

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 :

Electronics and Instrumentation
Engineering 06th May 2025 Shift 2

Subject Name :

Electronics and Instrumentation
Engineering

Creation Date :

2025-05-06 20:31:57

Duration :

180

Total Marks :

200

Display Marks:

No

Share Answer Key With Delivery Engine :

Yes

Change Font Color :

No

Change Background Color :

No

Change Theme :

No

Help Button :

No

Show Reports :

No

Show Progress Bar :

No

Electronics and Instrumentation Engineering

Group Number :

1

Group Id :

89040176

Group Maximum Duration :

0

Group Minimum Duration :

180

Show Attended Group? :

No

Edit Attended Group? :

No

Break time :

0

Group Marks :

200

Mathematics

Section Id :

890401295

Section Number :

1

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401319
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 89040115013 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Order of the matrix $\begin{bmatrix} 1 & 6 \\ 2 & 0 \\ 7 & -1 \end{bmatrix}$ is

Options :

1. ✖ 1×3

2. ✔ 3×2

3. ✖ 2×2

4. ✖ 3×3

Question Number : 2 Question Id : 89040115014 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If two rows (or columns) of a determinant of order 3 are identical then the value of determinant is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ 1

4. ✖ -1

Question Number : 3 Question Id : 89040115015 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Co-factor of -4 in $\begin{vmatrix} 1 & 2 & 3 \\ -4 & 3 & 6 \\ 2 & -7 & 9 \end{vmatrix}$ is

Options :

1. ✖ 3

2. ✖ 11

3. ✖ 39

4. ✔ -39

Question Number : 4 Question Id : 89040115016 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Matrix $\begin{bmatrix} a & h & g \\ h & b & f \\ g & f & c \end{bmatrix}$ is

Options :

1. ✖ skew symmetric

2. ✔ Symmetric

3. ✖ symmetric if $a=b$

4. ✖ Skew symmetric if $b=c$

Question Number : 5 Question Id : 89040115017 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$ then $(A^{-1}) =$

Options :

1. ✓ A
2. ✗ $-A$
3. ✗ $-2A$
4. ✗ 0

Question Number : 6 Question Id : 89040115018 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $\deg f(x) \geq \deg g(x)$, then the rational fraction $\frac{f(x)}{g(x)}$ is called

Options :

1. ✗ Polynomial
2. ✗ Proper fraction
3. ✓ Improper fraction
4. ✗ irrational fraction

Question Number : 7 Question Id : 89040115019 Question Type : MCQ Option Shuffling : No
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Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{3x}{x^2+x-2} = \frac{A}{x+2} + \frac{B}{x-1}$ then the ordered pair (A, B) is

Options :

1. ✖ (1, 2)

2. ✖ (-1, 2)

3. ✖ (2, -1)

4. ✔ (2, 1)

Question Number : 8 Question Id : 89040115020 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\tan A = \frac{4}{3}$ then the value of $\cos 2A$ is

Options :

1. ✔ $-\frac{7}{25}$

2. ✖ $-\frac{7}{24}$

3. ✖ $-\frac{24}{7}$

4. ✖ $-\frac{7}{25}$

Question Number : 9 Question Id : 89040115021 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $-1 \leq x \leq 1$, then $\cos^{-1} x + \sin^{-1} x =$

Options :

1. ✖ $-\frac{\pi}{2}$

2. ✖ $\frac{\pi}{4}$

3. ✔ $\frac{\pi}{2}$

4. ✖ $-\frac{\pi}{16}$

Question Number : 10 Question Id : 89040115022 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\sin 15^\circ =$

Options :

1. ✖ $\frac{\sqrt{3}-1}{\sqrt{3}+2}$

2. ✔ $\frac{\sqrt{6}-\sqrt{2}}{4}$

3. ✖ $\sqrt{6} \pm 1$

4. ✖ $\frac{\sqrt{6}+\sqrt{2}}{4}$

Question Number : 11 Question Id : 89040115023 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $2 \cos \theta = x + \frac{1}{x}$ then $2 \cos 3\theta =$

Options :

1. ✖ $x^3 - \frac{1}{x^3}$

2. ✖ $-x^3 + \frac{1}{x^3}$

3. ✔ $x^3 + \frac{1}{x^3}$

4. ✖ $x^2 + \frac{1}{x^3}$

Question Number : 12 Question Id : 89040115024 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In any $\triangle ABC$, $\tan \frac{B+C}{2} =$

Options :

1. ✖ $c \cot \frac{A}{2}$

2. ✔ $\cot \frac{A}{2}$

3. ✖ $\tan \frac{A}{2}$

4. ✖ $\tan \frac{C}{2}$

Question Number : 13 Question Id : 89040115025 Question Type : MCQ Option Shuffling : No

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Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a triangle ΔABC , the value of $\cos\left(\frac{B+C}{2}\right)$ in terms of angle A

Options :

1. ✖ $\sqrt{\sin \frac{A}{2}}$

2. ✖ $\sqrt{A/2}$

3. ✔ $\sin \frac{A}{2}$

4. ✖ $\sqrt{2A}$

Question Number : 14 Question Id : 89040115026 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\sin 45^\circ$ is

Options :

1. ✖ $\sqrt{2}$

2. ✖ 1

3. ✖ 0

4. ✔ $1/\sqrt{2}$

Question Number : 15 Question Id : 89040115027 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a ΔABC , if $a = 13$, $b = 14$ and $c = 15$ then the value of $\tan\left(\frac{A}{2}\right)$ is

Options :

1. ✖ $\frac{1}{4}$

2. ✖ $\frac{3}{4}$

3. ✔ $\frac{1}{2}$

4. ✖ $\frac{1}{6}$

Question Number : 16 Question Id : 89040115028 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a ΔABC , $\sum a^3 \cos(B - C) =$

Options :

1. ✖ $4abc$

2. ✔ $3abc$

3. ✖ $4a+b+c$

4. ✖ abc

Question Number : 17 Question Id : 89040115029 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Principle value of $\cot^{-1}(-1)$ is

Options :

1. ✖ $\frac{2\pi}{3}$

2. ✖ $-\frac{2\pi}{3}$

3. ✖ π

4. ✔ $\frac{3\pi}{4}$

Question Number : 18 Question Id : 89040115030 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$(-1 + 2i) + \left(\frac{1}{2} - i\right) =$$

Options :

1. ✖ $\frac{1}{2} + i$

2. ✖ $-\frac{1}{2} - i$

3. ✔ $-\frac{1}{2} + i$

4. ✖ $\frac{1}{2} \pm i$

Question Number : 19 Question Id : 89040115031 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\text{For any real } \theta, (\cos \theta + i \sin \theta)(\cos \theta - i \sin \theta) =$$

Options :

- 1. ✓ 1
- 2. ✗ -1
- 3. ✗ 0
- 4. ✗ 4i

Question Number : 20 Question Id : 89040115032 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The centre and radius of the circle $x^2 + y^2 - 4x - 8y - 41 = 0$ are

Options :

- 1. ✗ $(1, -2), 5$
- 2. ✗ $(2, 1), 3$
- 3. ✓ $(2, 4), \sqrt{61}$
- 4. ✗ $(1, -2), \sqrt{51}$

Question Number : 21 Question Id : 89040115033 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of common tangents to the circles $x^2 + y^2 - x = 0$ and $x^2 + y^2 + x = 0$ is

Options :

- 1. ✗ 2
- 2. ✗ 1

3. ✖ 4

4. ✔ 3

Question Number : 22 Question Id : 89040115034 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Equation of the circle with centre $(-3, 2)$ and radius 4 is

Options :

1. ✖ $(x^2 + 3)^2 + (y + 2)^2 = 4^2$

2. ✖ $(x - 3)^2 + (y + 2)^2 = 16$

3. ✔ $(x + 3)^2 + (y - 2)^2 = 16$

4. ✖ $(x - 2) + (y + 3)^2 = 4^2$

Question Number : 23 Question Id : 89040115035 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the latus rectum of the parabola $y^2 = 12x$ and the focal distance of the point $(3, -6)$ is

Options :

1. ✖ 3, 4

2. ✖ 2, 6

3. ✖ -12, 6

4. ✔ 12, 6

Question Number : 24 Question Id : 89040115036 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The equation of the Parabola, whose focus is (0,-2) and the vertex is (0,0), is

Options :

1. ✖ $y^2 = 32x$
2. ✔ $x^2 = -8y$
3. ✖ $x^2 = 4y$
4. ✖ $y^2 = -32x$

Question Number : 25 Question Id : 89040115037 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The eccentricity of $x^2 + 2y^2 = 3$ is

Options :

1. ✖ $\frac{1}{\sqrt{2}}$
2. ✖ $\sqrt{2}$
3. ✖ $\pm\sqrt{2}$
4. ✔ $\frac{\sqrt{3}}{2}$

Question Number : 26 Question Id : 89040115038 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx}[e^x(x^2 + 1)] =$$

Options :

1. ✓ $e^x(2x + x^2 + 1)$

2. ✗ $e^x(2x - x^2 + 1)$

3. ✗ $e^x(2x + x^3 + 1)$

4. ✗ $e^{-x}(2x + x^2 + 1)$

Question Number : 27 Question Id : 89040115039 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\text{When } a > 0, \lim_{x \rightarrow 0} \frac{a^x - 1}{x} =$$

Options :

1. ✓ $\log a$

2. ✗ 0

3. ✗ $\log (x-1)$

4. ✗ $\log (x-a)$

Question Number : 28 Question Id : 89040115040 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx} [\tan^{-1} x] =$$

Options :

1. ✓ $\frac{1}{x^2+1}$

2. ✗ $-\frac{1}{x^2-1}$

3. ✗ $\frac{2}{x^2+2}$

4. ✗ $-\frac{1}{x^2+1}$

Question Number : 29 Question Id : 89040115041 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $4x-7y+15=0$ then derivative of y with respect to x is

Options :

1. ✗ $-4/7$

2. ✗ 0

3. ✗ 4

4. ✓ $4/7$

Question Number : 30 Question Id : 89040115042 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $y = \cos x$ then $\frac{d^2y}{dx^2} =$

Options :

1. ✓ $-\cos x$

2. ✗ $-\sin x$

3. ✗ $\cos x$

4. ✗ $\sin x$

Question Number : 31 Question Id : 89040115043 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = e^x \sin y$ then first partial derivative of u with respect to y is

Options :

1. ✗ $e^x \sin y$

2. ✓ $e^x \cos y$

3. ✗ $-e^x \cos y$

4. ✗ 0

Question Number : 32 Question Id : 89040115044 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx} \left(e^{3 \log x} \right) =$$

Options :

1. ✗ $\log x$

2. ✗

3x

3. ✖ x^3

4. ✔ $3x^2$

Question Number : 33 Question Id : 89040115045 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u(x, y) = \sin^{-1} \frac{x}{y} + \tan^{-1} \frac{y}{x}$ then $xu_x + yu_y =$

Options :

1. ✖ $u'(x, y)$

2. ✔ 0

3. ✖ 1

4. ✖ $u(x, y)$

Question Number : 34 Question Id : 89040115046 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $S = 12t - 3t^2$ then $\frac{ds}{dt} =$

Options :

1. ✔ $12 - 6t$

2. ✖ $12t - 6$

3. ✖

$$12 - 3t$$

4. ✖ $12 - 6t^2$

Question Number : 35 Question Id : 89040115047 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

$$\int \cot^2 x \, dx =$$

Options :

1. ✖ $-\cot x + x + c$

2. ✖ $\cot x - x + c$

3. ✖ $\cot^2 x - x + c$

4. ✔ $-\cot x - x + c$

Question Number : 36 Question Id : 89040115048 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

$$\int \frac{1}{\sqrt{a^2 - x^2}} \, dx =$$

Options :

1. ✖ $\log|x + \sqrt{x^2 + a^2}| + c$

2. ✖ $\log|x + \sqrt{x^2 - a^2}| + c$

3. ✔ $\sin^{-1} \frac{x}{a} + c$

4. ✖ $\sin^{-1}x$

Question Number : 37 Question Id : 89040115049 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int e^x \cos x \, dx =$$

Options :

1. ✔ $\frac{1}{2}e^x(\cos x + \sin x) + c$

2. ✖ $\frac{1}{2}e^x \cos x$

3. ✖ $\frac{1}{2}e^x(\cos x + \operatorname{cosec} x) + c$

4. ✖ $\frac{1}{2}e^x(\cos x - \sin x) + c$

Question Number : 38 Question Id : 89040115050 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{\sqrt{x}} =$$

Options :

1. ✖ $-2\sqrt{x} + c$

2. ✖ $\sqrt{x} + c$

3. ✔ $2\sqrt{x} + c$

4. ✖ $x + c$

Question Number : 39 Question Id : 89040115051 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int \sin \frac{y}{2} dy =$$

Options :

1. ✖ $2 \cos \frac{y}{2} + c$

2. ✖ $2 \sin x/2 + c$

3. ✖ $2 \cos 2y + c$

4. ✔ $-2 \cos \frac{y}{2} + c$

Question Number : 40 Question Id : 89040115052 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\pi} dx =$$

Options :

1. ✖ $\frac{\pi}{2}$

2. ✖ $-\frac{\pi}{2}$

3. ✔ π

4. ✖ $\frac{\pi}{8}$

Question Number : 41 Question Id : 89040115053 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $f(x)$ is an even function, then $\int_{-a}^a f(x) dx =$

Options :

1. ✖ $\int_0^a f(x) dx$
2. ✔ $2 \int_0^a f(x) dx$
3. ✖ $2a$
4. ✖ 0

Question Number : 42 Question Id : 89040115054 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The area under the curve $f(x) = \sin x$ in $[0, 2\pi]$ is

Options :

1. ✖ 1
2. ✖ 3
3. ✖ -4
4. ✔ 4

Question Number : 43 Question Id : 89040115055 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

When $a=b$ then $\int_a^b f(x)dx =$

Options :

- 1. ✖ b
- 2. ✔ 0
- 3. ✖ a
- 4. ✖ 2a

Question Number : 44 Question Id : 89040115056 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Order of the differential equation $\left[\frac{d^2y}{dx^2} + \left(\frac{dy}{dx} \right)^3 \right]^{6/5} = 6y$ is

Options :

- 1. ✖ 3
- 2. ✔ 2
- 3. ✖ 6/5
- 4. ✖ 3

Question Number : 45 Question Id : 89040115057 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Integrating factor of $\frac{dy}{dx} + 3x = 2y$ is

Options :

- 1. ✖

e^{3x}

2. ✓ e^{-2x}

3. ✗ e^x

4. ✗ 0

Question Number : 46 Question Id : 89040115058 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Transform $dx + xdy = e^{-y}\sec^2 y \, dy$ into linear form

Options :

1. ✗ $\frac{dx}{dy} - x = e^{-y}\sec^2 y$

2. ✗ $\frac{dx}{dy} = e^{-y}\sec^2 y$

3. ✗ $\frac{dx}{dy} + x = e^{-y}\sec^2 y + c$

4. ✓ $\frac{dx}{dy} + x = e^{-y}\sec^2 y$

Question Number : 47 Question Id : 89040115059 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The necessary and sufficient condition for the differential equation $Mdx + Ndy = 0$ to be exact is

Options :

1. ✗

$$\frac{\partial M}{\partial y} = \frac{\partial N}{\partial y}$$

2. ✓ $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$

3. ✗ $\frac{\partial M}{\partial y} \neq \frac{\partial N}{\partial x}$

4. ✗ $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial x}$

Question Number : 48 Question Id : 89040115060 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Complementary function of the differential equation $(D^3 - 8)y = x$ is

Options :

1. ✗ $c_1 e^{2x} + e^x \{c_2 \cos(x\sqrt{3}) + c_3 \sin x\sqrt{3}\}$

2. ✗ $c_1 e^{2x} + e^{-x} (\cos\sqrt{3} + \sin\sqrt{3})$

3. ✗ $c_1 e^{-2x} + c_2 e^{-x} + c_3 \cos x$

4. ✓ $c_1 e^{2x} + e^{-x} \{c_2 \cos(x\sqrt{3}) + c_3 \sin(x\sqrt{3})\}$

Question Number : 49 Question Id : 89040115061 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Bernoulli's equation is of the form

Options :

1. ✖ $\left(\frac{dy}{dx}\right) + y = Qy$

2. ✖ $\left(\frac{dy}{dx}\right)^2 + y^n = Qy$

3. ✔ $\left(\frac{dy}{dx}\right) + Py = Qy^n$

4. ✖ $\left(\frac{d^2y}{dx^2}\right) + Py = Qy^n$

Question Number : 50 Question Id : 89040115062 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Particular integral of $f(D)y = \cos ax$ is

Options :

1. ✔ $\frac{1}{f(-a^2)} \cos ax$ if $f(-a^2) \neq 0$

2. ✖ $\frac{1}{f(a^2)} \cos ax$ if $f(-a^2) \neq 0$

3. ✖ $\frac{1}{f(a)} \cos ax$ if $f(-a^2) \neq 0$

4. ✖ $\frac{1}{2} \cos ax$ if $f(-a^2) \neq 0$

Physics

Section Id :	890401296
Section Number :	2
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 :	890401320
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 89040115063 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the unit of mass is 1 Kg, the unit of length is 1m and the unit of time is 1 minute,
the unit of pressure in Nm^{-2} is

Options :

1. ✖ $\frac{1}{60}$

2. ✖ 60

3. ✔ $\frac{1}{3600}$

4. ✖ 3600

Question Number : 52 Question Id : 89040115064 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

MLT^{-1} is the dimensional formula for

Options :

1. ✖

Speed

2. ✖ Acceleration

3. ✔ Impulse

4. ✖ Force

Question Number : 53 Question Id : 89040115065 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $|\vec{A} \times \vec{B}| = \sqrt{3} \vec{A} \cdot \vec{B}$ then the value of $|\vec{A} + \vec{B}|$ is

Options :

1. ✔ $(A^2 + B^2 + AB)^{1/2}$

2. ✖ $(A^2 + B^2 + \frac{AB}{\sqrt{2}})^{1/2}$

3. ✖ $A + B$

4. ✖ $(A^2 + B^2 + \sqrt{3}AB)^{1/2}$

Question Number : 54 Question Id : 89040115066 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Of the vectors given below, the parallel vectors are

$$\vec{A} = 6\hat{i} + 8\hat{j} \quad \vec{B} = 210\hat{i} + 280\hat{k} \quad \vec{C} = 5.1\hat{i} + 6.8\hat{j} \quad \vec{D} = 3.6\hat{i} + 8\hat{j} + 48\hat{k}$$

Options :

1. ✔ $\vec{A}$ and $\vec{C}$

2. ✖ $\vec{A}$ and $\vec{B}$

3. ✖ $\vec{A}$ and $\vec{D}$

4. ✖ $\vec{C}$ and $\vec{D}$

Question Number : 55 Question Id : 89040115067 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The position x of a particle with respect to time ' t ' along x - axis is given by $x = 9t^2 - t^3$ where x is in metres and t in seconds. The position of this particle when it achieves maximum speed along the x direction is

Options :

1. ✖ 24 m

2. ✖ 32 m

3. ✔ 54 m

4. ✖ 81 m

Question Number : 56 Question Id : 89040115068 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A ball is projected vertically up with a velocity of 40 ms^{-1} from ground. At the same time another ball is dropped from a height of 100 m. The magnitudes of their velocities are equal after

Options :

1. ✖ 1 s

2. ✓ 2 s

3. ✗ 3 s

4. ✗ 4 s

Question Number : 57 Question Id : 89040115069 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two stones are projected with the same speed but making different angles with the horizontal. Their horizontal ranges are equal. The angle of projection of one is $\pi/3$ and the maximum height reached by it is 102 metres. Then the maximum height reached by the other in metres is

Options :

1. ✗ 336

2. ✗ 224

3. ✗ 56

4. ✓ 34

Question Number : 58 Question Id : 89040115070 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A projectile is thrown into air with velocity u at an angle θ to the horizontal. The time at which its direction of motion is perpendicular to its initial direction is

Options :

1. ✓ $\frac{u}{g \sin \theta}$

2. ✗

$$\frac{u}{g \cos \theta}$$

3. ✖ $\frac{u}{g \tan \theta}$

4. ✖ $\frac{u}{g \cot \theta}$

Question Number : 59 Question Id : 89040115071 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

When a bicycle is in motion and pedalled, the force of friction exerted by ground on the two wheels is such that it acts

Options :

1. ✔ In the backward direction on the front wheel and in the forward direction on the rear wheel
2. ✖ In the forward direction on the front wheel and in the backward direction on the rear wheel
3. ✖ In the backward direction on both the front and rear wheels
4. ✖ In the forward direction on both the front and rear wheels

Question Number : 60 Question Id : 89040115072 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Two blocks of masses 4 Kg and 2 Kg are connected by a heavy string and placed on rough horizontal plane. The 2 Kg block is pulled with a constant force F. The coefficient of friction between the blocks and the ground is 0.5. The value of F so that tension in the string is constant throughout during the motion of the blocks is

Options :

1. ✖

40 N

2. ✓ 30 N

3. ✗ 50 N

4. ✗ 60 N

Question Number : 61 Question Id : 89040115073 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a hydroelectric power station, the height of the dam is 10 m. How many kilograms of water must fall per second on the blades of a turbine in order to generate 1 MW of electrical power? [$g = 10 \text{ m/s}^2$].

Options :

1. ✗ 10^3 Kg/s

2. ✓ 10^4 Kg/s

3. ✗ 10^5 Kg/s

4. ✗ 10^6 Kg/s

Question Number : 62 Question Id : 89040115074 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The kinetic energy at the highest point of the trajectory of a projectile is 200 J. If the mass of the projectile is 1 Kg and the maximum height reached by it is 20 m, then velocity of the projectile from the ground is

Options :

1. ✖ 20 m/s
2. ✖ 10 m/s
3. ✔ $20\sqrt{2}$ m/s
4. ✖ $10\sqrt{2}$ m/s

Question Number : 63 Question Id : 89040115075 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A force applied by an engine on train of mass 2.05×10^6 Kg changes its velocity from 5 m/s to 25 m/s in 5 minutes. The power of the engine is

Options :

1. ✖ 1.025 MW
2. ✔ 2.05 MW
3. ✖ 5 MW
4. ✖ 6 MW

Question Number : 64 Question Id : 89040115076 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two identical wires have a fundamental frequency of 100 Hz when kept under the same tension. If the tension of one of the wires is increased by 21%, the number of beats produced is

Options :

1. ✖ 11

2. ✓ 10

3. ✗ 9

4. ✗ 8

Question Number : 65 Question Id : 89040115077 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body executing S.H.M. has a maximum velocity of 1 ms^{-1} and a maximum acceleration of 4 ms^{-2} . Its amplitude in metres is:

Options :

1. ✗ 1

2. ✗ 0.75

3. ✗ 0.5

4. ✓ 0.25

Question Number : 66 Question Id : 89040115078 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A simple pendulum of length l_1 has frequency $\frac{1}{4}$ Hz and another simple pendulum of length l_2 has frequency $\frac{1}{3}$ Hz. Then time period of pendulum of length $(l_1 + l_2)$ is

Options :

1. ✗ 5 s

2. ✗ 1 s

3. ✓ $\sqrt{7}$ s

4. ✗ $\sqrt{12}$ s

Question Number : 67 Question Id : 89040115079 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A source of sound producing wavelength of 50 cm is moving away from stationary observer with $\frac{1}{5}$ th speed of sound. The wavelength of the sound heard by the observer is

Options :

1. ✗ 70 cm

2. ✗ 55 cm

3. ✗ 40 cm

4. ✓ 60 cm

Question Number : 68 Question Id : 89040115080 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

To have a good sound effect inside a hall

Options :

1. ✗ the hall should not have any sound absorbing material

2. ✗ the reverberation time has to be maximum

3. ✗ the reverberation time has to be zero

4. ✓ the reverberation time has to be optimum

Question Number : 69 Question Id : 89040115081 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the pressure of an ideal gas contained in a closed vessel is increased by 0.5%, the increase in temperature is 2°C . The initial temperature of the gas is

Options :

1. ✗ 27°C

2. ✓ 127°C

3. ✗ 300°C

4. ✗ 400°C

Question Number : 70 Question Id : 89040115082 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During the free expansion of an ideal gas, which of the following physical quantity remains constant

Options :

1. ✓ Temperature

2. ✗ Pressure

3. ✗ Volume

4. ✗ Ratio of pressure to volume

Question Number : 71 Question Id : 89040115083 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The specific heat at constant volume for a monoatomic gas is 0.075 cal/kg/K and its gram molecular specific heat is 3 cal/mol/K . Then mass of one atom of that gas is

Options :

1. ✓ $6.67 \times 10^{-23} \text{ gm}$
2. ✗ $6.67 \times 10^{23} \text{ gm}$
3. ✗ $2 \times 10^{-23} \text{ gm}$
4. ✗ $2 \times 10^{23} \text{ gm}$

Question Number : 72 Question Id : 89040115084 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A rigid diatomic ideal gas undergoes an adiabatic process at room temperature. The relation between temperature and volume of this process is $TV^x = \text{constant}$. Then x is

Options :

1. ✗ $\frac{5}{3}$
2. ✓ $\frac{2}{5}$
3. ✗ $\frac{2}{3}$
4. ✗ $\frac{3}{5}$

Question Number : 73 Question Id : 89040115085 Question Type : MCQ Option Shuffling : No

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Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A carnot engine having an efficiency of $\frac{1}{10}$ as heat engine, is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is

Options :

1. ✖ 100 J

2. ✖ 99 J

3. ✔ 90 J

4. ✖ 80 J

Question Number : 74 Question Id : 89040115086 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two photons of energy 2.5 eV and 3.5 eV fall on a metal surface of work function 1.5 eV.

The ratio of the maximum velocities of the photoelectrons emitted from the metal surface is

Options :

1. ✖ 1 : 4

2. ✖ 2 : 1

3. ✖ 1 : 2

4. ✔ $1 : \sqrt{2}$

Question Number : 75 Question Id : 89040115087 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At critical angle, the angle of refraction is

Options :

1. ✖ 45^0
2. ✔ 90^0
3. ✖ 120^0
4. ✖ 180^0

Chemistry

Section Id :	890401297
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 :	890401321
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 89040115088 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The quantum number which describes the shape of an atomic orbital is indicated by the symbol

Options :

1. ✔ l
2. ✖ ml
3. ✖

4. ✖ 11

Question Number : 77 Question Id : 89040115089 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

“No two electrons in an atom can have the same set of four quantum numbers”.
This is known as

Options :

1. ✖ Pauli's Principle

2. ✔ Hund's Rule

3. ✖ Aufbau Principle

4. ✖ Lewis Rule

Question Number : 78 Question Id : 89040115090 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the elements with atomic number $Z=1$ to $Z=20$,
how many of them have no unpaired electrons in their ground state?

Options :

1. ✖ 8

2. ✖ 4

3. ✖ 10

4. ✔ 6

Question Number : 79 Question Id : 89040115091 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a property of covalent compounds?

Options :

1. ✖ They are generally insoluble in water
2. ✖ They consist of molecules
3. ✖ They exist as solids, liquids or gases
4. ✔ The reactions between them are fast

Question Number : 80 Question Id : 89040115092 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The sum of covalent bonds in H_2 , N_2 and HCl is

Options :

1. ✖ 4
2. ✔ 5
3. ✖ 6
4. ✖ 3

Question Number : 81 Question Id : 89040115093 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

How many grams of NaOH is required to prepare 5.0 litre of 0.1 N solution?

(Given: At. wt: H=1, O=16, Na=23)

Options :

1. ✓ 20

2. ✗ 30

3. ✗ 10

4. ✗ 50

Question Number : 82 Question Id : 89040115094 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A gaseous mixture contains 8g of oxygen, 14 g of nitrogen and 8 g of hydrogen.

Total number of molecules present in the gaseous mixture is

(Given: At. wt: H=1, N=14, O=16, $N_A = 6 \times 10^{23} \text{ mol}^{-1}$)

Options :

1. ✗ 1.43×10^{23}

2. ✗ 2.85×10^{23}

3. ✓ 2.85×10^{24}

4. ✗ 1.85×10^{24}

Question Number : 83 Question Id : 89040115095 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equivalent weight of which of the following is the highest?

Options :

1. ✗ Na_2CO_3 (molecular weight = 106)

2. ✖ H_3PO_4 (molecular weight = 98)
3. ✔ $\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ (molecular weight = 126)
4. ✖ AlCl_3 (molecular weight = 133.5)

Question Number : 84 Question Id : 89040115096 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

At 25°C , ionic product (K_w) of 0.01M HCl solution is

Options :

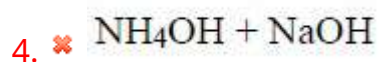
1. ✖ $1.0 \times 10^{-13} \text{ mol}^2/\text{L}^2$
2. ✖ $1.0 \times 10^{-12} \text{ mol}^2/\text{L}^2$
3. ✔ $1.0 \times 10^{-14} \text{ mol}^2/\text{L}^2$
4. ✖ $1.0 \times 10^{-15} \text{ mol}^2/\text{L}^2$

Question Number : 85 Question Id : 89040115097 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following combinations give a buffer solution?

Options :

1. ✖ $\text{HCl} + \text{NaCl}$
2. ✔ $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONa}$



Question Number : 86 Question Id : 89040115098 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A current of 0.5 amp is passed through molten AlCl_3 for 96.5 seconds. The volume of Cl_2 gas liberated at STP at anode (in ml) is ($\text{Cl} = 35.5 \text{ u}$) ($1\text{F} = 96500 \text{ C mol}^{-1}$)

Options :

1. ✖ 11.2

2. ✖ 22.4

3. ✔ 5.6

4. ✖ 33.6

Question Number : 87 Question Id : 89040115099 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amount of substance deposited due to passage of 1F of electricity is called

Options :

1. ✖ Atomic weight

2. ✔ Equivalent weight

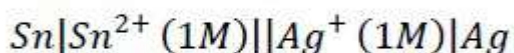
3. ✖ Electrochemical equivalent

4. ✖ Molecular weight

Question Number : 88 Question Id : 89040115100 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the emf of the cell?



[Given $E_{\text{Sn}^{2+}|\text{Sn}}^0 = -0.14V$ and $E_{\text{Ag}^+|\text{Ag}}^0 = +0.80 V$]

Options :

1. ✖ 0.66 V

2. ✖ 0.80 V

3. ✖ 1.08 V

4. ✔ 0.94 V

Question Number : 89 Question Id : 89040115101 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the standard reduction potentials of A,B,C are respectively 0.68V, -2.54V and -0.50 V, then the order of their reducing power is

Options :

1. ✖ A>B>C

2. ✖ A>C>B

3. ✖ C>B>A

4. ✔ B>C>A

Question Number : 90 Question Id : 89040115102 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

With which of the following anions, Mg^{2+} and Ca^{2+} ions form salts responsible for permanent hardness of water?

Options :

1. ✓ Cl^- , SO_4^{2-}
2. ✗ Cl^- , NO_2^-
3. ✗ HCO_3^- , Cl^-
4. ✗ CO_3^{2-} , HCO_3^-

Question Number : 91 Question Id : 89040115103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Exhausted permutit is regenerated by washing with

Options :

1. ✗ Dilute NaOH solution
2. ✓ Dilute NaCl solution
3. ✗ Dilute HCl solution
4. ✗ Dilute AlCl_3 solution

Question Number : 92 Question Id : 89040115104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

27.2 mg of CaSO_4 and 2.4 mg of MgSO_4 are present in a 2 kg water sample.

What is the total hardness of water (in ppm) in terms of equivalents of CaCO_3 ?

(molecular weight of CaSO_4 = 136 & molecular weight of MgSO_4 = 120)

Options :

- 1. ✓ 11
- 2. ✗ 10
- 3. ✗ 20
- 4. ✗ 22

Question Number : 93 Question Id : 89040115105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Statement I: The lower the pH greater is the corrosion

Statement II: Electrochemical Corrosion always occurs at the anodic area.

The correct answer is

Options :

- 1. ✓ Both statement – I and Statement – II are correct
- 2. ✗ Both statement – I and Statement – II are not correct
- 3. ✗ Statement – I is correct but statement – II is not correct
- 4. ✗ Statement – I is not correct but statement – II is correct

Question Number : 94 Question Id : 89040115106 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Rust is chemically

Options :

- 1. ✓ Hydrated Ferric Oxide

2. ✖ Hydrated Copper (II) Chloride

3. ✖ Hydrated Ferrous Sulphate

4. ✖ Hydrated Ferric Sulphate

Question Number : 95 Question Id : 89040115107 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The monomer of Teflon is X. The number of fluorine atoms in X is

Options :

1. ✖ 2

2. ✖ 3

3. ✔ 4

4. ✖ 1

Question Number : 96 Question Id : 89040115108 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Bakelite is an example of

Options :

1. ✖ Thermoplastic Polymer

2. ✖ Elastomer

3. ✖ Fibre

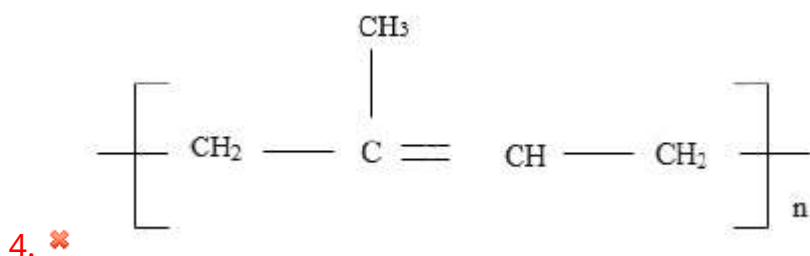
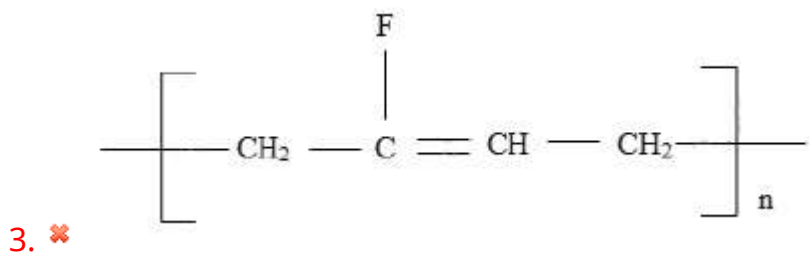
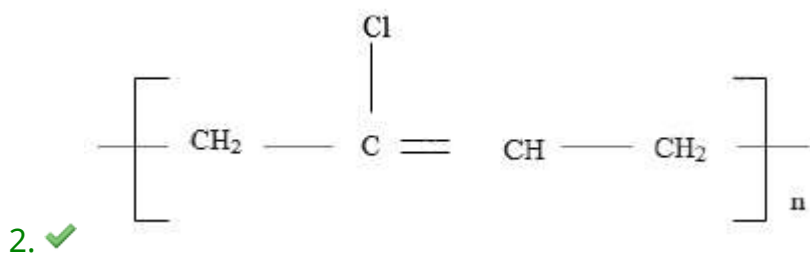
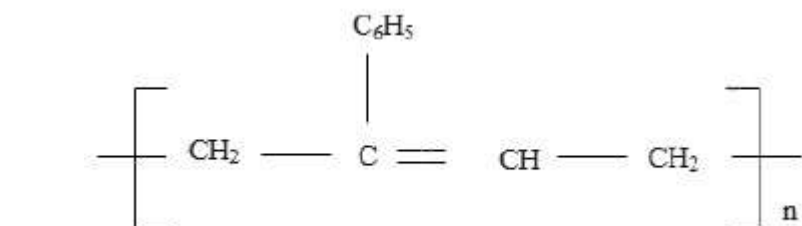
4. ✓ Thermosetting polymer

Question Number : 97 Question Id : 89040115109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The correct structure of neoprene rubber is

Options :



Question Number : 98 Question Id : 89040115110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT regarded as a primary fuel?

Options :

1. ✖ Natural gas
2. ✔ Coal gas
3. ✖ Lignite
4. ✖ Crude oil

Question Number : 99 Question Id : 89040115111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

pH of acid rain water is generally in the range of

Options :

1. ✖ 1.0 - 3.0
2. ✔ 3.5 - 5.6
3. ✖ 5.9 - 6.9
4. ✖ 7.1 - 7.5

Question Number : 100 Question Id : 89040115112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In _____ part of the atmosphere ozone layer is present.

Options :

1. ✖ Troposphere
2. ✖ Thermosphere

3. ✓ Stratosphere

4. ✗ Mesosphere

Electronics and Instrumentation Engineering

Section Id :	890401298
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401322
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 89040115113 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Correct form of Ohm's law is

Options :

1. ✗ $I=VR$

2. ✓ $V \propto I$

3. ✗ $V=I/R$

4. ✗ $P=I^2/R$

Question Number : 102 Question Id : 89040115114 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a part of DC machine?

Options :

1. ✖ Armature
2. ✖ Commutator
3. ✖ Field winding
4. ✔ Damping winding

Question Number : 103 Question Id : 89040115115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 250 V DC generator is run at rated speed with no excitation. The open circuit voltage will be

Options :

1. ✖ Zero
2. ✔ Very small, about 2 or 3 V
3. ✖ About 100 V
4. ✖ 250 V

Question Number : 104 Question Id : 89040115116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The direction of rotation of a DC motor can be determined by

Options :

1. ✖

Fleming's right hand rule

2. ✓ Fleming's left hand rule

3. ✗ Lenz's law

4. ✗ Ampere law

Question Number : 105 Question Id : 89040115117 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The basic function of a transformer is to change

Options :

1. ✓ The level of the voltage

2. ✗ The power level

3. ✗ The power factor

4. ✗ The frequency

Question Number : 106 Question Id : 89040115118 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If N_s is the synchronous speed, N is the rotor speed and 's' is the slip then relation is

Options :

1. ✗ $N_s = (1-s)N$

2. ✗ $N = sN_s$

3. ✖ $N=(s-1)N_s$

4. ✔ $N=N_s(1-s)$

Question Number : 107 Question Id : 89040115119 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is used to detect very weak light intensities?

Options :

1. ✔ Photo multiplier tube

2. ✖ Photovoltaic Cell

3. ✖ Photo emissive tubes

4. ✖ Photo Reflector

Question Number : 108 Question Id : 89040115120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following material is used to make Solar Cell?

Options :

1. ✖ Arsenic

2. ✖ Antimony

3. ✖ Germanium

4. ✔ Silicon

Question Number : 109 Question Id : 89040115121 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following device provides isolation between the input circuit and output circuit?

Options :

1. ✖ Photo transistor
2. ✔ Opto-coupler
3. ✖ LED
4. ✖ Seven segment display

Question Number : 110 Question Id : 89040115122 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The basic principle of Induction heating process is _____

Options :

1. ✖ Faraday's law
2. ✖ Newton's law
3. ✔ Electromagnetic induction
4. ✖ Thermal ion release

Question Number : 111 Question Id : 89040115123 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The frequency of ultrasonic waves is _____

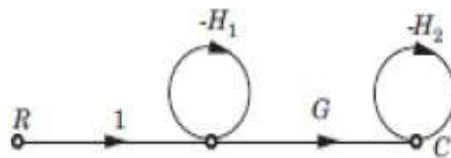
Options :

1. ✖ Less than 20 kHz
2. ✔ More than 20 kHz
3. ✖ Equal to 20 m
4. ✖ More than 200 A

Question Number : 112 Question Id : 89040115124 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The overall transfer function C/R of the system shown in the figure below is ____



Options :

1. ✖ G
2. ✖ $\frac{G}{(1 + H_2)}$
3. ✔ $\frac{G}{(1 + H_1)(1 + H_2)}$
4. ✖ $\frac{G}{(1 + H_1 + H_2)}$

Question Number : 113 Question Id : 89040115125 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The open loop transfer function of a unity feedback system is:

$$G(s) = \frac{50}{(1 + 0.1s)(1 + 2s)}$$

The Position, Velocity and Acceleration error

constants are respectively _____

Options :

1. ✖ 0, 0, 250
2. ✔ 50, 0, 0
3. ✖ 0, 250, ∞
4. ✖ ∞, 50, 0

Question Number : 114 Question Id : 89040115126 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The open loop transfer function of a unity feedback system is:

$$G(s) = \frac{1 + s}{s(1 + 0.5s)}$$

The corner frequencies are _____

Options :

1. ✖ 0 and 2
2. ✖ 1 and 1
3. ✖ 0 and -1
4. ✔ 1 and 2

Question Number : 115 Question Id : 89040115127 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a second order system, the time required for the response to reach steady state value is known as _____

Options :

1. ✖ Rise time
2. ✖ Delay time
3. ✖ Peak time
4. ✔ Settling time

Question Number : 116 Question Id : 89040115128 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following switch is not a manually operated one?

Options :

1. ✔ Cross bar switch
2. ✖ Toggle switch
3. ✖ Thumbwheel switch
4. ✖ Rotary selector switch

Question Number : 117 Question Id : 89040115129 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The rating of fuse wire is always expressed in _____

Options :

1. ✖ Ampere hours

2. ✖ Ampere volts

3. ✔ Amperes

4. ✖ Volts

Question Number : 118 Question Id : 89040115130 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the main purpose of Relay?

Options :

1. ✖ To measure electrical resistance

2. ✖ To filter electrical noise

3. ✖ To amplify electrical signals

4. ✔ To switch electrical circuits on and off

Question Number : 119 Question Id : 89040115131 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A forward biased PN junction diode has a resistance of the order of _____

Options :

1. ✔ Ω

2. ✖ $M\Omega$

3. ✖ $k\Omega$

4. ✖ V

Question Number : 120 Question Id : 89040115132 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A NPN transistor conducts when _____

Options :

1. ✖ Both collector and emitter are positive with respect to the base
2. ✖ Collector is positive and the emitter is at the same potential as the base
3. ✔ Collector is positive and the emitter is negative with respect to the base
4. ✖ Both collector and emitter are negative with respect to the base

Question Number : 121 Question Id : 89040115133 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following device characteristics are very close to that of an ideal voltage source?

Options :

1. ✖ MOSFET
2. ✖ FET
3. ✖ SCR
4. ✔ Zener Diode

Question Number : 122 Question Id : 89040115134 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is the fastest switching device?

Options :

1. ✖ BJT
2. ✔ MOSFET
3. ✖ Triode
4. ✖ JFET

Question Number : 123 Question Id : 89040115135 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a LC filter, the ripple factor _____

Options :

1. ✖ Has the lowest value
2. ✖ Increases with the load current
3. ✖ Increases with the load resistance
4. ✔ Remains constant with the load current

Question Number : 124 Question Id : 89040115136 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Darlington amplifier is a _____

Options :

1. ✖ Cascade of CE and CB amplifiers

2. ✖ Cascade of common source and common gate amplifier
3. ✔ Cascade of two common collector amplifiers
4. ✖ Cascade of two common emitter amplifiers

Question Number : 125 Question Id : 89040115137 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In RC phase shift oscillator minimum _____ no. of RC circuits are needed to create a phase shift of 180°

Options :

1. ✔ Three
2. ✖ Two
3. ✖ One
4. ✖ Five

Question Number : 126 Question Id : 89040115138 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following Amplifier produces least distortion in the output among all the power Amplifiers?

Options :

1. ✖ Class-B
2. ✖ Class-AB
3. ✖ Class-C

4. ✓ Class-A

Question Number : 127 Question Id : 89040115139 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Bistable multivibrator acts like a _____

Options :

1. ✗ Square wave generator

2. ✗ Sine wave generator

3. ✓ Flip flop

4. ✗ Missing pulse detector

Question Number : 128 Question Id : 89040115140 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

2's complement of the 2's complement number is _____

Options :

1. ✗ Equal to 1's complement of the number

2. ✗ Equal to 2's complement of the number

3. ✓ Equal to the number itself

4. ✗ Not possible to execute

Question Number : 129 Question Id : 89040115141 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following logic gates are called universal gates?

Options :

1. ✖ NOT and AND
2. ✖ AND and OR
3. ✖ Ex-OR and Ex-NOR
4. ✔ NAND and NOR

Question Number : 130 Question Id : 89040115142 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Total number of NAND gates required to implement half adder are _____

Options :

1. ✔ 5
2. ✖ 4
3. ✖ 3
4. ✖ 2

Question Number : 131 Question Id : 89040115143 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A full subtractor can be implemented with _____ no. of half subtractors and _____ no. of OR gates

Options :

1. ✖ 3 and 1

2. ✓ 2 and 1

3. ✗ 3 and 2

4. ✗ 1 and 1

Question Number : 132 Question Id : 89040115144 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A flip-flop is also known as _____

Options :

1. ✗ Astable multivibrator

2. ✓ Bistable multivibrator

3. ✗ Monostable multivibrator

4. ✗ 555 timer

Question Number : 133 Question Id : 89040115145 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following flip-flop is called as universal flip-flop?

Options :

1. ✗ D

2. ✗ RS

3. ✗ T

4. ✓

JK

Question Number : 134 Question Id : 89040115146 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

All shift registers are made of _____ flip-flops

Options :

1.  JK

2.  RS

3.  D

4.  T

Question Number : 135 Question Id : 89040115147 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a 4-bit ring counter, the number of used states are _____ and the number of unused states are _____

Options :

1.  4 and 8

2.  4 and 4

3.  4 and 12

4.  2 and 12

Question Number : 136 Question Id : 89040115148 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let ' V_r ' be the reference voltage and ' n ' be the number of bits then the resolution of R-2R ladder network is _____

Options :

1. ✖ V_r/n
2. ✖ $V_r 2^n$
3. ✖ $2V_r/n$
4. ✔ $V_r/2^n$

Question Number : 137 Question Id : 89040115149 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which ADC the conversion time is independent of input analog voltage?

Options :

1. ✖ Counter type
2. ✔ Successive Approximation type
3. ✖ Flash type
4. ✖ Dual slope type

Question Number : 138 Question Id : 89040115150 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A moving coil meter of 50Ω resistance reads up to 25 mA. What is the value of series resistance, so that it can be read up to 10 V?

Options :

1. ✖ 300 Ω

2. ✖ 200 Ω

3. ✖ 400 Ω

4. ✔ 350 Ω

Question Number : 139 Question Id : 89040115151 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a series type ohmmeter the zero adjustment should be done by changing the _

Options :

1. ✖ Value of series resistance

2. ✔ Value of shunt resistance connected across meter movement

3. ✖ Both series as well as shunt resistance

4. ✖ Battery voltage

Question Number : 140 Question Id : 89040115152 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An integrating digital volt meter measures _____

Options :

1. ✔ True average value

2. ✖ RMS value

3. ✖ Peak value

4. ✖ Precision

Question Number : 141 Question Id : 89040115153 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Cathode Ray Oscilloscope uses the principle of _____

Options :

1. ✖ Electronic focusing

2. ✖ Electromagnetic focusing

3. ✔ Electrostatic focusing

4. ✖ Electromechanical focusing

Question Number : 142 Question Id : 89040115154 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In Cathode Ray Oscilloscope, if horizontal and vertical deflecting plates are applied with sinusoidal signal, the wave form pattern appearing on the screen is called _____

Options :

1. ✖ Sinusoidal wave

2. ✖ Square wave

3. ✖ Saw tooth pattern

4. ✔

Lissajous pattern

Question Number : 143 Question Id : 89040115155 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What is the purpose of Aquadag coating in Cathode Ray Tube?

Options :

1. ✖ To maintain non-uniform electric field inside the tube
2. ✔ To collect the electrons after they hit the screen
3. ✖ To improve voltage
4. ✖ To improve sensitivity

Question Number : 144 Question Id : 89040115156 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Q-meter works on the principle of _____

Options :

1. ✖ Parallel resonance
2. ✖ Electromagnetic induction
3. ✔ Series resonance
4. ✖ Hall effect

Question Number : 145 Question Id : 89040115157 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Logic analyzer is used to _____

Options :

1. ✖ Verify the logic operation of the gates in a circuit
2. ✖ Display the fall time
3. ✔ Sample and display systems signal
4. ✖ Analyze the logic operation of the system

Question Number : 146 Question Id : 89040115158 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The transducers which do not need any external power source to produce output are known as

Options :

1. ✖ Primary transducers
2. ✔ Active transducers
3. ✖ Passive transducers
4. ✖ Analog transducers

Question Number : 147 Question Id : 89040115159 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a zero order instrument?

Options :

1. ✔ Potentiometer

- 2. ✖ LVDT
- 3. ✖ Capacitive transducer
- 4. ✖ Rota meter

Question Number : 148 Question Id : 89040115160 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

RTDs have

Options :

- 1. ✖ Negative temperature coefficient
- 2. ✔ Positive temperature coefficient
- 3. ✖ Either type of temperature coefficient
- 4. ✖ High tolerance

Question Number : 149 Question Id : 89040115161 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which one of the following will be used for surface temperature measurement?

Options :

- 1. ✖ Strain gauge
- 2. ✖ Diaphragm
- 3. ✖ RTD
- 4. ✔

Thermocouple

Question Number : 150 Question Id : 89040115162 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The principle of operation of LVDT is based on variation of

Options :

1. ✖ Self-inductance
2. ✔ Mutual inductance
3. ✖ Reluctance
4. ✖ Permeance

Question Number : 151 Question Id : 89040115163 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In optical pyrometers temperature is measured by

Options :

1. ✖ Thermocouple effect
2. ✖ Photocell principle
3. ✔ Comparison of brightness of the source with that of a standard source
4. ✖ PV cell effect

Question Number : 152 Question Id : 89040115164 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Hot wire anemometers are used for measuring

Options :

1. ✓ Gas velocities
2. ✗ Pressure of fluids
3. ✗ Liquid discharges
4. ✗ Very low pressures

Question Number : 153 Question Id : 89040115165 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A flow meter that is independent of liquid density is

Options :

1. ✗ Rota meter
2. ✓ Electromagnetic flow meter
3. ✗ Venturi meter
4. ✗ Orifice meter

Question Number : 154 Question Id : 89040115166 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amount of water vapours present in the air is called as

Options :

1. ✗ Density

- 2. ✖ Viscosity
- 3. ✖ Temperature
- 4. ✔ Humidity

Question Number : 155 Question Id : 89040115167 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The main drawbacks of ultrasonic flow-meter are

Options :

- 1. ✖ Low accuracy and slow response
- 2. ✔ Complexity and relatively high cost
- 3. ✖ Affected by pressure and temperature variations
- 4. ✖ High accuracy and low sensitivity

Question Number : 156 Question Id : 89040115168 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The function of the reference electrode in a pH meter is to provide

Options :

- 1. ✖ A constant current
- 2. ✔ A constant voltage
- 3. ✖ Temperature compensation

4. ✖ A constant power

Question Number : 157 Question Id : 89040115169 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which one of the following pressure transducers is suitable for measurement of high pressure?

Options :

1. ✖ Alphatron

2. ✔ McLeod gauge

3. ✖ Pirani gauge

4. ✖ Bourdon gauge

Question Number : 158 Question Id : 89040115170 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The internal property of a fluid offers resistance flow is known as

Options :

1. ✔ Viscosity

2. ✖ Humidity

3. ✖ Velocity

4. ✖ Flow

Question Number : 159 Question Id : 89040115171 Question Type : MCQ Option Shuffling : No
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Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following method is used to measure liquid level with the help of Geiger-Muller counter?

Options :

1. ✖ Variable area method
2. ✖ Inductive method
3. ✔ Gamma rays method
4. ✖ Capacitive voltage divider method

Question Number : 160 Question Id : 89040115172 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is one of the characteristic of ON-OFF controller?

Options :

1. ✖ Linear controller
2. ✔ Non-linear controller
3. ✖ Proportional band is 100
4. ✖ Complex to design

Question Number : 161 Question Id : 89040115173 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The variable which is manipulated to make the controlled variable remain at the set point value is known as

Options :

1. ✖ Controlled variable
2. ✖ Load variable
3. ✔ Manipulated variable
4. ✖ Complex variable

Question Number : 162 Question Id : 89040115174 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following control action produces 'OFFSET'?

Options :

1. ✔ Proportional controller
2. ✖ Integral controller
3. ✖ Derivative controller
4. ✖ Resonant controller

Question Number : 163 Question Id : 89040115175 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following control mode is also known as RESET control mode?

Options :

1. ✖ Proportional controller
2. ✔ Integral controller

3. ✖ Derivative controller

4. ✖ Resonant controller

Question Number : 164 Question Id : 89040115176 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following control mode acts like a high pass filter?

Options :

1. ✖ Proportional controller

2. ✖ Integral controller

3. ✔ Derivative controller

4. ✖ Resonant controller

Question Number : 165 Question Id : 89040115177 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following control mode is capable of improving both transient and steady state response characteristics of the system?

Options :

1. ✖ P+I mode

2. ✖ D+I mode

3. ✔ P+I+D mode

4. ✖

P+D mode

Question Number : 166 Question Id : 89040115178 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following controller tuning method is known as open loop method?

Options :

1. ✖ Ultimate gain method
2. ✔ Process reaction curve method
3. ✖ CHR method
4. ✖ GA method

Question Number : 167 Question Id : 89040115179 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In _____ control configuration the cross over frequency for the secondary loop is higher than that for the primary loop

Options :

1. ✖ Feedback
2. ✖ Feed forward
3. ✖ Ratio
4. ✔ Cascade

Question Number : 168 Question Id : 89040115180 Question Type : MCQ Option Shuffling : No

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Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ control systems maintain a relationship between two variables to monitor and regulate a third variable

Options :

1. ✖ Feedback
2. ✖ Feed forward
3. ✔ Ratio
4. ✖ Cascade

Question Number : 169 Question Id : 89040115181 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The devices which are used to operate the final control element are known as

Options :

1. ✖ Gates
2. ✖ Motors
3. ✔ Actuators
4. ✖ Compensators

Question Number : 170 Question Id : 89040115182 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a rotating shaft control valve?

Options :

1. ✔

Butterfly valve

- 2. ✖ Single seat plug valve
- 3. ✖ Double seat plug valve
- 4. ✖ Lifting gate valve

Question Number : 171 Question Id : 89040115183 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A control scheme that automatically adjust and optimize control parameters in order to improve the performance of the control systems is known as

Options :

- 1. ✖ Feed forward control
- 2. ✔ Adaptive control
- 3. ✖ Ratio control
- 4. ✖ Virtual control

Question Number : 172 Question Id : 89040115184 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What does CNC stands for?

Options :

- 1. ✔ Computer Numerical Control
- 2. ✖ Complex Numerical Control

3. ✖ Computational Numerical Control

4. ✖ Common Numerical Control

Question Number : 173 Question Id : 89040115185 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The line diagram:  represents

Options :

1. ✖ Electric signal

2. ✖ Hydraulic signal

3. ✔ Pneumatic signal

4. ✖ Sonic signal

Question Number : 174 Question Id : 89040115186 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is a process that causes a shift in the range of frequencies in a signal

Options :

1. ✖ Moderation

2. ✔ Modulation

3. ✖ Demodulation

4. ✖ Measurement

Question Number : 175 Question Id : 89040115187 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

For full carrier system the transmission efficiency depends upon _____

Options :

1. ✖ Upper side band power
2. ✖ Lower side band power
3. ✔ Modulation index
4. ✖ Power saving

Question Number : 176 Question Id : 89040115188 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a Pulse Digital Modulation mechanism?

Options :

1. ✖ Pulse Amplitude Modulation
2. ✖ Pulse Width Modulation
3. ✖ Pulse Position Modulation
4. ✔ Pulse Code Modulation

Question Number : 177 Question Id : 89040115189 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In an optical fiber, the light beam propagates due to which one of the following?

Options :

1. ✖ Simple reflection of light at a boundary between two media
2. ✖ Refraction of light in the medium
3. ✔ Total internal reflection at the boundary of the fiber
4. ✖ Scattering of light in the medium

Question Number : 178 Question Id : 89040115190 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Common Mode Rejection Ratio (CMRR) value of an ideal operational amplifier is

Options :

1. ✖ 0
2. ✖ 1
3. ✖ 0.5
4. ✔ ∞

Question Number : 179 Question Id : 89040115191 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The voltage follower is commonly used as

Options :

1. ✖ Switch
2. ✔ Isolator

3. ✖ Regulator

4. ✖ Compensator

Question Number : 180 Question Id : 89040115192 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When a triangular waveform is applied as an input to a differentiator, the output is

Options :

1. ✖ A DC line

2. ✖ An inverted triangular waveform

3. ✔ Square waveform

4. ✖ The first harmonic of the triangular wave

Question Number : 181 Question Id : 89040115193 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The zero level detector is one application of a

Options :

1. ✔ Comparator

2. ✖ Integrator

3. ✖ Differentiator

4. ✖ Summing amplifier

Question Number : 182 Question Id : 89040115194 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a detector?

Options :

1. ✖ Bolometer
2. ✖ Pyrometer
3. ✔ Nernst glower
4. ✖ Golay cell

Question Number : 183 Question Id : 89040115195 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Gas analyzers used for

Options :

1. ✖ Single component analysis
2. ✖ Multi component analysis
3. ✔ Single and multi-component analysis
4. ✖ Biochemical parameter analysis

Question Number : 184 Question Id : 89040115196 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following determines the relative mass of atoms and molecules?

Options :

1. ✓ Mass spectrometer
2. ✗ Gas analyzer
3. ✗ Liquid chromatograph
4. ✗ Gas chromatograph

Question Number : 185 Question Id : 89040115197 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Liquid chromatography can be performed in which of the following ways?

Options :

1. ✗ Only in columns
2. ✗ Only on plane surfaces
3. ✓ Either in columns or on plane surfaces
4. ✗ Neither in columns nor on plane surfaces

Question Number : 186 Question Id : 89040115198 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In Gas-Liquid phase chromatography, the stationary phase is composed of _____ and the mobile phase is made of _____

Options :

1. ✗

Solid, Liquid

2. ✖ Liquid, Liquid

3. ✔ Liquid, Gas

4. ✖ Solid, Gas

Question Number : 187 Question Id : 89040115199 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is used as a source in the simple infrared analyzer for gas analysis?

Options :

1. ✖ Tungsten filament lamp

2. ✖ Nernst glower

3. ✔ Hot wire spiral

4. ✖ Mercury arc lamp

Question Number : 188 Question Id : 89040115200 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Needle electrode is used to measure

Options :

1. ✔ EMG

2. ✖ EOG

3. ✖ EEG

4. ✖ ECG

Question Number : 189 Question Id : 89040115201 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Electrodes to measure EEG are placed on

Options :

1. ✖ Forehead

2. ✔ Scalp

3. ✖ Cheek

4. ✖ Ears

Question Number : 190 Question Id : 89040115202 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which instrument is used to measure the electrical activity of the heart?

Options :

1. ✔ ECG

2. ✖ EMG

3. ✖ EEG

4. ✖ Thermometer

Question Number : 191 Question Id : 89040115203 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the role of a Defibrillator?

Options :

1. ✖ To measure blood pressure
2. ✔ To restore normal heart rhythm
3. ✖ To measure body temperature
4. ✖ To image the body's internal structures

Question Number : 192 Question Id : 89040115204 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a function of a Pacemaker?

Options :

1. ✖ Regulate heart rhythm
2. ✖ Boost heart rate
3. ✔ Generate images of the heart
4. ✖ Help the heart chamber's work together

Question Number : 193 Question Id : 89040115205 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The 8051 Microcontroller has _____ on chip timers

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 5

4. ✖ 3

Question Number : 194 Question Id : 89040115206 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The 8051 Microcontroller family has circuitry to support _____ no. of integrated serial ports

Options :

1. ✖ 32

2. ✖ 2

3. ✔ 1

4. ✖ 4

Question Number : 195 Question Id : 89040115207 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In the 8051 Microcontroller, the program counter is _____ bits wide

Options :

1. ✔ 16

2. ✖ 32

3. ✖

4. ✖ 128

Question Number : 196 Question Id : 89040115208 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In 8051 Microcontroller, which bits of the PSW register are users definable?

Options :

1. ✖ PSW 7 and PSW 6

2. ✖ PSW 4 and PSW 3

3. ✖ PSW 2 and PSW 0

4. ✔ PSW 5 and PSW 1

Question Number : 197 Question Id : 89040115209 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Why MOVX instruction is used to access the ports of 8255?

Options :

1. ✔ To use memory space to access I/O devices

2. ✖ To write signals

3. ✖ To provide serial communication

4. ✖ To provide internal access

Question Number : 198 Question Id : 89040115210 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a PLC, the scan time refers to the amount of time in which

Options :

1. ✖ The technician enter the program
2. ✖ Timers and counters are indexed
3. ✖ One rung of ladder logic takes to complete
4. ✔ The entire program takes to execute

Question Number : 199 Question Id : 89040115211 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What is the function of PLC's output module?

Options :

1. ✖ To read input signals from sensors
2. ✔ To send output signals to actuators
3. ✖ To store data from the industrial processes
4. ✖ To execute the control program

Question Number : 200 Question Id : 89040115212 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What is the main function of the CPU in a PLC?

Options :

1. ✖ To provide power to the PLC
2. ✖ To store the program
3. ✔ To execute the program and control the input and output devices
4. ✖ To communicate with other PLCs