3. ✖ No specific advantage

4. ✖ For increasing the permeability

Question Number : 127 Question Id : 89040114739 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Transformers are rated in kVA instead of kW because

Options :

1. ✖ Load pf is often not known

2. ✖ kVA is fixed where kW depends on load pf

3. ✔ Total transformer loss depends on volt-amperes

4. ✖ It has become customary

Question Number : 128 Question Id : 89040114740 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Addition of tubes to the transformer tank improves heat dissipation capacity because of

Options :

1. ✔ Additional cooling surface

2. ✖ Additional dissipation by radiation only

3. ✖ Additional dissipation by convection only

4. ✖ Additional dissipation by radiation and convection both

Question Number : 129 Question Id : 89040114741 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the parallel operation of transformers, which of the following condition

must be satisfied?

Options :

1. ✖ Same voltage ratios

2. ✔ Must be connected in proper polarities

3. ✖ R_e/X_e ratio should be the same

4. ✖ Same kVA rating

Question Number : 130 Question Id : 89040114742 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following 3-phase connections of a transformer causes interference to the nearby communication systems?

Options :

1. ✖ Delta-star

2. ✖ Star-delta

3. ✔ Star-star

4. ✖ Delta-delta

Question Number : 131 Question Id : 89040114743 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In an auto-transformer, power is transferred through

Options :

1. ✖ Conduction process only

2. ✖ Induction process only

3. ✔ Both conduction and induction processes

4. ✖ Mutual coupling

Question Number : 132 Question Id : 89040114744 Question Type : MCQ Option Shuffling : No

Alternator operates on the principle of

Options :

1. ✔ Electromagnetic induction

2. ✖ Self-induction

3. ✖ Mutual induction

4. ✖ Self or mutual induction

Question Number : 133 Question Id : 89040114745 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Two mechanically coupled alternators deliver power at 50 Hz and 60 Hz respectively. The highest speed of the alternators is

Options :

1. ✖ 3600 rpm

2. ✖ 3000 rpm

3. ✔ 600 rpm

4. ✖ 500 rpm

Question Number : 134 Question Id : 89040114746 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The zero power factor characteristic for the Potier diagram can be obtained by loading the alternator using

Options :

1. ✖ Lamp load

2. ✔ Synchronous motor

3. ✖ Water load

4. ✖ DC motor

Question Number : 135 Question Id : 89040114747 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 10 pole, 25 Hz alternator is directly coupled to and is driven by 60 Hz synchronous motor. What is the number of poles for the synchronous motor?

Options :

1. ✖ 48

2. ✖ 12

3. ✔ 24

4. ✖ 16

Question Number : 136 Question Id : 89040114748 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the field of a synchronous motor is under excited, the power factor will be

Options :

1. ✔ Lagging

2. ✖ Leading

3. ✖ Unity

4. ✖ More than unity

Question Number : 137 Question Id : 89040114749 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When does a synchronous motor operate with leading power factor current?

Options :

1. ✖ While it is under excited

2. ✖ While it is critically excited

3. ✔ While it is over excited

4. ✖ While it is heavily loaded

Question Number : 138 Question Id : 89040114750 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The principle of operation of a 3-phase induction motor is almost similar to that of

Options :

1. ✖ Synchronous motor

2. ✖ Repulsion start induction motor

3. ✔ Transformer with a shorted secondary

4. ✖ Capacitor start induction motor

Question Number : 139 Question Id : 89040114751 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The relationship between rotor frequency 'f₂', slip 's' and the rotor supply frequency 'f₁' is given by

Options :

1. ✗ $f_1 = sf_2$

2. ✔ $f_2 = sf_1$

3. ✗ $f_2 = f_1(1-s)$

4. ✗ $f_2 = s\sqrt{f_1}$

Question Number : 140 Question Id : 89040114752 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The torque developed in an induction motor is nearly proportional to

Options :

1. ✗ $1/V$

2. ✗ V

3. ✔ V^2

4. ✗ V^3

Question Number : 141 Question Id : 89040114753 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following starting method for an induction motor is inferior from the point of view of poor starting torque per ampere of the line current drawn ?

Options :

1. ✖ Direct online starting

2. ✖ Auto transformer method of starting

3. ✔ Series inductor method of starting

4. ✖ Star-delta method of starting

Question Number : 142 Question Id : 89040114754 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A capacitor start single phase induction motor is used for

Options :

1. ✖ Easy to start loads

2. ✖ Medium start loads

3. ✔ Hard to start loads

4. ✖ Any type of start loads

Question Number : 143 Question Id : 89040114755 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A universal motor is one which has

Options :

1. ✖

Constant speed

2. ✖ Constant output

3. ✔ Capability of operating both on AC and DC with comparable performance

4. ✖ Maximum efficiency

Question Number : 144 Question Id : 89040114756 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In thermal power plants, the pressure in the working fluid cycle is developed by

Options :

1. ✖ Condenser

2. ✖ Super heater

3. ✔ Feed water pump

4. ✖ Turbine

Question Number : 145 Question Id : 89040114757 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a nuclear reactor, chain reaction is controlled by introducing

Options :

1. ✖ Iron rods

2. ✔ Cadmium rods

3. ✖ Graphite rods

4. ✖ Brass rods

Question Number : 146 Question Id : 89040114758 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Diversity factor in a power system is

Options :

1. ✖ Always less than unity

2. ✖ Normally less than unity

3. ✔ Always more than unity

4. ✖ Either less than unity or more than unity

Question Number : 147 Question Id : 89040114759 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Maximum demand tariff is generally not applied to the domestic consumers owing to their

Options :

1. ✔ Low maximum demand

2. ✖ Low load factor

3. ✖ Low power factor

4. ✖ Low energy consumption

Question Number : 148 Question Id : 89040114760 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a consumer the most economical power factor is usually

Options :

1. ✖ 0.25-0.5 lagging

2. ✖ 0.25-0.5 leading

3. ✔ 0.85-0.95 lagging

4. ✖ 0.85-0.95 leading

Question Number : 149 Question Id : 89040114761 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The arc voltage in a circuit breaker is

Options :

1. ✔ In phase with the arc current

2. ✖ Lagging the arc current by 90^0

3. ✖ Leading the arc current by 90^0

4. ✖ Lagging the arc current by 180^0

Question Number : 150 Question Id : 89040114762 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A distance relay is said to be inherently directional if its characteristics on R-X diagram

Options :

1. ✖ Is a straight line off-set from the origin

2. ✔ Is a circle that passes through the origin

3. ✖ Is a circle that encloses the origin

4. ✖ Always a separate directional relay is required

Question Number : 151 Question Id : 89040114763 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the protection of stator winding of an alternator against internal fault involving ground, the relay used is a

Options :

1. ✔ Biased differential relay

2. ✖ Directional overcurrent relay

3. ✖ Plain impedance relay

4. ✖ Buchholz relay

Question Number : 152 Question Id : 89040114764 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Overhead ground wires are used to protect a transmission line against

Options :

1. ✖ Line to ground faults

2. ✖ Arcing earths

3. ✔ Voltage surges due to direct lightning stroke

4. ✘ High voltage oscillations due to switching

Question Number : 153 Question Id : 89040114765 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following neutral systems will require the lightning arrester of least voltage rating?

Options :

1. ✘ Insulated

2. ✔ Solidly earthed

3. ✘ Resistance earthed

4. ✘ Reactance earthed

Question Number : 154 Question Id : 89040114766 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The highest transmission voltage used in India is

Options :

1. ✘ 400 kV

2. ✘ 220 kV

3. ✘ 132 kV

4. ✔ 765 kV

Question Number : 155 Question Id : 89040114767 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The inductance of a transmission line is minimum when

Options :

1. ✖ GMD is high

2. ✖ GMR is high

3. ✖ Both GMD and GMR are high

4. ✔ GMD is low and GMR is high

Question Number : 156 Question Id : 89040114768 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The values of A, B, C and D constants for a short transmission line are respectively

Options :

1. ✖ Z, 0, 1 and 1

2. ✖ 0, 1, 1 and Z

3. ✔ 1, Z, 0 and 1

4. ✖ 1, 1, Z and 0

Question Number : 157 Question Id : 89040114769 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Transmission efficiency of a transmission line increases with the

Options :

1. ✖ Decrease in power factor and voltage

2. ✔ Increase in power factor and voltage

3. ✖ Increase in power factor but decrease in voltage

4. ✖ Increase in voltage but decrease in power factor

Question Number : 158 Question Id : 89040114770 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The chances of occurrence of corona are maximum during

Options :

1. ✔ Humid weather

2. ✖ Dry weather

3. ✖ Winter

4. ✖ Hot summer

Question Number : 159 Question Id : 89040114771 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a HVDC system

Options :

1. ✖ Both generation and distribution are DC

2. ✖

Generation is AC and distribution is DC

3. ✗ Generation is DC and distribution is AC

4. ✓ Both generation and distribution are AC

Question Number : 160 Question Id : 89040114772 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Effect of temperature rise in overhead lines is to

Options :

1. ✓ Increase the sag and decrease the tension

2. ✗ Decrease the sag and increase the tension

3. ✗ Increase both sag and tension

4. ✗ Decrease both sag and tension

Question Number : 161 Question Id : 89040114773 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of discs in a string of insulators for 400 kV AC overhead transmission line lies in the range of

Options :

1. ✗ 32 to 33

2. ✓ 22 to 23

3. ✗ 15 to 16

4. ✖ 9 to 10

Question Number : 162 Question Id : 89040114774 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Paper as an insulating material has the main drawback that it

Options :

1. ✔ Is hygroscopic

2. ✖ Has poor dielectric strength

3. ✖ Has low insulation resistivity

4. ✖ Has high capacitance

Question Number : 163 Question Id : 89040114775 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a distribution system, which of the following items shares the major cost?

Options :

1. ✖ Conductors

2. ✖ Earthing system

3. ✔ Distribution transformer

4. ✖ Insulators

Question Number : 164 Question Id : 89040114776 Question Type : MCQ Option Shuffling : No

The locomotive that has the highest operational availability is

Options :

1. ✖ Diesel-electric

2. ✔ Electric

3. ✖ Steam

4. ✖ Steam-electric

Question Number : 165 Question Id : 89040114777 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The composite system (single phase AC to DC system) has been chosen for all

future track electrification in India as

Options :

1. ✖ It needs light overhead catenary

2. ✖ It needs less number of substations

3. ✔ It combines the advantages of high voltage AC distribution at 50 Hz with DC series traction motors

4. ✖ It provides flexibility in the location of substations

Question Number : 166 Question Id : 89040114778 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Trapezoidal speed-time curve pertains to

Options :

1. ✔ Main line service

2. ✘ Urban service

3. ✘ Suburban service

4. ✘ Urban and suburban service

Question Number : 167 Question Id : 89040114779 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The speed of train estimated taking into account the stoppage time at a station in

addition to the actual running time between stops, is called the _____ speed

Options :

1. ✘ Average

2. ✔ Schedule

3. ✘ Free running

4. ✘ Notching

Question Number : 168 Question Id : 89040114780 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Skidding of a vehicle always occurs when

Options :

1. ✔ Braking efforts exceeds its adhesive weight

2. ✖ Brake is applied suddenly

3. ✖ It negotiates a curve

4. ✖ It passes over points and crossings

Question Number : 169 Question Id : 89040114781 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Coefficient of adhesion is the ratio of tractive effort to slip the wheels and

Options :

1. ✖ Dead weight

2. ✖ Accelerating weight

3. ✔ Adhesive weight

4. ✖ Decelerating weight

Question Number : 170 Question Id : 89040114782 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Specific energy consumption is minimum in _____ services

Options :

1. ✔ Main line

2. ✖ Urban

3. ✖ Suburban

4. ✖ Equal for all types

Question Number : 171 Question Id : 89040114783 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The type of DC motor used in electric traction is

Options :

1. ✔ Series

2. ✖ Shunt

3. ✖ Separately excited

4. ✖ AC shunt motor

Question Number : 172 Question Id : 89040114784 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The resistance of earth should be

Options :

1. ✖ Infinite

2. ✖ High

3. ✖ Medium

4. ✔ As minimum as possible

Question Number : 173 Question Id : 89040114785 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The short length of the conductor used to connect the line conductor on one side
of the terminal pole to the line conductor on the other side of the pole is known as

Options :

1. ✔ Jumper

2. ✘ Petticoat

3. ✘ Guard

4. ✘ Guy

Question Number : 174 Question Id : 89040114786 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What will happen when a line conductor of an overhead supply line breaks
down and touches the earth?

Options :

1. ✔ Current will flow to earth

2. ✘ Supply voltage will increase

3. ✘ No current will flow in the conductor

4. ✘ Supply voltage will decrease

Question Number : 175 Question Id : 89040114787 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Lamps in street lighting are all connected in

Options :

1. ✘

Series

2. ✔ Parallel

3. ✘ Series-parallel

4. ✘ End to end

Question Number : 176 Question Id : 89040114788 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Ripple frequency of the output waveform of a full wave rectifier when fed with

a 50 Hz sine wave is

Options :

1. ✘ 25 Hz

2. ✘ 50 Hz

3. ✔ 100 Hz

4. ✘ 200 Hz

Question Number : 177 Question Id : 89040114789 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The primary function of a filter is to

Options :

1. ✘ Minimize AC input variations

2. ✘ Suppress odd harmonics in the rectifier output

3. ✖ Stabilize DC level of the output voltage

4. ✔ Remove ripples from the rectified output

Question Number : 178 Question Id : 89040114790 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Zener diode is used as the main component in DC power supply for

Options :

1. ✖ Rectification

2. ✔ Voltage regulation

3. ✖ Filter action

4. ✖ Amplification

Question Number : 179 Question Id : 89040114791 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An ideal op-amp is an ideal

Options :

1. ✖ Voltage controlled current source

2. ✔ Voltage controlled voltage source

3. ✖ Current controlled current source

4. ✖ Current controlled voltage source

Question Number : 180 Question Id : 89040114792 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Generally, the gain of a transistor amplifier falls at high frequencies due to the

Options :

1. ✔ Internal capacitances of the transistor

2. ✘ Coupling capacitor at the input

3. ✘ Skin effect

4. ✘ Coupling capacitor at the output

Question Number : 181 Question Id : 89040114793 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a Wien bridge oscillator, if the resistances in the positive feedback circuit are

decreased then the frequency

Options :

1. ✘ Decreases

2. ✔ Increases

3. ✘ Remains the same

4. ✘ Fluctuates in an erratic fashion

Question Number : 182 Question Id : 89040114794 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In an R-C phase shift oscillator, the minimum number of R-C networks to be connected in cascade will be

Options :

1. ✖ One

2. ✖ Two

3. ✔ Three

4. ✖ Four

Question Number : 183 Question Id : 89040114795 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The decimal equivalent of the hexadecimal number $(BAD)_{16}$ is

Options :

1. ✖ 111013

2. ✖ 5929

3. ✖ 3416

4. ✔ 2989

Question Number : 184 Question Id : 89040114796 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Three Boolean operators are

Options :

1. ✔ NOT, OR, AND

2. ✖

NOT, NAND, OR

3. ✗   NOR, OR, NOT

4. ✗   NOR, NAND, NOT

Question Number : 185 Question Id : 89040114797 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a sequential circuit, the output state depends upon

Options :

1. ✔   Present as well as past input states

2. ✗   Past input states only

3. ✗   Past output states only

4. ✗   Present input states only

Question Number : 186 Question Id : 89040114798 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many bits will a D/A converter use so that its full scale output voltage is 5

V and its resolution is at the most 10 mV?

Options :

1. ✗   5

2. ✗   7

3. ✔   9

4. ✖ 11

Question Number : 187 Question Id : 89040114799 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

After firing an SCR, the gate pulse is removed. The current in the SCR will

Options :

1. ✔ Remain the same

2. ✖ Immediately fall to zero

3. ✖ Rise up

4. ✖ Rise a little and fall to zero

Question Number : 188 Question Id : 89040114800 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The TRAIC is equivalent to

Options :

1. ✖ Two SCRs connected in parallel

2. ✔ Two SCRs connected in anti-parallel

3. ✖ One SCR, one diode connected in parallel

4. ✖ One diode, one SCR connected in anti-parallel

Question Number : 189 Question Id : 89040114801 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is not correct in regard to UJT?

Options :

1. ✖   It exhibits a negative resistance

2. ✔   It is operated with emitter junction reverse biased

3. ✖   It has no ability to amplify while it has stability to control a large AC power with a small signal

4. ✖   It has one P-N junction and three leads

Question Number : 190 Question Id : 89040114802 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The dv/dt effect in SCR can result in

Options :

1. ✖   Low capacitive charging current

2. ✔   False triggering

3. ✖   Increased junction capacitance

4. ✖   High rate of rise of anode voltage

Question Number : 191 Question Id : 89040114803 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a switching regulator, the control transistor is conducting

Options :

1. ✔ Part of the time

2. ✘ All of the time

3. ✘ Only when the input voltage exceeds a set limit

4. ✘ Only when there is an overload

Question Number : 192 Question Id : 89040114804 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Commutation overlap in the phase controlled AC to DC converter is due to

Options :

1. ✘ Load inductance

2. ✘ Harmonic content of load current

3. ✘ Switching operation in the converter

4. ✔ Source inductance

Question Number : 193 Question Id : 89040114805 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A power chopper coverts

Options :

1. ✘ AC to DC

2. ✔ DC to DC

3. ✖ DC to AC

4. ✖ AC to AC

Question Number : 194 Question Id : 89040114806 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A cycloconverter power electronic equipment is a

Options :

1. ✔ Frequency converter which has no intermediate DC state

2. ✖ Device which converts AC to DC

3. ✖ Device which converts DC to AC

4. ✖ Device which converts DC to DC

Question Number : 195 Question Id : 89040114807 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which one of the following is the main advantage of SMPS over linear power supply?

Options :

1. ✖ No transformer is required

2. ✖ Only one stage of conversion

3. ✖ No filter is required

4. ✔ Low power dissipation

Question Number : 196 Question Id : 89040114808 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a UPS, the solid state switch normally transfer supply within

Options :

1. ✔ 4 ms

2. ✖ 30 ms

3. ✖ 48 ms

4. ✖ 30 s

Question Number : 197 Question Id : 89040114809 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Random access memory holds _____ bytes of storage in 8051

Options :

1. ✖ 124

2. ✔ 128

3. ✖ 324

4. ✖ 126

Question Number : 198 Question Id : 89040114810 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When we add two numbers the destination address must always be

Options :

1. ✖ Some immediate data

2. ✖ Any register

3. ✔ Accumulator

4. ✖ Memory

Question Number : 199 Question Id : 89040114811 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Auto reload mode is allowed in which mode of the timer?

Options :

1. ✖ Mode 0

2. ✖ Mode 1

3. ✔ Mode 2

4. ✖ Mode 3

Question Number : 200 Question Id : 89040114812 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the most common type of peripheral IC used in microprocessor systems?

Options :

1. ✖ DMA controller

2. ✖ Timer IC

3. ✔ Programmable Peripheral Interface (PPI)

4. ✖ UART