

Question Paper Preview

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 :	COMPUTER SCIENCE AND ENGINEERING 12th May 2025 Shift1
Subject Name :	Computer Science and Engineering
Creation Date :	2025-05-12 13:25:55
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

COMPUTER SCIENCE AND ENGINEERING

Group Number :	1
Group Id :	50696129
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 :	506961110
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 :	506961131
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 5069615616 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes
 Correct Marks : 1 Wrong Marks : 0

If $A = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$ and if $(aI + bA)^2 = A$, then $b^4 =$

Options :

1. ✖ 1

2. ✖ $\frac{1}{2}$

3. ✖ $-\frac{1}{4}$

4. ✔ $\frac{1}{4}$

Question Number : 2 Question Id : 5069615617 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes
 Correct Marks : 1 Wrong Marks : 0

If $A = \begin{pmatrix} \cos \theta & \sin \theta & 0 \\ -\sin \theta & \cos \theta & 0 \\ 0 & 0 & 1 \end{pmatrix} = F(\theta)$, then $A^{-1} =$

Options :

1. ✖ $F(\theta)$

2. ✓ $F(-\theta)$

3. ✗ $-F(\theta)$

4. ✗ $-F(-\theta)$

Question Number : 3 Question Id : 5069615618 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If (x, y, z) is the solution of linear equations $x + y + z = 6$,

$x - y + z = 2$, $2x + y - z = 1$, then $\frac{yz}{x} =$

Options :

1. ✗ $\frac{1}{6}$

2. ✗ $\frac{3}{2}$

3. ✓ 6

4. ✗ 3

Question Number : 4 Question Id : 5069615619 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If A and B are square matrices of order 3 with $|A| = 2$, $|B| = -4$, then

$|2AB| =$

Options :

1. ✓ -64

2. ✖ 16

3. ✖ 64

4. ✖ -16

Question Number : 5 Question Id : 5069615620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If $\log_{\sqrt{27}}(x) = \frac{8}{3}$, then $x =$

Options :

1. ✖ 10

2. ✖ 16

3. ✔ 81

4. ✖ 27

Question Number : 6 Question Id : 5069615621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If $\frac{x^3}{(x-1)(x+2)} = Ax + B + \frac{C}{x-1} + \frac{D}{x+2}$, then $C + D =$

Options :

1. ✖ -3

2. ✔ 3

3. ✖ 2

4. ✖ 0

Question Number : 7 Question Id : 5069615622 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{\sin^2 33^\circ - \sin^2 57^\circ}{\sin 21^\circ - \cos 21^\circ} =$$

Options :

1. ✖ $\frac{\sqrt{3}}{2}$

2. ✖ $\frac{1}{2}$

3. ✔ $\frac{1}{\sqrt{2}}$

4. ✖ 1

Question Number : 8 Question Id : 5069615623 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A + B = \frac{\pi}{3}$ and $\cos A + \cos B = 1$, then $3\cos(A - B) =$

Options :

1. ✔ -1

2. ✖

2

3. ✖ -2

4. ✖ 1

Question Number : 9 Question Id : 5069615624 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $2 \tan^{-1} \left(\frac{2}{3} \right) = \tan^{-1}(k)$, then $k =$

Options :

1. ✖ $\frac{5}{12}$ 2. ✖ $\frac{4}{3}$ 3. ✔ $\frac{12}{5}$ 4. ✖ $\frac{3}{4}$

Question Number : 10 Question Id : 5069615625 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\tan^{-1} \left(\frac{1-x}{1+x} \right) = \frac{1}{2} \tan^{-1}(x)$, $x > 0$, then $x =$

Options :

1. ✖

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

2. ✓ $\frac{1}{\sqrt{3}}$

3. ✗ $\frac{1}{2}$

4. ✗ 1

Question Number : 11 Question Id : 5069615626 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\cosh x = \frac{3}{2}$, then $\cosh 2x =$

Options :

1. ✗ $\frac{1}{3}$

2. ✓ $\frac{7}{2}$

3. ✗ $\frac{5}{2}$

4. ✗ $\frac{11}{3}$

Question Number : 12 Question Id : 5069615627 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\left(\frac{\sqrt{3}+i}{2}\right)^6 + \left(\frac{\sqrt{3}-i}{2}\right)^6 =$$

Options :

1. ✖ 3

2. ✖ -3

3. ✖ 2

4. ✔ -2

Question Number : 13 Question Id : 5069615628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The distance between the lines $y = 2x + 4$ and $6x - 3y = 5$ is (in units)

Options :

1. ✖ $\frac{13}{2\sqrt{5}}$

2. ✔ $\frac{17}{3\sqrt{5}}$

3. ✖ $\frac{17}{2\sqrt{5}}$

4. ✖ $\frac{14}{3\sqrt{5}}$

Question Number : 14 Question Id : 5069615629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If the radius of the circle $x^2 + y^2 - 4x + 6y - k = 0$ is 4, then $k =$

Options :

1. ✓ 3

2. ✗ -3

3. ✗ 2

4. ✗ $\frac{1}{2}$

Question Number : 15 Question Id : 5069615630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If the angle between the lines $3x - 4y + 1 = 0$ and $ax + by - 7 = 0$ is 90° , then $3a - 4b =$

Options :

1. ✗ 12

2. ✗ -1

3. ✓ 0

4. ✗

7

Question Number : 16 Question Id : 5069615631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ at $(-1,1)$ is

Options :

1. ✖ $4x + 3y + 1 = 0$

2. ✖ $2x - 3y + 5 = 0$

3. ✖ $2x + 3y - 1 = 0$

4. ✔ $4x - 3y + 7 = 0$

Question Number : 17 Question Id : 5069615632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The eccentricity of the ellipse whose latus rectum is equal to half of its major axis is

Options :

1. ✖ $\sqrt{3}$

2. ✔ $\frac{1}{\sqrt{2}}$

3. ✖ $\sqrt{2}$

4. ✖ $\frac{1}{\sqrt{3}}$

Question Number : 18 Question Id : 5069615633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx} \left(\sqrt{\sin(x^2)} \right) =$$

Options :

1. ✖ $\frac{x^2 \cos(x^2)}{\sqrt{\sin(x^2)}}$

2. ✖ $\frac{x \cos(x^2)}{2\sqrt{\sin(x^2)}}$

3. ✔ $\frac{x \cos(x^2)}{\sqrt{\sin(x^2)}}$

4. ✖ $\frac{x \sin(x^2)}{\sqrt{\cos(x^2)}}$

Question Number : 19 Question Id : 5069615634 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx} \tan^{-1} \left(\frac{\sin x}{1 + \cos x} \right) =$$

Options :

1. ✖ 2

2. ✖ 4

3. ✖ 1

4. ✔ $\frac{1}{2}$

Question Number : 20 Question Id : 5069615635 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $y^x = x^{\cos y}$, then $\frac{dy}{dx} =$

Options :

1. ✔ $\frac{y(\cos y - x \log y)}{x(x + y \sin y \log x)}$

2. ✖ $\frac{y(\cos y + x \log y)}{x(x + y \sin y \log x)}$

3. ✖ $\frac{y(\cos y - x \log y)}{x(x - y \sin y \log x)}$

4. ✖ $\frac{(\cos y - x \log y)}{(x + y \sin y \log x)}$

Question Number : 21 Question Id : 5069615636 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow 3} \frac{x^2 - x - 6}{x^2 + x - 12} =$$

Options :

1. ✖ $\frac{1}{6}$

2. ✖ $\frac{2}{3}$

3. ✖ $\frac{3}{4}$

4. ✔ $\frac{5}{7}$

Question Number : 22 Question Id : 5069615637 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the normal to the curve $y = x^3 - 3x$ at the point P(2, 2) is

Options :

1. ✖ $x + 9y - 2 = 0$

2. ✖ $x + 9y - 22 = 0$

3. ✔ $x + 9y - 20 = 0$

4. ✖ $x + 9y - 12 = 0$

Question Number : 23 Question Id : 5069615638 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The maximum value of $y = (x - 1)^2 e^x$ is

Options :

1. ✓ $\frac{4}{e}$

2. ✗ $\frac{2}{e}$

3. ✗ $\frac{1}{e}$

4. ✗ $\frac{9}{e}$

Question Number : 24 Question Id : 5069615639 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $f(x, y) = (x + y)e^{xy}$, then at P(2,2) the value of $\frac{\partial f}{\partial x} =$

Options :

1. ✗ $8e^4$

2. ✗ $4e^4$

3. ✓ $9e^4$

4. ✗ $16e^4$

Question Number : 25 Question Id : 5069615640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If $u(x, y) = \sin^{-1}\left(\frac{x^4 + y^4}{x^2 + y^2}\right)$, then $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$

Options :

1. ✖ $2 \cot u$

2. ✔ $2 \tan u$

3. ✖ $2 \sin u$

4. ✖ $2 \cos u$

Question Number : 26 Question Id : 5069615641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

$\int \frac{1}{(1 - \cos x)} dx =$

Options :

1. ✔ $-\cot x - \operatorname{cosec} x + c$

2. ✖ $-\cot x + \operatorname{cosec} x + c$

3. ✖ $\cot x - \operatorname{cosec} x + c$

4. ✖ $-\tan x - \sec x + c$

Question Number : 27 Question Id : 5069615642 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_2^4 f(x) dx =$$

Options :

1. ✖ $\int_2^4 f(6+x) dx$

2. ✖ $\int_2^4 f(4-x) dx$

3. ✖ $\int_2^4 f(2-x) dx$

4. ✔ $\int_2^4 f(6-x) dx$

Question Number : 28 Question Id : 5069615643 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_{-1}^1 \sin \pi x dx =$$

Options :

1. ✖ $\frac{1}{\pi}$

2. ✖ $\frac{2}{\pi}$

3. ✓ 0

4. ✗ $-\frac{2}{\pi}$

Question Number : 29 Question Id : 5069615644 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

$$\lim_{n \rightarrow \infty} \left[\frac{1}{n} + \frac{n^2}{(n+1)^3} + \frac{n^2}{(n+2)^3} + \dots + \frac{1}{8n} \right] =$$

Options :

1. ✗ $\frac{1}{8}$

2. ✗ $\frac{1}{4}$

3. ✓ $\frac{3}{8}$

4. ✗ $\frac{1}{2}$

Question Number : 30 Question Id : 5069615645 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The area of the region bounded by the lines $x = 1, x = 4, y = 4x$ and $y = x^2$ is

Options :

1. ✗ 2

2. ✖ 6

3. ✖ 16

4. ✔ 9

Question Number : 31 Question Id : 5069615646 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

According to Simpson's $\frac{1}{3}$ rule, the value of the integral $\int_1^3 \frac{1}{x} dx$ with $h = \frac{1}{2}$, is

Options :

1. ✖ 1.5

2. ✖ 0.5

3. ✔ 1.1

4. ✖ 2

Question Number : 32 Question Id : 5069615647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The differential equation whose general solution is $y = Ax^2 + Bx$, where A and B are arbitrary constants is

Options :

1. ✖ $x^2 y'' + 2xy' - 2y = 0$

2. ✓ $x^2 y'' - 2xy' + 2y = 0$

3. ✗ $y'' - 2y' + 2y = 0$

4. ✗ $x^2 y'' - 2xy' - 2y = 0$

Question Number : 33 Question Id : 5069615648 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation
 $(e^x + 1)y \, dy + (y + 1) \, dx = 0$ is

Options :

1. ✗ $e^{x-y} = c(y + 1)(1 - e^x)$

2. ✓ $e^{x+y} = c(y + 1)(1 + e^x)$

3. ✗ $e^{2x-y} = c(y + 1)(1 - e^x)$

4. ✗ $e^{x+y} = cy(1 + e^x)$

Question Number : 34 Question Id : 5069615649 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the differential equation $(x^2 + y^2)dx + kxy \, dy = 0$ is exact, then $k =$

Options :

1. ✓ 2

2. ✖ 1

3. ✖ -1

4. ✖ -2

Question Number : 35 Question Id : 5069615650 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx} + y \tan x = \cos^2 x$ is

Options :

1. ✖ $y \cot x = \tan x + c$

2. ✖ $y \sec x = x \sin x + c$

3. ✖ $x \sec x = \sin x + c$

4. ✔ $y \sec x = \sin x + c$

Question Number : 36 Question Id : 5069615651 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $2x$

2. ✖ $x^2 + 2$

3. ✔ $x^2 + 1$

4. ✖ $x^2 - 1$

Question Number : 37 Question Id : 5069615652 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $6y'' - 5y' - 6y = 0$ is

Options :

1. ✖ $y = ae^{9x} + be^{4x}$

2. ✖ $y = ae^{-9x} + be^{-4x}$

3. ✔ $y = ae^{\frac{3x}{2}} + be^{\frac{-2x}{3}}$

4. ✖ $y = ae^{\frac{-3x}{2}} + be^{\frac{-2x}{3}}$

Question Number : 38 Question Id : 5069615653 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A particular integral of the differential equation $(4D^2 + 4D - 3)y = e^{3x}$ is

(Here $D \equiv \frac{d}{dx}$)

Options :

1. ✖ $\frac{1}{11}e^{3x}$

2. ✓ $\frac{1}{45} e^{3x}$

3. ✗ $\frac{1}{5} e^{3x}$

4. ✗ $\frac{1}{3} e^{3x}$

Question Number : 39 Question Id : 5069615654 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A particular integral of the differential equation

$$(D^2 + 4)y = 5(\cos 3x + \sin 3x) \text{ is}$$

$$\left(\text{Here } D \equiv \frac{d}{dx} \right)$$

Options :

1. ✗ $\cos 3x + \sin 3x$

2. ✗ $\cos 3x - \sin 3x$

3. ✓ $-\cos 3x - \sin 3x$

4. ✗ $\sin 3x - \cos 3x$

Question Number : 40 Question Id : 5069615655 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $L\left\{\int_0^t \cosh 3u \, du\right\} = f(s)$, then $f(4) =$

Options :

1. ✓ $\frac{1}{7}$

2. ✗ $\frac{1}{32}$

3. ✗ 0

4. ✗ $\frac{7}{32}$

Question Number : 41 Question Id : 5069615656 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $F(t) = \begin{cases} e^{t-1}, & t > 1 \\ 0, & t < 1 \end{cases}$. If $s > 1$ then $L\{F(t)\} =$

Options :

1. ✗ $\frac{1}{s-1}$

2. ✗ $\frac{e^{-1}}{s-1}$

3. ✓ $\frac{e^{-s}}{s-1}$

4. ✗

$$\frac{e^s}{s-1}$$

Question Number : 42 Question Id : 5069615657 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\infty} t e^{-t} \sin t \, dt =$$

Options :

1. ✖ -1

2. ✔ $\frac{1}{2}$

3. ✖ 0

4. ✖ 2

Question Number : 43 Question Id : 5069615658 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$L^{-1} \left\{ \frac{1}{s(s-1)} \right\} =$$

Options :

1. ✖ $1 - e^t$

2. ✖ $e^t + 1$

3. ✖

$$e^{-t} - 1$$

4. ✓ $e^t - 1$

Question Number : 44 Question Id : 5069615659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If $L^{-1} \left\{ \frac{s+1}{s^2+2s+2} \right\} = e^{at} \cos bt$, then $a^2 + b^2 =$

Options :

1. ✓ 2

2. ✗ 4

3. ✗ 0

4. ✗ 8

Question Number : 45 Question Id : 5069615660 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The convolution of the functions 1 and $\sin t$ is

Options :

1. ✓ $1 - \cos t$

2. ✗ $1 - \sin t$

3. ✗

$\cos t$

4. ✖ $1 + \cos t$

Question Number : 46 Question Id : 5069615661 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Laplace transform of the solution of the initial value problem

$y'' + 9y = 9u(t - 3), y(0) = 0, y'(0) = 0$ (Here $u(t - 3)$ is the unit step function) is

Options :

1. ✖ $\frac{9e^{3s}}{s(s^2 - 9)}$

2. ✖ $\frac{e^{-3s}}{s^2(s^2 + 9)}$

3. ✖ $\frac{9e^{-3s}}{(s^2 + 9)^2}$

4. ✔ $\frac{9e^{-3s}}{s(s^2 + 9)}$

Question Number : 47 Question Id : 5069615662 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_{-\frac{\pi}{2}}^{\frac{3\pi}{2}} \cos^2 4x \, dx =$$

Options :

1. ✓ π

2. ✗ 3π

3. ✗ 2π

4. ✗ $\frac{\pi}{2}$

Question Number : 48 Question Id : 5069615663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of a_3 in the Fourier series expansion of the function

$$f(x) = \begin{cases} 0, & -\pi < x \leq 0 \\ x, & 0 < x \leq \pi \end{cases}$$

Options :

1. ✗ $\frac{-2}{\pi}$

2. ✗ $\frac{-2}{3\pi}$

3. ✗ $\frac{-2}{5\pi}$

4. ✓ $\frac{-2}{9\pi}$

Question Number : 49 Question Id : 5069615664 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The value of b_1 in the Fourier series expansion of $f(x) = x \sin x$ in $0 \leq x \leq 2\pi$ is

Options :

1. ✓ π

2. ✗ 2π

3. ✗ 3π

4. ✗ 4π

Question Number : 50 Question Id : 5069615665 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The period of the function $f(x) = \sin\left(\frac{\pi x}{3}\right)$ is

Options :

1. ✗ π

2. ✗ $\frac{\pi}{3}$

3. ✖ $\frac{\pi}{6}$

4. ✔ 6

Physics

Section Id :	506961111
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 :	506961132
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 5069615666 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Velocity (v) of water waves depends on their Wavelength (λ), Density of Water (ρ) and acceleration due to gravity (g). By the method of dimensional analysis, the relation between these quantities is given by

Options :

1. ✖ v^2 is proportional to $(\rho\lambda g)$

2. ✖ v is proportional to $\lambda g/\sqrt{\rho}$

3. ✔ v^2 is proportional to (λg)

v is proportional to $(\rho\lambda g)$

4. ✖

Question Number : 52 Question Id : 5069615667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Force $\vec{F} = 2\hat{i} + 3\hat{j} + 7\hat{k}$ newtons (N), acting on an object causes a displacement $\vec{S} = 2\hat{i} + 3\hat{j} + 5\hat{k}$ meters (m). Then the work done is

Options :

1. ✖ 30 Nm

2. ✖ 40 Nm

3. ✔ 48 Nm

4. ✖ 25 Nm

Question Number : 53 Question Id : 5069615668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\vec{A} = \hat{i} + 2\hat{j} + 3\hat{k}$ and $\vec{B} = 3\hat{i} + 2\hat{j} + \hat{k}$ are the adjacent sides of a parallelogram respectively. The area of the Parallelogram is

Options :

1. ✖ $8\sqrt{2}$

2. ✔ $8\sqrt{3}$

3. ✖ $3\sqrt{8}$

4. ✖ $\sqrt{8}$

Question Number : 54 Question Id : 5069615669 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A block is placed on a rough floor and a horizontal force 'F' is applied on it. The force of friction 'f' by the floor on the block is measured for different values of 'F'. The graph between the 'f' and 'F' would be

Options :

1. ✖ The graph is a straight line of slope 45° for all 'F'
2. ✖ The graph is a straight line parallel to 'F' axis for all 'F'
3. ✔ The graph is a straight line of slope 45° for small values of 'F' and straight line parallel to 'F' axis for large 'F'
4. ✖ The graph is exponential with values of 'F'

Question Number : 55 Question Id : 5069615670 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Throughout the flight of a particle in projectile motion

Options :

1. ✔ The horizontal component of velocity is constant
2. ✖ The vertical component of velocity is constant
3. ✖ The horizontal component of velocity decreases

The horizontal component of velocity is zero

4. ✖

Question Number : 56 Question Id : 5069615671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A motor cyclist driving with a speed of 0.6 km/minute goes over a turn of radius of curvature 10 m. His slope with vertical in degrees (take $g = 10 \text{ m/sec}^2$).

Options :

1. ✖ 0°

2. ✖ 30°

3. ✔ 45°

4. ✖ 60°

Question Number : 57 Question Id : 5069615672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two wires of lengths in the ratio 2:3 taken from same material and having the same mass are stretched by same force. Then their elongations are in the ratio of

Options :

1. ✖ 2:3

2. ✖ 3:2

3. ✖ 1:2

4. ✔

4:9

Question Number : 58 Question Id : 5069615673 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is wrong?

Options :

1. ✖ Surface Tension of a liquid decreases with increase of temperature
2. ✖ Surface Tension of a liquid increases or decreases depending on the type of impurities added to the liquid
3. ✔ Angle of Contact depends on the inclination of the solid rod placed in the liquid
4. ✖ A drop of oil placed on the surface of water will spread as a thin layer

Question Number : 59 Question Id : 5069615674 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A streamline flow is maintained across the two capillary tubes A and B connected in series. The length of B is twice that of A and the radius of B is half that of A. The pressure across A is P. The pressure across B is

Options :

1. ✖ 4P
2. ✖ 16P
3. ✔ 32P

4. ✖ P/32

Question Number : 60 Question Id : 5069615675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body of mass 0.1 kg is thrown vertically upward. At a certain point above the ground, the Potential energy and Kinetic energy of the body are 3.7 J and 6.3 J. The maximum height it reaches is ($g=10\text{m/s}^2$)

Options :

- 1. ✔ 10 m
- 2. ✖ 4 m
- 3. ✖ 100 m
- 4. ✖ 0.7 m

Question Number : 61 Question Id : 5069615676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two containers of volumes 20m^3 and 30m^3 have gases at Pressures of 40 MPa and 50 MPa. The two containers are connected by a very narrow pipe of negligible volume and the gases are allowed to intermingle. If the temperature remains constant, the final pressure in MPa is

Options :

- 1. ✔ 46
- 2. ✖ 40
- 3. ✖ 50
- 4. ✖

Question Number : 62 Question Id : 5069615677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During an adiabatic process, a mono atomic gas at 27°C is compressed suddenly to $1/8$ of its original volume. Then the Final temperature in $^{\circ}\text{C}$ is (The ratio of the two specific heats of gases = $5/3$)

Options :

1. ✖ 1160

2. ✖ 887

3. ✔ 927

4. ✖ 88

Question Number : 63 Question Id : 5069615678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The time period of a simple pendulum is 3 sec. Its length is made 4 times. Then its time period is

Options :

1. ✖ 3 sec

2. ✖ 4 sec

3. ✔ 6 sec

4. ✖ 1.5 sec

Question Number : 64 Question Id : 5069615679 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A particle executes Simple Harmonic Motion with an amplitude of 5 cm. When the particle is at 4 cm from the mean position, the magnitude of its velocity in SI units is equal to that of its acceleration. Then, its periodic time in seconds is

Options :

1. ✓ $8\pi/3$

2. ✗ $4\pi/3$

3. ✗ $3\pi/8$

4. ✗ $7\pi/3$

Question Number : 65 Question Id : 5069615680 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The two equations of Simple Harmonic Motions are $Y_1 = 12 \sin(50t + \pi/2)$ and $Y_2 = 12 \sin(50t + \pi/3)$. The phase difference between two motions is

Options :

1. ✗ $\pi/2$

2. ✗ $\pi/3$

3. ✓ $\pi/6$

4. ✗ $\pi/8$

Question Number : 66 Question Id : 5069615681 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Multiple reflections leading to persistence of sound in an auditorium are

Options :

1. ✖ beats
2. ✖ echo
3. ✔ reverberation
4. ✖ stationary waves

Question Number : 67 Question Id : 5069615682 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two sources S_1 and S_2 are moving with certain velocities. The apparent frequencies observed by a stationary observer are double and half of their original frequencies respectively. If the velocity of sound is v and velocity of wind is zero, then the velocities of two sources respectively are

Options :

1. ✖ $v/2$ and $2v$
2. ✖ v and $v/2$
3. ✖ $3v/2$ and $2v$
4. ✔ $v/2$ and v

Question Number : 68 Question Id : 5069615683 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Moment of couple acting on a bar magnet kept at an angle 30° to the direction of uniform magnetic field of induction 2 Tesla is equal to

Options :

1. ✖ Pole Strength of the Magnet
2. ✖ Length of the Magnet
3. ✖ Magnetic Flux
4. ✔ Magnetic Moment of the Magnet

Question Number : 69 Question Id : 5069615684 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a Meter Bridge, R_1 and R_2 are the resistances connected in the left and right gaps respectively. The bridge is balanced at the balancing point of 60 cm from left. When a resistance of $30\ \Omega$ is connected in parallel to R_2 , the balancing point shifted to 90 cm. The values of R_1 and R_2 respectively are (in Ω)

Options :

1. ✖ 30 and 50
2. ✖ 200 and 350
3. ✔ 225 and 150
4. ✖ 100 and 75

Question Number : 70 Question Id : 5069615685 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When 220 V AC is applied across a step-up transformer, it draws a current of 3A in the secondary. If the number of turns in the primary coil of the transformer is 100 and that of secondary coil is 2000. The output power of the transformer is

Options :

1. ✖ 8800 W
2. ✔ 13200 W
3. ✖ 4400 W
4. ✖ 2200 W

Question Number : 71 Question Id : 5069615686 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A photon of frequency ν is incident on a photosensitive metal surface whose threshold frequency is ν_0 . The kinetic energy of emitted photo electron is

Options :

1. ✖ $h \cdot \nu$
2. ✖ $h \cdot \nu_0$
3. ✔ $h \cdot (\nu - \nu_0)$
4. ✖ $h \cdot (\nu + \nu_0)$

Question Number : 72 Question Id : 5069615687 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In LASER, the condition of Population Inversion mean

Options :

1. ✖ The number of atoms in the lower energy state are more than the higher energy state
2. ✔ The number of atoms in the higher energy state are more than the lower energy state
3. ✖ The number of atoms in the lower and higher energy states are same
4. ✖ The number of atoms in higher energy state are zero

Question Number : 73 Question Id : 5069615688 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a Graded Index Optical Fibre

Options :

1. ✖ The Refractive Index of the core remains constant and will be greater than that of the cladding
2. ✖ The Refractive Index of the core remains constant and will be less than that of the cladding
3. ✖ The Refractive Indices of both core and cladding remain constant and are equal
4. ✔ The Refractive Index of the core varies with maximum at the centre and decreases as the radial distance increases from the axis of the core

Question Number : 74 Question Id : 5069615689 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is correct, if n_e and n_h are the concentrations of the Electrons and Holes respectively

Options :

1. ✓ In an intrinsic semiconductor, $n_e = n_h$ and both these charge carriers contribute to current equally
2. ✗ In p-type semiconductor, $n_e > n_h$ and the current due to electrons is more than that of holes
3. ✗ In n-type semiconductor, $n_p > n_e$ and current due to holes is more than that of electrons
4. ✗ In an extrinsic semiconductor, $n_e = n_h$ and both these charge carriers contribute to current equally

Question Number : 75 Question Id : 5069615690 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The semiconductors used for fabrication of visible LEDs have band gap

Options :

1. ✗ Close to 1.5 eV
2. ✗ Close to 1.1 eV
3. ✗ About 1.0 eV to 1.6 eV
4. ✓ About 1.8 eV to 3 eV

Chemistry

Section Id :	506961112
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 :	506961133
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 5069615691 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to Aufbau principle, which orbital is filled immediately after each of the 3p, 4p, 4f and 5d?

Options :

1. ✖ 3d, 5s, 5d, 6p
2. ✖ 3d, 4d, 5d, 6p
3. ✔ 4s, 5s, 5d, 6p
4. ✖ 4s, 5s, 5d, 7s

Question Number : 77 Question Id : 5069615692 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which one of the following properties is not due to hydrogen bonding.

Options :

1. ✖

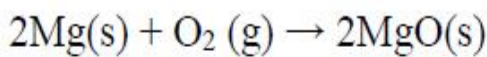
High boiling point of water

- 2. ✖ High viscosity of glycerol
- 3. ✖ Solubility of ammonia in water
- 4. ✔ Polar nature of halogen acid

Question Number : 78 Question Id : 5069615693 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0



In above reaction equation, the oxidation state of magnesium is changed from

Options :

- 1. ✔ 0 to +2
- 2. ✖ 0 to -2
- 3. ✖ +2 to -1
- 4. ✖ +2 to 0

Question Number : 79 Question Id : 5069615694 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

100 mL of ethanol, whose density is 1.2 g.mL^{-1} is diluted to 1.0 L by addition of distilled water. Molarity of the resultant solution is

Options :

1. ✖ 1.60
2. ✔ 2.60
3. ✖ 0.46
4. ✖ 2.90

Question Number : 80 Question Id : 5069615695 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Among the below options, which is not a characteristic of a colloid

Options :

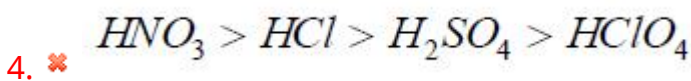
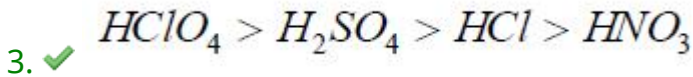
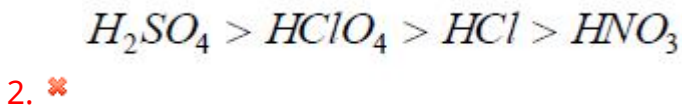
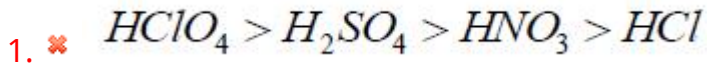
1. ✖ Particle size between $10 \text{ \AA} - 1000 \text{ \AA}$
2. ✖ Heterogeneous
3. ✔ Can be separable by filtration
4. ✖ Diffuse slowly

Question Number : 81 Question Id : 5069615696 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The correct order of decreasing strength of acids is

Options :



Question Number : 82 Question Id : 5069615697 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution which can resist change in its pH on the addition of an acid or a base is known as

Options :

1. ✖ Isotonic solution

2. ✖ Colloidal solution

3. ✖ Neutral solution

4. ✔ Buffer solution

Question Number : 83 Question Id : 5069615698 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The minimum level of a pollutant above which a healthy individual worker is adversely affected on exposure to it for eight hours in a day is called

Options :

1. ✖ Critical Limit Value
2. ✖ Toxic Limit Value
3. ✔ Threshold Limit Value
4. ✖ Dangerous Limit Value

Question Number : 84 Question Id : 5069615699 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The consequences of global warming are:

- (A) Increase in average temperature of the earth
- (B) Melting of Himalayan glaciers
- (C) Increased Biochemical Oxygen Demand of natural water
- (D) Eutrophication of water bodies

Choose the correct option.

Options :

1. ✖ A, D
2. ✖ A, C
3. ✔ A, B
4. ✖ A, B, C

Question Number : 85 Question Id : 5069615700 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The chemicals used for defluoridation of water by Nalgonda Technique are

Options :

1. ✖ CaO and CaOCl_2
2. ✔ Alum, CaO and CaOCl_2
3. ✖ CaH_2 , NaOCl and Alum
4. ✖ NaOCl, NaH and Alum

Question Number : 86 Question Id : 5069615701 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process which removes non-ionic, ionic, colloidal and organic matter in water is

Options :

1. ✖ Ion exchange process
2. ✖ Lime soda process
3. ✔ Reverse osmosis process
4. ✖ Zeolite process

Question Number : 87 Question Id : 5069615702 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The set of products that are formed during electrolysis of aqueous solution of KCl between platinum electrodes is

Options :

1. ✖ HCl and KOH
2. ✖ KOH and Cl₂
3. ✔ KOH, Cl₂ and H₂
4. ✖ K and Cl₂

Question Number : 88 Question Id : 5069615703 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When same quantity of electricity is passed through aqueous AgNO₃ and H₂SO₄ solutions connected in series, 5.04×10^{-2} g of H₂ is liberated. What is the mass of silver (in grams) deposited?
(Eq. Wt. of hydrogen and silver is 1.008 and 108 respectively)

Options :

1. ✖ 54
2. ✖ 0.54
3. ✔ 5.4
4. ✖ 10.8

Question Number : 89 Question Id : 5069615704 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct option that differentiates metals from non-metals

Options :

Metals form acidic oxides, whereas non-metals form basic oxides.

1. ✖

Metals have a tendency to gain electrons, whereas non-metals have a tendency to lose electrons.

2. ✖

Metals are generally good conductors of electricity, whereas non-metals are insulators.

3. ✔

All metals exist in a solid state at room temperature.

4. ✖

Question Number : 90 Question Id : 5069615705 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Nichrome is commonly used in heating elements because

Options :

It has high electrical conductivity

1. ✖

It has a high melting point and corrosion resistance

2. ✔

It is lightweight

3. ✖

It is brittle and hard

4. ✖

Question Number : 91 Question Id : 5069615706 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ combinations is used for prevention of corrosion.

Options :

1. ✓ ☒ Phosphorous or Antimony
2. ✗ ☐ Phosphorous or Chlorine
3. ✗ ☐ Antimony or Nitrogen
4. ✗ ☐ Antimony or Sodium

Question Number : 92 Question Id : 5069615707 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process of coating zinc metal over iron to improve corrosion resistance of iron is called

Options :

1. ✗ ☐ Electroplating
2. ✗ ☐ Annealing
3. ✓ ☒ Galvanizing
4. ✗ ☐ Tinning

Question Number : 93 Question Id : 5069615708 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is a cross linked polymer.

Options :

1. ✓ Bakelite
2. ✗ LDPE
3. ✗ Polystyrene
4. ✗ PVC

Question Number : 94 Question Id : 5069615709 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the Biodegradable polymers from the following and choose the correct option.

(I) PVC (II) PHBV (III) Polypropylene (IV) Nylon-2-nylon-6

Options :

1. ✗ I and II
2. ✓ II and IV
3. ✗ I and IV
4. ✗ I, II and III

Question Number : 95 Question Id : 5069615710 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Calculate the amount of oxygen required for the complete combustion of 1 mole of Methane (CH_4).

Options :

1. ✖ 1 mole
2. ✔ 2 moles
3. ✖ 3 moles
4. ✖ 4 moles

Question Number : 96 Question Id : 5069615711 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ represents the composition of water gas

Options :

1. ✔ $\text{CO} + \text{H}_2$
2. ✖ $\text{CO}_2 + \text{H}_2$
3. ✖ $\text{CO} + \text{CH}_4$
4. ✖ $\text{CO}_2 + \text{CH}_4$

Question Number : 97 Question Id : 5069615712 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following and choose the correct option.

List – I

List – II

- | | |
|--------------------------------|--|
| a) Hydrogen electrode | (i) $\text{Pt} \mid \text{Fe}^{3+}, \text{Fe}^{2+}$ |
| b) Standard hydrogen electrode | (ii) $\text{Fe} \mid \text{Fe}^{2+}$ |
| c) Metal-metal ion electrode | (iii) pH measurement |
| d) Glass electrode | (iv) $\text{Pt}, \text{H}_2 (2 \text{ bar}) \mid \text{H}^+ (0.1\text{M})$ |
| | (v) $\text{Pt}, \text{H}_2 (1 \text{ bar}) \mid \text{H}^+ (1.0\text{M})$ |
| | (vi) Oxidation electrode |

Options :

1. ✖ a – iii, b – v, c – i, d – vi

2. ✖ a – v, b – iv, c – ii, d – iii

3. ✖ a – v, b – iii, c – i, d – vi

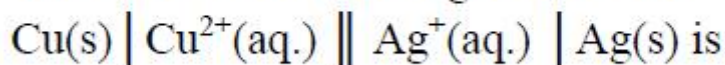
4. ✔ a – iv, b – v, c – ii, d – iii

Question Number : 98 Question Id : 5069615713 Question Type : MCQ Option Shuffling : Yes

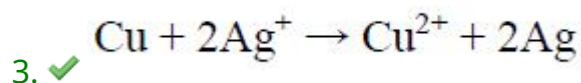
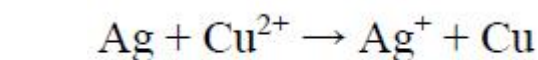
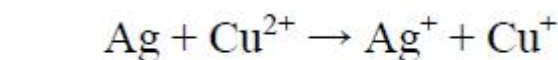
Display Question Number : Yes

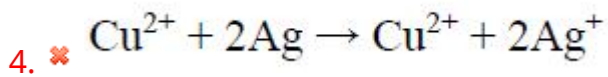
Correct Marks : 1 Wrong Marks : 0

The cell reaction of the galvanic cell



Options :





Question Number : 99 Question Id : 5069615714 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is used to reduce water pollution.

Options :

1. ✖ Neem
2. ✖ Watermelon
3. ✔ Water hyacinth
4. ✖ People

Question Number : 100 Question Id : 5069615715 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following can cause soil pollution

Options :

1. ✔ DDT
2. ✖ CO_2
3. ✖ NO_2
4. ✖ Nitrogen

COMPUTER SCIENCE AND ENGINEERING

Section Id :	506961113
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 :	506961134
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 5069615716 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The decimal equivalent of the octal number $(645)_8$ is _____

Options :

1. ✖ $(450)_{10}$

2. ✖ $(451)_{10}$

3. ✔ $(421)_{10}$

4. ✖ $(501)_{10}$

Question Number : 102 Question Id : 5069615717 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The characteristic equation of JK flip flop is

Options :

1. ✖ $Q(n+1) = \overline{J}Q(n) + \overline{K}Q(n)$

$$Q(n+1) = J\bar{Q}(n) + \bar{K}Q(n)$$

2. ✓

$$Q(n+1) = J\bar{Q}(n) + K\bar{Q}(n)$$

3. ✗

$$Q(n+1) = J\bar{Q}(n) + \bar{K}\bar{Q}(n)$$

4. ✗

Question Number : 103 Question Id : 5069615718 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Multiplication result of $(10.10)_2$ and $(01.01)_2$ is _____

Options :

1. ✗ 101.0010

2. ✗ 0010.101

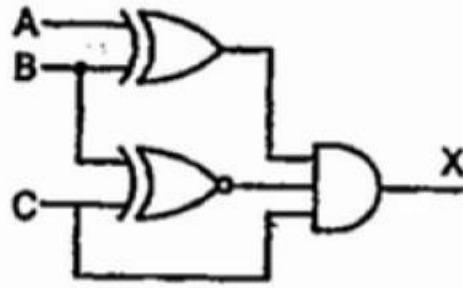
3. ✓ 011.0010

4. ✗ 110.0011

Question Number : 104 Question Id : 5069615719 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the logic circuit shown in the figure the required input (A, B, C) condition to make the output (X) = 1 is



Options :

1. ✖ (1,0,1)
2. ✖ (0,0,1)
3. ✖ (1,1,1)
4. ✔ (0,1,1)

Question Number : 105 Question Id : 5069615720 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A three variable truth table has a High output for the inputs (A, B, C): 010, 011 and 110. The Boolean expression for Sum Of Product (SOP) can be written as

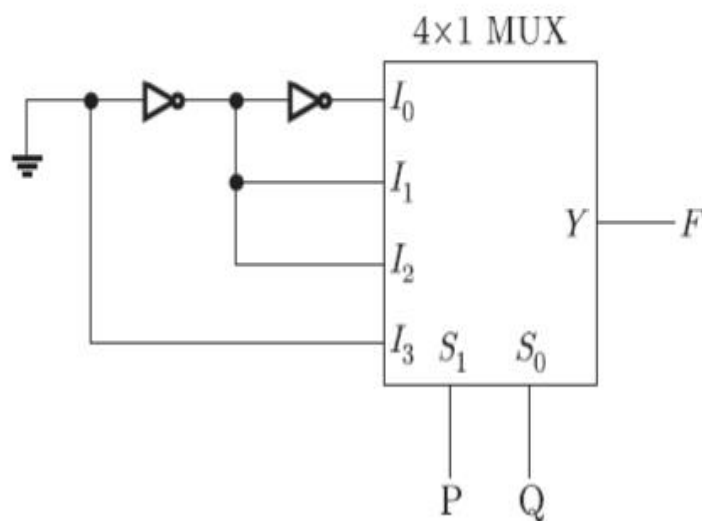
Options :

1. ✖ $AB + BC$
2. ✔ $\overline{A}B + B\overline{C}$
3. ✖ $\overline{\overline{A}B} + BC$

4. ✖ $AB + \overline{BC}$

Question Number : 106 Question Id : 5069615721 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The logic function implemented by the circuit shown below is
 (ground implies a logic “0”)



Options :

1. ✖ $F = \text{AND}(P, Q)$

2. ✖ $F = \text{OR}(P, Q)$

3. ✖ $F = \text{XNOR}(P, Q)$

4. ✔ $F = \text{XOR}(P, Q)$

Question Number : 107 Question Id : 5069615722 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Among the digital IC families ECL, TTL and CMOS, which one of the following is correct?

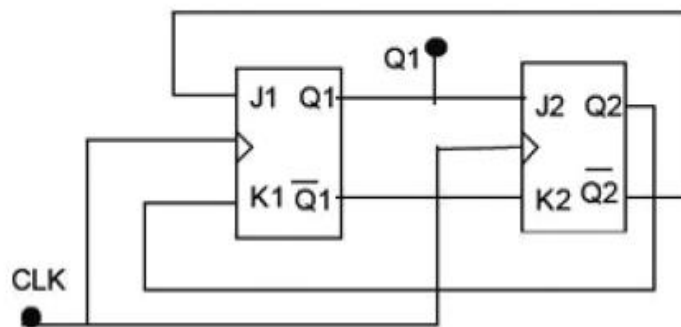
Options :

1. ✖ ECL has more propagation delay
2. ✖ TTL has the largest Fan-out
3. ✔ CMOS has the lowest power consumption
4. ✖ TTL has the highest noise margin

Question Number : 108 Question Id : 5069615723 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The outputs of the two flip-flops Q_1 , Q_2 in the figure shown are initialized to 0, 0. The sequence generated at Q_1 upon application of clock signal is



Options :

1. ✖ 01110...
2. ✖ 01010...
3. ✖ 00110...

4. ✓ 01100...

Question Number : 109 Question Id : 5069615724 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The output frequency of a mod-12 counter is 6 KHz, then the input frequency is

Options :

1. ✗ 6 KHz

2. ✗ 500 Hz

3. ✗ 24 KHz

4. ✓ 72 KHz

Question Number : 110 Question Id : 5069615725 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is correct for DRAM

Options :

1. ✗ Periodic refreshing is not required

2. ✓ Data is stored in Capacitor

3. ✗ Data stored in Latch

4. ✗ Read and write operations performed simultaneously

Question Number : 111 Question Id : 5069615726 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The most relevant addressing mode to write position independent code is

Options :

1. ✖ Direct Mode
2. ✖ Indirect Mode
3. ✔ Relative Mode
4. ✖ Indexed Mode

Question Number : 112 Question Id : 5069615727 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The speed imbalance between memory access and CPU operation can be reduced by

Options :

1. ✖ Cycle Stealing
2. ✔ Memory Interleaving
3. ✖ Reducing the size of memory
4. ✖ Demand Paging

Question Number : 113 Question Id : 5069615728 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

On receiving an interrupt from an I/O device, the CPU

Options :

1. ✖ Halts for a predetermined time
2. ✖ Hands over control of address bus and data bus to the interrupting device
3. ✖ Branches off to the interrupt service routine immediately
4. ✔ Branches off to the interrupt service routine after completion of the current instruction

Question Number : 114 Question Id : 5069615729 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The three main components of a digital computer system are

Options :

1. ✖ Memory, I/O, DMA
2. ✖ ALU, CPU, memory
3. ✔ Memory, CPU, I/O
4. ✖ Control circuits, ALU, registers

Question Number : 115 Question Id : 5069615730 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The computer architecture aimed at reducing the time of execution of instructions is

Options :

1. ✘ CISC
2. ✔ RISC
3. ✘ ISA
4. ✘ Von Neumann

Question Number : 116 Question Id : 5069615731 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The method of accessing the I/O devices by repeatedly checking the status flags is called

Options :

1. ✔ Program-controlled I/O
2. ✘ Memory-mapped I/O
3. ✘ Status mapped I/O
4. ✘ Direct Memory Access

Question Number : 117 Question Id : 5069615732 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

SIMD represents an organization that

Options :

1. ✖ Refers to a computer system capable of processing several programs at the same time
2. ✖ Represents organization of single computer containing a control unit, processor unit and a memory unit
3. ✔ Includes many processing units under the supervision of a common control unit
4. ✖ Includes many processing units with non-shared memory

Question Number : 118 Question Id : 5069615733 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Memory access in RISC architecture is limited to _____ instructions

Options :

1. ✖ CALL and RET
2. ✖ PUSH and POP
3. ✖ MOV and JMP
4. ✔ STA and LDA

Question Number : 119 Question Id : 5069615734 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following and choose the correct option

- | | |
|---|------------------------------------|
| A. Increase in capacity and Access Time | I. SCSI |
| B. Signed Integers | II. CPU registers to Magnetic Disk |
| C. Bidirectional Bus | III. Parallel Processing |
| D. Associative Memory | IV. 2's Complement |

Options :

1. ✓ A-II, B-IV, C-I, D-III

2. ✗ A-III, B-IV, C-II, D-I

3. ✗ A-II, B-I, C-III, D-IV

4. ✗ A-I, B-II, C-III, D-IV

Question Number : 120 Question Id : 5069615735 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The sequence of events in an instruction cycle are

Options :

1. ✗ Storing, Fetching, Decoding, Executing

2. ✓ Fetching, Decoding, Executing, Storing

3. ✗ Storing, Decoding, Fetching, Executing

4. ✗

Fetching, Storing, Executing, Decoding

Question Number : 121 Question Id : 5069615736 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a valid preprocessor directive?

Options :

1. ✖ `#include <stdio.h>`
2. ✖ `#define MAX 100`
3. ✔ `#macro SUM(a, b) (a + b)`
4. ✖ `#ifdef DEBUG`

Question Number : 122 Question Id : 5069615737 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

```
#include <stdio.h>
void func(int *p) {
    *p = *p + 5;
}
int main() {
    int a = 10;
    func(&a);
    printf("%d", a);
    return 0;
}
```

Options :

1. ✖ 10

2. ✓ 15

3. ✗ Compilation Error

4. ✗ Undefined Behaviour

Question Number : 123 Question Id : 5069615738 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

```
#include <stdio.h>
void func(int *x) {
    *x = *x + 10;
}
int main() {
    int a = 5;
    func(a);
    printf("%d", a);
    return 0;
}
```

Options :

1. ✗ 5

2. ✗ 10

3. ✗ 15

4. ✓ Compilation Error

Question Number : 124 Question Id : 5069615739 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is TRUE about unions in C?

Options :

1. ✓ All members share the same memory location
2. ✗ Union members can store values simultaneously
3. ✗ Unions take more memory than structures
4. ✗ No option is correct

Question Number : 125 Question Id : 5069615740 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

```
#include <stdio.h>
int main() {
    int arr[2][2] = {1, 2, 3, 4};
    printf("%d", (*(arr + 1) + 1));
    return 0;
}
```

Options :

1. ✗ 2
2. ✗ 3
3. ✓ 4
4. ✗ Compilation Error

Question Number : 126 Question Id : 5069615741 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the time complexity to insert a node somewhere in the middle of the linked list?

Options :

1. ✖ $O(1)$

2. ✖ $O(\log n)$

3. ✔ $O(n)$

4. ✖ $O(n^2)$

Question Number : 127 Question Id : 5069615742 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What happens when we use malloc to allocate memory for a structure but forget to free it?

Options :

1. ✖ The structure is automatically freed

2. ✖ Causes a segmentation fault

3. ✔ Causes a memory leak

4. ✖ The structure becomes inaccessible

Question Number : 128 Question Id : 5069615743 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a doubly linked list, the most expensive operation is

Options :

1. ✖ Insertion at the beginning
2. ✖ Creation of list
3. ✖ Traversing the list
4. ✔ Deleting a node with a given value

Question Number : 129 Question Id : 5069615744 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which data structure is best suited for implementing a priority queue?

Options :

1. ✖ Stack
2. ✔ Binary Heap
3. ✖ Circular Queue
4. ✖ Doubly Linked List

Question Number : 130 Question Id : 5069615745 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many comparisons are required to search for an element in a sorted array of size 1024 using binary search in the worst case?

Options :

1. ✓ 10
2. ✗ 1024
3. ✗ 512
4. ✗ 20

Question Number : 131 Question Id : 5069615746 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Given two singly linked lists, the most efficient way to find their intersection node is

Options :

1. ✗ Traverse both lists and compare each node ($O(n^2)$)
2. ✗ Use hashing ($O(n)$ space, $O(n)$ time)
3. ✓ Find the difference in lengths and traverse accordingly ($O(n)$ time, $O(1)$ space)
4. ✗ Sort both lists and compare ($O(n \log n)$)

Question Number : 132 Question Id : 5069615747 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is an application of the stack data structure?

Options :

1. ✓ Function Call Recursion
2. ✗ Level Order Tree Traversal
3. ✗ Scheduling in Operating Systems
4. ✗ Binary Search

Question Number : 133 Question Id : 5069615748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following statement is true?

Options :

1. ✗ All objects of a class share all the data members of the class
2. ✓ Objects of a class do not share non-static members of the class. Every object has its own copy
3. ✗ Objects of a class do not share codes of non-static methods, they have their own copy
4. ✗ Objects of a class share non-static members of the class. Every object has its own copy

Question Number : 134 Question Id : 5069615749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a class definition, functions and data designated private are accessible

Options :

1. ✖ to any function in the program
2. ✖ only if you know the password
3. ✖ only to public members of the class
4. ✔ to member functions of that class

Question Number : 135 Question Id : 5069615750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What will be the output of the following C++ code?

```
#include <iostream>
#include <string>
using namespace std;
int main(int argc, char const *argv[])
{
    char s1[6] = "Hello";
    char s2[6] = "World";
    char s3[12] = s1 + " " + s2;
    cout<<s3;
    return 0;
}
```

Options :

1. ✖ Hello
2. ✖ World
3. ✔ Error

Hello World

4. ✖

Question Number : 136 Question Id : 5069615751 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Operator overloading in C++ is

Options :

1. ✔ making C++ operators work with objects
2. ✖ giving C++ operators more than they can handle
3. ✖ making new C++ operators
4. ✖ giving new meanings to existing C++ operators

Question Number : 137 Question Id : 5069615752 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A pointer points to the type of variable that must be part of the pointer's definition such that

Options :

1. ✖ The compiler can perform arithmetic operations correctly to access the array elements
2. ✖ Pointers can be added to one another to access structure members
3. ✔ The data types don't get mixed up when arithmetic operations are performed on them

4. ✖ Pointers will not point to any variable

Question Number : 138 Question Id : 5069615753 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Aggregation is _____

Options :

- 1. ✖ A stronger form of instantiation
- 2. ✖ A stronger form of generalization
- 3. ✖ A stronger form of composition
- 4. ✔ A “has a” relationship

Question Number : 139 Question Id : 5069615754 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is used for late-binding?

Options :

- 1. ✖ Constant functions
- 2. ✔ Virtual functions
- 3. ✖ Operator functions
- 4. ✖

Friend functions

Question Number : 140 Question Id : 5069615755 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the output of the following code?

```
#include <iostream>
inline int inlinedemo(int a, int b) {
    int sum = 0;
    for (int i = 0; i < 100; i++)
    {
        sum += (a + b) * i;
    }
    return sum;
}
int main() {
    std::cout << inlinedemo(5, 10) << std::endl;
    return 0;
}
```

Options :

1. ✖ 74256

2. ✔ 74250

3. ✖ 74251

4. ✖ 74257

Question Number : 141 Question Id : 5069615756 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The purpose of the template class is to

Options :

1. ✓ Work with different data types
2. ✗ Store in different containers
3. ✗ Generate classes with different numbers of member functions
4. ✗ Generate objects which must all be identical

Question Number : 142 Question Id : 5069615757 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Select the correct option with respect to function templates.

Options :

1. ✗ Code duplicating is increased
2. ✗ It takes a long time to execute
3. ✗ It takes a long time to execute & duplicate code is increased
4. ✓ Writes only one function and will work with many different data types

Question Number : 143 Question Id : 5069615758 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A functional dependency of the form $X \rightarrow Y$ is trivial if

Options :

1. ✓ $Y \subseteq X$

2. ✗ $Y \subset X$

3. ✗ $X \subseteq Y$

4. ✗ $X \subset Y$ and $Y \subset X$

Question Number : 144 Question Id : 5069615759 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An ER diagram incorrectly shows two entities directly connected by more than one relationship, this error is known as

Options :

1. ✗ Attribute duplication

2. ✓ Relationship redundancy

3. ✗ Cardinality mismatch

4. ✗ Entity ambiguity

Question Number : 145 Question Id : 5069615760 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Given relations $R(w,x)$ and $S(y,z)$, the result of
SELECT DISTINCT w, x FROM R, S is guaranteed to be same as R, if

Options :

1. ✖ R and S have the same number of tuples
2. ✖ R and S have no duplicates
3. ✖ S has no duplicates and R is non-empty
4. ✔ R has no duplicates and S is non-empty

Question Number : 146 Question Id : 5069615761 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In SQL, the JOIN clause is used to

Options :

1. ✖ Combine rows from only two tables based on related columns
2. ✖ Combine rows from only distinct tables based on related columns
3. ✔ Combine rows from two or more tables based on related columns
4. ✖ Combine rows from more than two distinct tables based on related columns

Question Number : 147 Question Id : 5069615762 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A developer runs a query to select all records from a table, but it returns no results despite the table being not empty. What is the likely cause?

Options :

1. ✖

A syntax error in the SELECT statement

- 2. ✓ The WHERE clause is filtering out all records
- 3. ✗ The table is locked
- 4. ✗ The database connection is lost

Question Number : 148 Question Id : 5069615763 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In SQL, how to modify an existing table to add a foreign key constraint referencing another table?

Options :

- 1. ✓
`ALTER TABLE table_name ADD CONSTRAINT fk_name
FOREIGN KEY (column1) REFERENCES other_table(column2)`
- 2. ✗
`ALTER TABLE table_name MODIFY COLUMN column_name
FOREIGN KEY REFERENCES other_table(column_name)`
- 3. ✗
`ALTER TABLE table_name ADD FOREIGN KEY (column_name)
REFERENCES other_table`
- 4. ✗
`USE table_name ADD FOREIGN KEY REFERENCES other_table`

Question Number : 149 Question Id : 5069615764 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The property that ensures a committed transaction's changes remain permanent even under system failures is

Options :

1. ✖ Atomicity
2. ✖ Isolation
3. ✖ Consistency
4. ✔ Durability

Question Number : 150 Question Id : 5069615765 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A table contains a non-primary key column that depends on only part of a composite primary key. What normalization issue does this indicate?

Options :

1. ✔ Partial dependency, indicating a violation of 2NF
2. ✖ Non-atomic values, indicating a violation of 1NF
3. ✖ Transitive dependency, indicating a violation of 3NF
4. ✖ Functional dependency, indicating a violation of 1NF

Question Number : 151 Question Id : 5069615766 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a relational database, what does a composite index refer to

Options :

1. ✖ An index that combines multiple tables
2. ✖ An index built on a single column
3. ✖ An index used exclusively for joins
4. ✔ An index that includes multiple columns from a single table

Question Number : 152 Question Id : 5069615767 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

“Every non-key attribute is functionally dependent on the primary key”,
this property belongs to

Options :

1. ✖ First Normal Form
2. ✔ Second Normal Form
3. ✖ Third Normal Form
4. ✖ Fourth Normal Form

Question Number : 153 Question Id : 5069615768 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The function of the Northbridge in a motherboard chipset is

Options :

1. ✖ Controls USB and audio functions
2. ✔ Manages RAM, PCIe, and CPU communication
3. ✖ Handles power distribution
4. ✖ Controls hard disk drives

Question Number : 154 Question Id : 5069615769 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Arrange the following in decreasing order of speed

1. L1 Cache
2. L2 Cache
3. RAM
4. Hard Disk

Options :

1. ✔ $1 > 2 > 3 > 4$
2. ✖ $2 > 1 > 3 > 4$
3. ✖ $1 > 3 > 2 > 4$
4. ✖ $3 > 2 > 1 > 4$

Question Number : 155 Question Id : 5069615770 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The following is NOT a step in the BIOS boot sequence

Options :

1. ✖ Power-On Self Test (POST)
2. ✖ Loading the Operating System
3. ✖ Loading Device Drivers
4. ✔ Memory Paging Initialization

Question Number : 156 Question Id : 5069615771 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a characteristic of MAC addresses?

Options :

1. ✖ Unique to every network device
2. ✖ 48-bit in length
3. ✔ Assigned by software configuration
4. ✖ Used for local network communication

Question Number : 157 Question Id : 5069615772 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT true about TCP?

Options :

1. ✖ Connection-oriented
2. ✖ Reliable data transfer
3. ✔ Faster than UDP
4. ✖ Provides congestion control

Question Number : 158 Question Id : 5069615773 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the correct sequence of messages in a TCP 3-way handshake?

Options :

1. ✔ SYN → SYN-ACK → ACK
2. ✖ ACK → SYN-ACK → SYN
3. ✖ SYN-ACK → SYN → ACK
4. ✖ SYN → ACK → SYN-ACK

Question Number : 159 Question Id : 5069615774 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the primary difference between CSMA/CD and CSMA/CA?

Options :

1. ✖ CSMA/CD avoids collisions, while CSMA/CA detects them

CSMA/CD detects collisions, while CSMA/CA avoids them

2. ✓

CSMA/CD is used in Wi-Fi, while CSMA/CA is used in Ethernet

3. ✗

CSMA/CD operates at the Network Layer, while CSMA/CA operates at the Transport Layer

4. ✗

Question Number : 160 Question Id : 5069615775 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which OSI layer do switches operate

Options :

Transport Layer

1. ✗

Network Layer

2. ✗

Data Link Layer

3. ✓

Physical Layer

4. ✗

Question Number : 161 Question Id : 5069615776 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In FTP, which mode establishes two separate connections for control and data?

Options :

Active Mode

1. ✓

2. ✖ Passive Mode

3. ✖ Hybrid Mode

4. ✖ Broadcast Mode

Question Number : 162 Question Id : 5069615777 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In SMTP, which command is used to specify the sender's email address

Options :

1. ✖ RCPT TO

2. ✔ MAIL FROM

3. ✖ DATA

4. ✖ HELO

Question Number : 163 Question Id : 5069615778 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Consider a computer system with 'n' CPUs. What will be the maximum number of processes that can exist in ready state?

Options :

1. ✔ Independent of 'n'

2. ✖ n

3. ✖ n^2

4. ✖ 2^n

Question Number : 164 Question Id : 5069615779 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a memory management system with a page size of 2 KB, where both physical and virtual addresses start from 0 and program pages 0, 1, 2 and 3 are mapped to main memory frames 1, 3, 2 and 0 respectively, what is the physical address (in decimal) which maps to the virtual address 2500?

Options :

1. ✖ 6496

2. ✖ 6696

3. ✔ 6596

4. ✖ 6796

Question Number : 165 Question Id : 5069615780 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider a scheduler that knows the CPU burst lengths in advance, three processes (A, B and C) arrive at time zero with CPU burst times of 16, 20 and 10 milliseconds. If a non-preemptive scheduling algorithm is used, what is the minimum possible average waiting time (rounded to the nearest integer) for these processes?

Options :

1. ✖ 9
2. ✖ 10
3. ✖ 11
4. ✔ 12

Question Number : 166 Question Id : 5069615781 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let the following five disk access requests from processes P, Q, R, S and T in the form (request ID, cylinder number):

(P,155), (Q,85), (R,110), (S,30), (T,115)

If the scheduler follows the Shortest Seek Time First (SSTF) scheduling algorithm and if the disk head is initially positioned at cylinder 100, then which of the following statements is false?

Options :

1. ✖ R is serviced before P
2. ✖ The head reverses its direction of movement between servicing of Q and P
3. ✔ Q is serviced after S, but before T
4. ✖ T is serviced before P

Question Number : 167 Question Id : 5069615782 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following process state transition is NOT possible?

Options :

1. ✖ Running to Ready
2. ✔ Waiting to Running
3. ✖ Waiting to Ready
4. ✖ Running to terminated

Question Number : 168 Question Id : 5069615783 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider three processes A, B and C which have peak resource demand of 3, 4 and 6 respectively. But the system contains 'm' resources of the same type, the minimum value of 'm' required to ensure that deadlock never occurs is

Options :

1. ✖ 14
2. ✖ 12
3. ✔ 11
4. ✖ 9

Question Number : 169 Question Id : 5069615784 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the following C program

```
{  
    fork();  
    fork();  
    printf("hello");  
}
```

If this code segment is executed, how many times will the string "hello" be printed?

Options :

1. ✓ 4 times
2. ✗ 2 times
3. ✗ 1 time
4. ✗ 8 times

Question Number : 170 Question Id : 5069615785 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A system has a TLB with 512 entries and a 4 KB page size. If the page size is increased to 16 KB, which of the following is true?

Options :

1. ✗ TLB hit rate increases
2. ✗ TLB miss rate decreases
3. ✓ The number of addressable pages in the TLB decreases

4. ✖ The number of addressable pages in the TLB remains the same

Question Number : 171 Question Id : 5069615786 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At a certain point in computation, the value of a counting semaphore is 7. After 20 P (wait) operations and x V (signal) operations, the new semaphore value becomes 5. What is the value of x?

Options :

1. ✖ 13

2. ✔ 18

3. ✖ 22

4. ✖ 15

Question Number : 172 Question Id : 5069615787 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements incorrectly describes paging compared to segmentation?

Options :

1. ✖ Paging suffers from internal fragmentation, whereas segmentation suffers from external fragmentation

2. ✖ In paging, the logical address is divided into page number and offset, whereas in segmentation it is divided into segment number and offset

3. ✔ Page size in paging is variable, whereas segment size is fixed

4. ✖ Paging helps in virtual memory management while segmentation allows logical program division

Question Number : 173 Question Id : 5069615788 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a feature of Java?

Options :

1. ✖ Multithreaded
2. ✖ Object-oriented
3. ✔ Platform-dependent
4. ✖ Robust

Question Number : 174 Question Id : 5069615789 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

_____ component is responsible for running the compiled java bytecode.

Options :

1. ✖ JDK
2. ✔ JVM
3. ✖ JRE
4. ✖ JIT

Question Number : 175 Question Id : 5069615790 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What will be the output of the following program?

```
public class Exam {  
    public static void main(String[] args) {  
        int count = 1;  
        while (count <= 15) {  
            System.out.println(count % 2 == 1 ? "***" : "++++");  
            ++count;  
        } // end while  
    } // end main  
}
```

Options :

1. ✓ 8 times *** and 7 times +++++
2. ✗ 15 times +++++
3. ✗ 15 times ***
4. ✗ *and + will be printed consecutively

Question Number : 176 Question Id : 5069615791 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Predict the output of the code

```
class A
{
    int i = 10;

    public A(int j)
    {
        System.out.println(i);
        this.i = j * 10;
    }
}

class B extends A
{
    public B(int j)
    {
        super(j);
        System.out.println(i);
        this.i = j * 20;
    }
}

public class MainClass
{
    public static void main(String[] args)
    {
        B b = new B(20);
        System.out.println(b.i);
    }
}
```

Options :

1. ✖ 20 10 400
2. ✖ 400 20 10
3. ✖ 400 10 20
4. ✔

10 200 400

Question Number : 177 Question Id : 5069615792 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which keyword is used to define a constant variable in java?

Options :

1. ✖ Static
2. ✖ Const
3. ✔ Final
4. ✖ Immutable

Question Number : 178 Question Id : 5069615793 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a type of polymorphism in java?

Options :

1. ✖ Multiple polymorphism
2. ✖ Multilevel polymorphism
3. ✖ Execution time polymorphism
4. ✔ Compile time polymorphism

Question Number : 179 Question Id : 5069615794 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is chained exception in java?

Options :

1. ✖ Exceptions occurred by the Virtual Machine Error
2. ✔ An exception caused by other exceptions
3. ✖ Exceptions occur in chains with discarding the debugging information
4. ✖ There is no such concept in java

Question Number : 180 Question Id : 5069615795 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is an interface with no methods or fields called?

Options :

1. ✔ Marker Interface
2. ✖ Abstract Interface
3. ✖ Runnable Interface
4. ✖ Sequence Interface

Question Number : 181 Question Id : 5069615796 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of these methods is used to register a mouse motion listener?

Options :

1. ✖ `addMouse()`
2. ✖ `eventMouseListener()`
3. ✖ `addMouseListener()`
4. ✔ `addMouseMotionListener()`

Question Number : 182 Question Id : 5069615797 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What are the major components of the JDBC?

Options :

1. ✖ `DriverManager, Driver, Connection and ResultSet`
2. ✔ `DriverManager, Driver, Connection and Statement`
3. ✖ `DriverManager, Statement and ResultSet`
4. ✖ `DriverManager, Connection, Statement and ResultSet`

Question Number : 183 Question Id : 5069615798 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is True for Python tuple

Options :

A tuple do not allow duplicate values

1. ✖

A tuple is unordered

2. ✖

We can change the tuple once created

3. ✖

We cannot change the tuple once created

4. ✔

Question Number : 184 Question Id : 5069615799 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What will be the output of the following Python code?

class tester:

```
def __init__(self, id):  
    self.id = str(id)  
    id="224"
```

```
temp = tester(12)  
print(temp.id)
```

Options :

1. ✔ 12

2. ✖ 224

3. ✖ None

4. ✖ Error

Question Number : 185 Question Id : 5069615800 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The output of the following code is

```
sampleList = [10, 20, 30, 40]
```

```
del sampleList[0:6]
```

```
print(sampleList)
```

Options :

1.  `[]`
2.  `List index out of range`
3.  `[10,20]`
4.  `TypeError`

Question Number : 186 Question Id : 5069615801 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The output of the following program is

```
tuple = {}
```

```
tuple[(1,2,4)] = 8
```

```
tuple[(4,2,1)] = 10
```

```
tuple[(1,2)] = 12
```

```
_sum = 0
```

```
for k in tuple:
```

```
    _sum += tuple[k]
```

```
print(len(tuple) + _sum)
```

Options :

1.  `12`

31

2. ✖

33

3. ✔

34

4. ✖

Question Number : 187 Question Id : 5069615802 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following will not raise an error in Python?

Options :

1. ✔ `math.inf + 1`

2. ✖ `math.nan / 0`

3. ✖ `math.log(-5)`

4. ✖ `math.sqrt(-1)`

Question Number : 188 Question Id : 5069615803 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The primary limitation of using `grid()` and `pack()` together in the same parent widget is

Options :

1. ✖ It increases the window size

2. ✖ It makes widgets overlap

3. ✖ It does not allow widgets to be resized
4. ✔ It causes an error or unexpected behavior

Question Number : 189 Question Id : 5069615804 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The output of the following program is

```
List = [True, 50, 10]
List.insert(2, 5)
print(List, "Sum is: ", sum(List))
```

Options :

1. ✖ [True, 50, 10, 5] Sum is: 66
2. ✖ [True, 50, 5, 10] Sum is: 65
3. ✖ TypeError: unsupported operand type(s) for +: 'int' and 'str'
4. ✔ [True, 50, 5, 10] Sum is: 66

Question Number : 190 Question Id : 5069615805 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The output of the following program is

```
L = [1, 3, 5, 7, 9]
print(L.pop(-3), end = ' ')
print(L.remove(L[0]), end = ' ')
print(L)
```

Options :

1.  5 None [3, 7, 9]
2.  5 1 [3, 7, 9]
3.  5 1 [7, 9]
4.  5 None [1, 3, 7, 9]

Question Number : 191 Question Id : 5069615806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The final content of file.txt after running this code is

```
f = open("file.txt", "w")  
f.write("Line 1\n")  
f.flush()  
f.write("Line 2\n")  
f.close()
```

Options :

1.  Line 1\nLine 2\n
2.  Line 2\n
3.  Line 1\n
4.  Undefined behavior

Question Number : 192 Question Id : 5069615807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The output of the following code is

```
import threading
```

```
def task():
```

```
    print("Thread running")
```

```
t = threading.Thread(target=task)
```

```
t.start()
```

```
print("Main thread exiting")
```

Options :

1. ✖ Only "Main thread exiting"
2. ✔ "Thread running" followed by "Main thread exiting"
3. ✖ "Main thread exiting" followed by "Thread running"
4. ✖ "Thread running" never prints

Question Number : 193 Question Id : 5069615808 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

HTML has language element which permit certain actions other than describing the structure of the web document. Which one of the following actions is NOT supported by pure HTML (without any server or client side scripting) pages?

Options :

1. ✖ Automatically redirect to another page upon download
2. ✖

Embed web objects from different sites into the same page

3. ✓ Display the client time as part of the page
4. ✗ Refresh the page automatically after a specified interval

Question Number : 194 Question Id : 5069615809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is/are FALSE?

- I. XML overcomes the limitations in HTML to support a structured way of organizing content.
- II. XML specification is not case sensitive while HTML specification is case sensitive.
- III. XML supports user defined tags while HTML uses pre-defined tags.
- IV. XML tags need not be closed while HTML tags must be closed.

Options :

1. ✗ II only
2. ✓ II and IV only
3. ✗ I only
4. ✗ III and IV only

Question Number : 195 Question Id : 5069615810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the tag is used to create a number list?

Options :

1. ✖ `<LI>`
2. ✖ `<OL>`
3. ✔ `<LI and OL>`
4. ✖ `<NL>`

Question Number : 196 Question Id : 5069615811 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The _____ tag is an inline container used to mark up a part of a text or a part of a document.

Options :

1. ✖ `<map>`
2. ✔ `<span>`
3. ✖ `<img>`
4. ✖ `<tt>`

Question Number : 197 Question Id : 5069615812 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is used to create a link to another documents by using href attribute.

Options :

1. ✖ `<b>`
2. ✖ `<blink>`
3. ✔ `<a>`
4. ✖ `<hlink>`

Question Number : 198 Question Id : 5069615813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A client can use _____ request to get a web resource from the server.

Options :

1. ✖ PUT
2. ✔ GET
3. ✖ POST
4. ✖ HEAD

Question Number : 199 Question Id : 5069615814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Variable name in PHP starts with

Options :

1. ✖ ! (Exclamation)
2. ✔

\$ (Dollar)

3. ✖ & (Ampersand)

4. ✖ # (Hash)

Question Number : 200 Question Id : 5069615815 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is true regarding HTTP?

Options :

- 1. ✖ Web browsers use only HTTP as a communication protocol with servers
- 2. ✖ It refers to resources using their Universal Resource Identifier (URI)
- 3. ✖ It is designed to route information based on content
- 4. ✔ It does not maintain any connection information on previous transactions