

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 :	Computer Science and Engineering 23rd Apr 2026 Shift 1
Subject Name :	Computer Science and Engineering
Creation Date :	2026-04-23 15:16:23
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Total Marks :	200
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Change Font Color :	No
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Computer Science and Engineering

Group Number :	1
Group Id :	77951858
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
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Break time :	0
Group Marks :	200

Mathematics

Section Id :	779518225
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Section Negative Marks :	0
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	779518241
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 77951811409 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 4 & 9 \end{bmatrix}$, the minor M_{23} of the a_{23} is

Options :

1. ✘ 10

2. ✔ -10

3. ✘ -6

4. ✘ 6

Question Number : 2 Question Id : 77951811410 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$ then the value of x is

Options :

1. ✘ 3

2. ✔ ± 6

3. ✘ -3

4. ✘ ± 2

Question Number : 3 Question Id : 77951811411 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If A is a square matrix of order 3 and $|A| = 5$, then the value of $|2A^T|$ is

Options :

1. ✘ -10

2. ✘ 10

3. ✔ 40

4. ✘ -40

Question Number : 4 Question Id : 77951811412 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following systems has non trivial solution ?

Options :

1. ✘ $AX = 0, |A| = 4$

2. ✘ $AX = 0, |A| = -4$

3. ✔ $AX = 0, |A| = 0$

4. ✘ $AX = B, |B| = 5$

Question Number : 5 Question Id : 77951811413 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\begin{bmatrix} x+y & 2 \\ 1 & x-y \end{bmatrix} = \begin{bmatrix} 4 & 2 \\ 1 & 2 \end{bmatrix}$, then the values of x and y are:

Options :

1. ✓ $x = 3, y = 1$
2. ✗ $x = 1, y = 3$
3. ✗ $x = 2, y = 3$
4. ✗ $x = 1, y = 1$

Question Number : 6 Question Id : 77951811414 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\frac{x+4}{(x+2)^2(x+3)} = \frac{A}{(x+2)^2} + \frac{B}{(x+2)} + \frac{C}{(x+3)}$ then $A + B + C =$

Options :

1. ✓ 2
2. ✗ 1
3. ✗ -1
4. ✗ 3

Question Number : 7 Question Id : 77951811415 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\frac{x}{(x-1)^2(x+2)} = \frac{A}{(x-1)^2} + \frac{2}{9(x-1)} + \frac{B}{(x+2)}$ then $A + B =$

Options :

1. ✗ $1/3$
2. ✓

3. ✘ $-1/3$

4. ✘ $2/3$

Question Number : 8 Question Id : 77951811416 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\tan A = \frac{1}{2}$ and $\tan B = \frac{1}{3}$, then $A + B =$

Options :

1. ✘ 30°

2. ✔ 45°

3. ✘ 60°

4. ✘ 90°

Question Number : 9 Question Id : 77951811417 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $2\sin^{-1}x = \sin^{-1}k$ then $k =$

Options :

1. ✔ $2x\sqrt{1-x^2}$

2. ✘ $2x$

3. ✘ x^2

4. ✘ $1 - 2x^2$

Question Number : 10 Question Id : 77951811418 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\sin^{-1}\frac{5}{x} + \sin^{-1}\frac{12}{x} = \frac{\pi}{2}$, then $x =$

Options :

1. ✘ 12

2. ✘ 7

3. ✔ 13

4. ✘ 15

Question Number : 11 Question Id : 77951811419 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The number of solutions of the equation $\sin 2x - \cos 2x = 2 - \sin 2x$ lying in the interval $[0, \pi]$ is

Options :

1. ✘ 0

2. ✘ 1

3. ✔ 2

4. ✘ 3

Question Number : 12 Question Id : 77951811420 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\tan \theta + \sec \theta = \sqrt{3}$ then the principal value of θ in $[0, 2\pi]$ is

Options :

1. ✘ $\pi/4$

2. ✓ $\pi/6$

3. ✗ $\pi/2$

4. ✗ $2\pi/3$

Question Number : 13 Question Id : 77951811421 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\frac{\tan x - 1 + \sec x}{\tan x - \sec x + 1} =$$

Options :

1. ✗ $\frac{1 - \sin x}{\cos x}$

2. ✓ $\frac{1 + \sin x}{\cos x}$

3. ✗ $\frac{1 + \cos x}{\sin x}$

4. ✗ $\frac{1 - \cos x}{\sin x}$

Question Number : 14 Question Id : 77951811422 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\tan 9^\circ - \tan 27^\circ - \tan 63^\circ + \tan 81^\circ =$$

Options :

1. ✗ 2

2. ✗ 1

3. ✓ 4

4. ✘ 3

Question Number : 15 Question Id : 77951811423 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\cos \theta = \frac{1}{2} \left(a + \frac{1}{a} \right)$, then $4\cos^3 \theta - 3\cos \theta =$

Options :

1. ✘ $a^3 + \frac{1}{a^3}$

2. ✔ $\frac{1}{2} \left(a^3 + \frac{1}{a^3} \right)$

3. ✘ $\frac{1}{4} \left(a^3 + \frac{1}{a^3} \right)$

4. ✘ $\frac{1}{3} \left(a^3 + \frac{1}{a^3} \right)$

Question Number : 16 Question Id : 77951811424 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$\cos 6^\circ \sin 24^\circ \cos 72^\circ =$

Options :

1. ✘ $1/4$

2. ✘ $-1/8$

3. ✘ $-1/4$

4. ✔ $1/8$

Question Number : 17 Question Id : 77951811425 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\tan^{-1}1 + \tan^{-1}2 + \tan^{-1}3 =$$

Options :

1. ✘ $3\pi/4$

2. ✘ $\pi/2$

3. ✔ π

4. ✘ 2π

Question Number : 18 Question Id : 77951811426 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\text{If } z_1 = 4i^{40} - 5i^{35} + 6i^{17} + 2, z_2 = -1 + i \text{ then } |z_1 + z_2| =$$

Options :

1. ✔ 13

2. ✘ 5

3. ✘ 15

4. ✘ 12

Question Number : 19 Question Id : 77951811427 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The conjugate of $(1 + i)^3$ is

Options :

1. ✘ $1 + 2i$

2. ✘ $-2 + 2i$

3. ✓ $-2 - 2i$

4. ✗ $1 - 2i$

Question Number : 20 Question Id : 77951811428 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The equation of a circle whose Centre is $(-3, 2)$ and area is 176 units is

Options :

1. ✗ $x^2 + y^2 + 6x - 4y - 36 = 0$

2. ✓ $x^2 + y^2 + 6x - 4y - 43 = 0$

3. ✗ $x^2 + y^2 - 6x + 4y - 36 = 0$

4. ✗ $x^2 + y^2 - 6x + 4y - 43 = 0$

Question Number : 21 Question Id : 77951811429 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The equation of a circle whose Centre is $(2, -1)$ and which passes through the point $(3, 6)$ is

Options :

1. ✗ $x^2 + y^2 + 4x + 2y - 45 = 0$

2. ✗ $x^2 + y^2 - 2x + 2y - 50 = 0$

3. ✗ $x^2 + y^2 + 2x + 2y - 50 = 0$

4. ✓ $x^2 + y^2 - 4x + 2y - 45 = 0$

Question Number : 22 Question Id : 77951811430 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If the parabola $y^2 = 4ax$ passes through the point (3, 2) then the length of its latus rectum is:

Options :

1. ✓ $4/3$

2. ✗ 4

3. ✗ $2/3$

4. ✗ $1/3$

Question Number : 23 Question Id : 77951811431 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The line $y = mx + 2$ is a tangent to the parabola $y^2 = 8x$ if

Options :

1. ✓ $m = 1$

2. ✗ $m = 2$

3. ✗ $m = 3$

4. ✗ $m = 4$

Question Number : 24 Question Id : 77951811432 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The length of the latusrectum and eccentricity of the Hyperbola $9x^2 - 16y^2 = 144$ are

Options :

1. ✘ $\left(\frac{9}{4}, \frac{5}{4}\right)$

2. ✔ $\left(\frac{9}{2}, \frac{5}{4}\right)$

3. ✘ $\left(\frac{9}{2}, \frac{5}{2}\right)$

4. ✘ $\left(9, \frac{5}{2}\right)$

Question Number : 25 Question Id : 77951811433 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The equation of the ellipse with foci at $(\pm 3, 0)$ and the eccentricity as $1/3$ is :

Options :

1. ✔ $\frac{x^2}{81} + \frac{y^2}{72} = 1$

2. ✘ $\frac{x^2}{9} + \frac{y^2}{8} = 1$

3. ✘ $\frac{x^2}{8} + \frac{y^2}{9} = 1$

4. ✘ $\frac{x^2}{3} + \frac{y^2}{2} = 1$

Question Number : 26 Question Id : 77951811434 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x =$$

Options :

1. ✘ 0

2. ✘ 1

3. ✔ e

4. ✘ ∞

Question Number : 27 Question Id : 77951811435 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x} =$$

Options :

1. ✘ 0

2. ✔ $1/2$

3. ✘ 1

4. ✘ ∞

Question Number : 28 Question Id : 77951811436 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\text{If } y = \frac{(a \cos x + b \sin x + C)}{\sin x} \text{ then } \frac{dy}{dx} =$$

Options :

1. ✔ $-a \operatorname{cosec}^2 x - c \operatorname{cosec} x \cot x$

2. ✘ $-a$

3. ✘ $-a \operatorname{cosec}^2 x + b \sec^2 x + c \operatorname{cosec} x \cot x$

4. ✘ $a \operatorname{cosec}^2 x - c \operatorname{cosec} x \cot x$

Question Number : 29 Question Id : 77951811437 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $y = \sqrt{x + \sqrt{x + \sqrt{x + \dots \infty}}}$ then $\frac{dy}{dx} =$

Options :

1. ✘ $\frac{1}{2y}$

2. ✘ $\frac{1}{1-2y}$

3. ✘ $\frac{1}{2(1-2y)}$

4. ✔ $\frac{-1}{1-2y}$

Question Number : 30 Question Id : 77951811438 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Slope of the tangent to the curve $y = 9x^2 + 7x^4 + 5$ at the point $x = 1$ is

Options :

1. ✘ 28

2. ✘ 16

3. ✔ 46

4. ✘ $\frac{1}{46}$

Question Number : 31 Question Id : 77951811439 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $f(x) = \begin{cases} 4(5^x) & x < 0 \\ 8k + x & x \geq 0 \end{cases}$ then $f'(-1) =$

Options :

1. ✘ $\frac{2}{5} \log 5$

2. ✔ $\frac{4}{5} \log 5$

3. ✘ $\frac{3}{5} \log 5$

4. ✘ $20 \log 5$

Question Number : 32 Question Id : 77951811440 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $2^x + 2^y = 2^{x+y}$, then $\frac{dy}{dx} =$

Options :

1. ✔ $1 - 2^y$

2. ✘ $1 - \frac{1}{2^y}$

3. ✘ $1 + 2^{-y}$

4. ✘ $1 + 2^y$

Question Number : 33 Question Id : 77951811441 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $y + \sin^{-1}(1 - x^2) = e^x$, then $\frac{dy}{dx} =$

Options :

1. ✘ $e^x - \frac{2}{\sqrt{2-x^2}}$

2. ✘ $e^x - \frac{2}{\sqrt{2+x^2}}$

3. ✔ $e^x + \frac{2}{\sqrt{2-x^2}}$

4. ✘ $e^x + \frac{2}{\sqrt{2+x^2}}$

Question Number : 34 Question Id : 77951811442 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $y(x) = x^x$, $x > 0$, then $y''(2) - 2y'(2) =$

Options :

1. ✘ $4 \log_e 2 - 2$

2. ✘ $4 \log_e 2 + 2$

3. ✘ $4 (\log_e 2)^2 + 2$

4. ✔ $4 (\log_e 2)^2 - 2$

Question Number : 35 Question Id : 77951811443 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $z = x^2y^3 + e^y \sin x$, then $\frac{\partial^2 z}{\partial x \partial y} =$

Options :

1. ✔ $6xy^2 + e^y \cos x$

2. ✘ $3x^2y^2 + e^y \sin x$

3. ✘ $3x^2y^2 + e^y \cos x$

4. ✘ $6xy^2 + e^y \sin x$

Question Number : 36 Question Id : 77951811444 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{\sin^2 x \cos^2 x} =$$

Options :

1. ✘ $\tan x + \cot x + c$

2. ✔ $\tan x - \cot x + c$

3. ✘ $\tan x \cot x + c$

4. ✘ $\tan x + \sec x + c$

Question Number : 37 Question Id : 77951811445 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{\sqrt{x+1} + \sqrt{x}} =$$

Options :

1. ✔ $\frac{2}{3} [(x+1)^{\frac{3}{2}} - (x)^{\frac{3}{2}}] + c$

2. ✘ $\frac{2}{3} [(x+1)^{\frac{3}{2}} + (x)^{\frac{3}{2}}] + c$

3. ✘ $\frac{3}{2} [(x+1)^{\frac{3}{2}} - (x)^{\frac{3}{2}}] + c$

4. ✘ $\frac{3}{2}[(x+1)^{\frac{3}{2}} + (x)^{\frac{3}{2}}] + c$

Question Number : 38 Question Id : 77951811446 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $\int \frac{\sin^3 x + \cos^3 x}{\sin^2 x \cos^2 x} dx = A \sec x + B \operatorname{cosec} x + c$, then (A, B) are

Options :

1. ✘ (1, 1)

2. ✘ (-1, -1)

3. ✔ (1, -1)

4. ✘ (-1, 1)

Question Number : 39 Question Id : 77951811447 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The integral of $f(x) = 1 + x^2 + x^4$ with respect to x^2 is

Options :

1. ✘ $x + \frac{x^3}{3} + \frac{x^5}{5} + C$

2. ✘ $\frac{x^3}{3} + \frac{x^5}{5} + C$

3. ✘ $x^2 + \frac{x^4}{4} + \frac{x^6}{6} + C$

4. ✔ $x^2 + \frac{x^4}{2} + \frac{x^6}{3} + C$

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\frac{\pi}{2}} \frac{\sin^{100}x}{\sin^{100}x + \cos^{100}x} dx =$$

Options :

1. ✘ $\pi/2$

2. ✔ $\pi/4$

3. ✘ 100

4. ✘ 50

Question Number : 41 Question Id : 77951811449 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\int_0^1 x \sqrt{x^2 + 4} dx =$$

Options :

1. ✘ $\frac{1}{3}[5\sqrt{5} - 4]$

2. ✘ $\frac{1}{2}[5\sqrt{5} - 8]$

3. ✔ $\frac{1}{3}[5\sqrt{5} - 8]$

4. ✘ $\frac{1}{3}[5\sqrt{5} + 4]$

Question Number : 42 Question Id : 77951811450 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\int_{-\pi/6}^{\pi/6} \frac{\sin^5x \cos^3x}{x^4} dx =$$

Options :

1. ✘ $\pi/2$

2. ✘ $\pi/4$

3. ✔ 0

4. ✘ 1

Question Number : 43 Question Id : 77951811451 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{\sqrt{16 - 25x^2}} =$$

Options :

1. ✔ $\frac{1}{5} \sin^{-1} \left(\frac{5x}{4} \right) + c$

2. ✘ $\sin^{-1} \left(\frac{5x}{4} \right) + c$

3. ✘ $\frac{1}{5} \sin^{-1} \left(\frac{x}{4} \right) + c$

4. ✘ $\frac{1}{5} \sin^{-1} \left(\frac{4x}{5} \right) + c$

Question Number : 44 Question Id : 77951811452 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $x \frac{dy}{dx} + y = 0$ passing through the point (1,1) is y =

Options :

1. ✘ x^2

2. ✔ x^{-1}

3. ✘ x^{-2}

4. ✘ x

Question Number : 45 Question Id : 77951811453 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✘ 4

2. ✘ 3

3. ✔ 2

4. ✘ 1

Question Number : 46 Question Id : 77951811454 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The order of the differential equation of all circles passing through the origin and having their centers on the x – axis is

Options :

1. ✘ 4

2. ✘ 3

3. ✘ 2

4. ✔ 1

Question Number : 47 Question Id : 77951811455 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If a and b are arbitrary constants, then the differential equation representing the family of curves $y = a \sin(x + b)$ is

Options :

1. ✘ $\frac{d^2y}{dx^2} - y = 0$

2. ✔ $\frac{d^2y}{dx^2} + y = 0$

3. ✘ $\frac{d^2y}{dx^2} - y^2 = 0$

4. ✘ $\frac{dy}{dx} - y = 0$

Question Number : 48 Question Id : 77951811456 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The differential equation is $\frac{dy}{dx} + \frac{y}{x} = 0$ and $y(1) = 2$. Then the value of $y(3) =$

Options :

1. ✘ 2

2. ✘ 3

3. ✔ $\frac{2}{3}$

4. ✘ 1

Question Number : 49 Question Id : 77951811457 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✘ $e^{-y} = e^x + \frac{x^3}{3} + c$

2. ✔ $e^y = e^x + \frac{x^3}{3} + c$

3. ✘ $e^y = e^x + x^3 + c$

4. ✘ $e^y = e^x + c$

Question Number : 50 Question Id : 77951811458 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The differential equation is $\frac{dy}{dx} + y \tan x = \sec x$ and $y(0) = 1$. Then the value of $y\left(\frac{\pi}{4}\right) =$

Options :

1. ✘ 0

2. ✔ $\sqrt{2}$

3. ✘ 1

4. ✘ -1

Section Id :	77951822
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Section Negative Marks :	0
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	779518242
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 77951811459 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If $P = F \cdot v \sin \beta t$ where F is force and v is velocity then the dimensions of P and β are

Options :

1. ✓ $ML^2 T^{-3}, T^{-1}$
2. ✗ $ML T^{-2}, T^{-2}$
3. ✗ $ML^2 T^{-1}, T^{-1}$
4. ✗ $ML^2 T^3, T^{-2}$

Question Number : 52 Question Id : 77951811460 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If velocity V , energy E and time T are chosen as fundamental quantities then dimensional representation of surface tension in this system will be

Options :

1. ✓ $E^1 V^{-2} T^{-2}$
2. ✗ $E^1 V^{-1} T^{-2}$

3. ✘ $E^{-2} V^{-1} T^{-3}$

4. ✘ $E^1 V^{-2} T^{-1}$

Question Number : 53 Question Id : 77951811461 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

If $|\mathbf{A} + \mathbf{B}| = |\mathbf{A} - \mathbf{B}|$, then the angle between the two vectors \mathbf{A} and \mathbf{B} is

Options :

1. ✘ 0°

2. ✘ 180°

3. ✘ 120°

4. ✔ 90°

Question Number : 54 Question Id : 77951811462 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

An aeroplane is moving in a circular path with a speed of 450 Kmph. What is the change in velocity in half revolution?

Options :

1. ✘ 0 Kmph

2. ✘ 450 Kmph

3. ✘ 250 Kmph

4. ✔ 900 Kmph

Question Number : 55 Question Id : 77951811463 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The ratio between maximum and minimum values of two vectors \vec{A} and \vec{B} ($|\vec{A}| > |\vec{B}|$) is 1:4. Then

the ratio between the magnitudes of two vectors is

Options :

1. ✘ 3:2
2. ✔ 5:3
3. ✘ 2:3
4. ✘ 3:5

Question Number : 56 Question Id : 77951811464 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The magnitudes of three vectors \vec{A} , \vec{B} and \vec{C} are 12, 5 and 13 units respectively and $\vec{A} + \vec{B} = \vec{C}$. The angle between \vec{A} and \vec{B} is

Options :

1. ✘ 0°
2. ✘ 120°
3. ✔ 90°
4. ✘ 45°

Question Number : 57 Question Id : 77951811465 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A body falling from height 'H' takes time 'T' seconds to reach the ground. The time taken to cover the second half of height is

Options :

1. ✘ $\frac{T}{\sqrt{2}}$

2. ✘ $\sqrt{2} T$

3. ✔ $\left(\frac{\sqrt{2}-1}{\sqrt{2}}\right) T$

4. ✘ $\left(\frac{1}{\sqrt{2}-1}\right) T$

Question Number : 58 Question Id : 77951811466 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

With what speed a body be thrown upwards so that the distances covered in the 5th second and 6th second are equal?

Options :

1. ✘ 75 m/s

2. ✘ $\sqrt{98}$ m/s

3. ✔ 49 m/s

4. ✘ 19.8 m/s

Question Number : 59 Question Id : 77951811467 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A body of mass 1 kg starts moving from rest under the action of a force which varies with

displacement as $F = 2x + 5$ (in newtons). The work done by this force to displace the body from $x = 0$ to $x = 2$ m is:

Options :

1. ✘ 8 J

2. ✘ 10 J

3. ✘

4. ✓ 14 J

Question Number : 60 Question Id : 77951811468 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The potential energy of a particle is given by $U(x) = 20 + (x - 2)^2$, where U is in joules and x in meters. The minimum potential energy and the position where it occurs are:

Options :

1. ✓ 20 J at $x = 2$

2. ✗ 2 J at $x = 20$ m

3. ✗ 22 J at $x = 2$ m

4. ✗ 0 J at $x = 2$ m

Question Number : 61 Question Id : 77951811469 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Power supplied to a particle of mass 2 kg varies with time as $P = 3t^2/2$ watt, where t is in seconds. If velocity at $t = 0$ is zero, the velocity at $t = 2$ s is:

Options :

1. ✗ 1 m/s

2. ✓ 2 m/s

3. ✗ $\sqrt{2}$ m/s

4. ✗

Question Number : 62 Question Id : 77951811470 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A pump is used to deliver water at a certain rate from a given pipe. To obtain twice the volume of water from the same pipe in the same time, by what factor must the power of the motor pump be increased? (Assume ideal conditions, $g = 10 \text{ ms}^{-2}$)

Options :

1. ✘ 4
2. ✔ 8
3. ✘ 16
4. ✘ 32

Question Number : 63 Question Id : 77951811471 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Two identical piano wires, when tuned to a fundamental frequency of 400 Hz, produce no beats. One wire is then slightly tightened, and the beat frequency heard is 2 Hz. What is the new fundamental frequency of the tightened wire?

Options :

1. ✘ 398 Hz
2. ✔ 402 Hz
3. ✘ 404 Hz
4. ✘ 396 Hz

Question Number : 64 Question Id : 77951811472 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A source of sound of frequency 500Hz is moving towards an observer with velocity 30m/s. The speed of sound is 330m/s. The frequency heard by the observer will be:

Options :

1. ✘ 450 Hz
2. ✔ 550 Hz
3. ✘ 600 Hz
4. ✘ 500 Hz

Question Number : 65 Question Id : 77951811473 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In Acoustics, 'Noise' is generally characterized by:

Options :

1. ✔ Irregular and non-periodic vibrations.
2. ✘ A constant pitch and frequency
3. ✘ Vibrations that follow a harmonic series
4. ✘ Regular and periodic vibrations

Question Number : 66 Question Id : 77951811474 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If the volume of a room is doubled and the total absorption is halved, the reverberation time will:

Options :

1. ✘ Remain unchanged
2. ✘ Be doubled
3. ✔ Become four times
4. ✘ Be halved

Question Number : 67 Question Id : 77951811475 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

. In a closed hall of volume 5000 m^3 , the total absorption of the interior surfaces is 200 metric sabin . The reverberation time is:

Options :

1. ✘ 1 s
2. ✘ 2 s
3. ✘ 3 s
4. ✔ 4 s

Question Number : 68 Question Id : 77951811476 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In an Isothermal process

Options :

1. ✘ Internal energy of the system never remains constant
2. ✘ Total heat energy of the system remains constant

3. ✘ Volume of the system remains constant
4. ✔ Temperature of the system remains constant

Question Number : 69 Question Id : 77951811477 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

If the pressure of an ideal gas is doubled and its absolute temperature is halved; the volume will become:

Options :

1. ✔ $1/4$ of initial volume
2. ✘ $1/2$ initial volume
3. ✘ Same as initial volume
4. ✘ 2 times of initial volume

Question Number : 70 Question Id : 77951811478 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

At constant temperature, the product PV is plotted against pressure P for an ideal gas. The graph obtained is:

Options :

1. ✔ Straight line parallel to P -axis
2. ✘ Straight line with positive slope
3. ✘ Straight line through origin
4. ✘ Parabola

Question Number : 71 Question Id : 77951811479 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A bubble of an ideal gas rises from the bottom of a lake to the surface. At the bottom, the pressure is 3 Atm. and the temperature is 7°C . At the surface, the pressure is 1 atm. and the temperature is 27°C . If the initial volume of the bubble was V_0 what is its volume V_f at the surface?

Options :

1. ✘ $3 V_0$

2. ✔ $3.21 V_0$

3. ✘ $0.9 V_0$

4. ✘ $5.4 V_0$

Question Number : 72 Question Id : 77951811480 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The R.M.S. speed of oxygen molecules at 27°C is v . At 927°C , the rms speed will be:

Options :

1. ✘ v

2. ✘ $v/2$

3. ✔ $2v$

4. ✘ $4v$

Question Number : 73 Question Id : 77951811481 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In a photoelectric experiment, the stopping potential for incident light of wavelength 4000 \AA is 2 V .

If the wavelength is changed to 3000 \AA , the new stopping potential will be approximately:

(Use $h = 4.14 \times 10^{-15} \text{ eV} \cdot \text{s}$, $c = 3 \times 10^8 \text{ m/s}$)

Options :

1. ✘ 2 V
2. ✔ 3.03 V
3. ✘ 4.14 V
4. ✘ 1.5 V

Question Number : 74 Question Id : 77951811482 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In Optical Fiber communication, the signal is transmitted in the form of:

Options :

1. ✘ Electrical pulses
2. ✔ Light pulses
3. ✘ Radio waves
4. ✘ Sound waves

Question Number : 75 Question Id : 77951811483 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In a superconducting ring, a persistent current has been flowing without decay for years. This is possible because:

Options :

1. ✔ Resistance is exactly zero and flux is quantized

2. ✘ Resistance is very small but finite
3. ✘ The ring is at absolute zero temperature
4. ✘ Magnetic field lines are expelled

Chemistry

Section Id :	779518227
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Section Negative Marks :	0
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	779518243
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 77951811484 Question Type : MCQ
 Correct Marks : 1 Wrong Marks : 0

The pair of orbitals with electron density maximum along the axes is

Options :

1. ✘ d_{xy}, d_{yz}
2. ✔ $d_z^2, d_{x^2-y^2}$
3. ✘ d_{xz}, d_z^2
4. ✘

Question Number : 77 Question Id : 77951811485 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The angular momentum of an electron in an orbit X of hydrogen atom is $\frac{2h}{\pi}$.

Maximum number of orbitals possible in X is

Options :

1. ✘ 4
2. ✘ 9
3. ✔ 16
4. ✘ 25

Question Number : 78 Question Id : 77951811486 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The four quantum numbers for the electron in the outermost orbital of potassium (Z=19) are

Options :

1. ✘ $n=4, l=2, m=-1, s=+1/2$
2. ✔ $n=4, l=0, m=0, s=+1/2$
3. ✘ $n=3, l=0, m=1, s=+1/2$
4. ✘ $n=4, l=3, m=-2, s=-1/2$

Correct Marks : 1 Wrong Marks : 0

In which of the following, the number of bonding electrons and non-bonding electrons are in 3:2 ratio?

Options :

1. ✓ N_2

2. ✗ O_2

3. ✗ HCl

4. ✗ F_2

Question Number : 80 Question Id : 77951811488 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which one of the following statements is not correct?

Options :

1. ✗ Ionic bond is non directional bond

2. ✗ The maximum number of bond pairs between two atoms is 3

3. ✓ Covalent compounds conduct electricity in fused state

4. ✗ Ionic compounds are generally soluble in water

Question Number : 81 Question Id : 77951811489 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

12.6 g of oxalic acid, $H_2C_2O_4 \cdot 2H_2O$ (M.wt 126) is present in 1500 mL of solution. The normality of that solution is

Options :

1. ✘ 0.266 N
2. ✔ 0.133 N
3. ✘ 0.399 N
4. ✘ 0.430 N

Question Number : 82 Question Id : 77951811490 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following has highest equivalent weight?
(Given: At.wt H=1, C=12, O=16, S=32, Na=23, Ca=40)

Options :

1. ✘ Sulphuric acid
2. ✘ Sodium carbonate
3. ✔ Sodium sulphate
4. ✘ Calcium carbonate

Question Number : 83 Question Id : 77951811491 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Identify the pair of gases which have same number of molecules at S.T.P ?

Options :

1. ✘ 11 g of CO_2 and 14 g of N_2
2. ✘ 16 g of O_3 and 16 g of CH_4

3. ✓ 5 g of H₂ and 40 g of CH₄
4. ✗ 28 g of N₂ and 22 g of CO₂

Question Number : 84 Question Id : 77951811492 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

100 mL of 0.1M HCl and 100 mL of 0.05 M H₂SO₄ are mixed and the solution is diluted to 2.0 L by adding water. The pH of the resulting solution is

Options :

1. ✗ 1
2. ✗ 3
3. ✓ 2
4. ✗ 4

Question Number : 85 Question Id : 77951811493 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

According to Arrhenius theory of acids and bases, which of the following is an example of Arrhenius base?

Options :

1. ✗ H₂SO₄
2. ✗ NH₃
3. ✓ NaOH
4. ✗ CaO

Correct Marks : 1 Wrong Marks : 0

Electrolysis of an aqueous solution of Na_2SO_4 between Pt electrodes liberate a gas X at anode and gas Y at cathode. X and Y respectively are

Options :

1. ✘ H_2, O_2
2. ✔ O_2, H_2
3. ✘ SO_2, H_2
4. ✘ H_2, SO_2

Question Number : 87 Question Id : 77951811495 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The wrong statement regarding Galvanic cell is

Options :

1. ✘ In this spontaneous redox reaction occurs
2. ✘ Salt bridge maintains electrical neutrality between the two solutions
3. ✔ Anode is represented by (+) and cathode by (-)
4. ✘ At anode oxidation occurs

Question Number : 88 Question Id : 77951811496 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a weak electrolyte?

Options :

1. ✓ H_2CO_3

2. ✗ H_2SO_4

3. ✗ NaCl

4. ✗ NaOH

Question Number : 89 Question Id : 77951811497 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The exhausted anion-exchange resin is regenerated with

Options :

1. ✓ dilute NaOH solution

2. ✗ dilute NaCl solution

3. ✗ dilute HCl solution

4. ✗ dilute Na_2SO_4 solution

Question Number : 90 Question Id : 77951811498 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A sample of water is known to contain $\text{Mg}(\text{HCO}_3)_2 = 7.3 \text{ mg/L}$, $\text{Ca}(\text{HCO}_3)_2 = 8.1 \text{ mg/L}$ and 27.2 mg/L of CaSO_4 .

The total hardness associated with water sample (in ppm) in equivalents of CaCO_3 is

(At.wt H=1, C=12, O=16, Mg = 24, Ca=40, S=32)

Options :

1. ✗ 20

2. ✗

3. ✓ 30

4. ✗ 40

Question Number : 91 Question Id : 77951811499 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The type of functional group associated with cation exchange resin is

Options :

1. ✗ - OH

2. ✓ - SO₃H

3. ✗ - NH₂

4. ✗ - CHO

Question Number : 92 Question Id : 77951811500 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Identify the incorrect statement about the corrosion

Options :

1. ✗ In the composition type of galvanic cell, metal with lower standard reduction potential undergoes corrosion

2. ✗ In stress cell type of galvanic cell, corrosion occurs at the stressed area of the metal

3. ✓ The rate of corrosion is more, when the area of cathode is smaller

In concentration cell type of galvanic cell, the metal below the water level undergoes corrosion readily

4. ✘

Question Number : 93 Question Id : 77951811501 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In galvanised iron

Options :

1. ✓ Zn acts as anode and Fe acts as cathode

1. ✓

2. ✘ Zn acts as cathode and Fe acts as anode

2. ✘

3. ✘ Sn acts as anode and Fe acts as cathode

3. ✘

4. ✘ Sn acts as cathode and Fe acts as anode

4. ✘

Question Number : 94 Question Id : 77951811502 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

During Vulcanization of raw rubber, the chemical added to it is

Options :

1. ✓ Sulphur

1. ✓

2. ✘ Phosphorus

2. ✘

3. ✘ Iodine

3. ✘

4. ✘ Sodium

4. ✘

Correct Marks : 1 Wrong Marks : 0

Which of the following is a natural polymer?

Options :

1. ✓ Cellulose
2. ✗ Teflon
3. ✗ Polyvinylchloride
4. ✗ Neoprene rubber

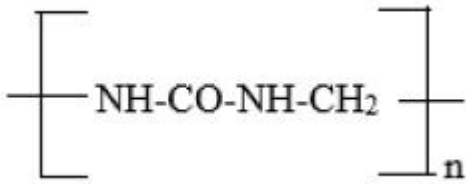
Question Number : 96 Question Id : 77951811504 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The structure of Buna -S polymer is

Options :

1. ✓
$$\left[\text{CH}_2 - \text{CH} = \text{CH} - \text{CH}_2 - \underset{\text{C}_6\text{H}_5}{\text{CH}} - \text{CH}_2 \right]_n$$
2. ✗
$$\left[\text{CH}_2 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_2 - \underset{\text{CN}}{\text{CH}} \right]_n$$
3. ✗
$$\left[\text{CH}_2 - \underset{\text{Cl}}{\text{C}} = \text{CH} - \text{CH}_2 \right]_n$$



4. ✘

Question Number : 97 Question Id : 77951811505 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The polymer used in making gaskets and nono-stick coating utensils is

Options :

1. ✘ Polyvinyl chloride

2. ✘ Polystyrene

3. ✔ Polytetrafluoroethylene

4. ✘ Polythene

Question Number : 98 Question Id : 77951811506 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is not to be considered as a primary fuel ?

Options :

1. ✘ Wood

2. ✘ Petroleum

3. ✔ Coke

4. ✘ Coal

Question Number : 99 Question Id : 77951811507 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The oxide of nitrogen responsible for depletion of ozone layer is

Options :

1. ✘ N_2O
2. ✘ NO_2
3. ✔ NO
4. ✘ N_2O_3

Question Number : 100 Question Id : 77951811508 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The BOD of highly polluted water is

Options :

1. ✔ 17 ppm
2. ✘ 10 ppm
3. ✘ 8 ppm
4. ✘ 12 ppm

Computer Science and Engineering

Section Id :

779518228

Section Number :

4

Section type :

Online

Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Section Negative Marks :	0
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	779518244
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 77951811509 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which logic gate produces an output of 0 only when all inputs are 1?

Options :

1. ✘ AND
2. ✘ OR
3. ✔ NAND
4. ✘ NOR

Question Number : 102 Question Id : 77951811510 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The Boolean expression $A + AB$ simplifies to

Options :

1. ✔ A
2. ✘ AB
3. ✘ B
4. ✘ $1 + B$

Question Number : 103 Question Id : 77951811511 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which flip-flop has an invalid state?

Options :

1. ✘ D
2. ✘ JK
3. ✘ T
4. ✔ SR

Question Number : 104 Question Id : 77951811512 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Convert the binary number 101101 into its decimal equivalent.

Options :

1. ✘ 43
2. ✔ 45
3. ✘ 44
4. ✘ 46

Question Number : 105 Question Id : 77951811513 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The number of outputs of a 4-bit decoder is

Options :

1. ✘ 4

2. ✘ 8

3. ✔ 16

4. ✘ 32

Question Number : 106 Question Id : 77951811514 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which flip-flop toggles its output on every clock pulse when input is HIGH?

Options :

1. ✘ SR flip-flop

2. ✘ JK flip-flop

3. ✘ D flip-flop

4. ✔ T flip-flop

Question Number : 107 Question Id : 77951811515 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ model follows the approach where partial functionality is delivered early and enhanced in successive versions.

Options :

1. ✘ Waterfall

2. ✔ Incremental

3. ✘ V-Model

4. ✘ Prototyping

Question Number : 108 Question Id : 77951811516 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which factor MOST affects software project cost estimation?

Options :

1. ✘ Programming language syntax
2. ✘ Team communication
3. ✔ Project size and complexity
4. ✘ User interface design

Question Number : 109 Question Id : 77951811517 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Testing that verifies software against user requirements is known as

Options :

1. ✘ Unit testing
2. ✘ Integration testing
3. ✔ Validation testing
4. ✘ Regression testing

Question Number : 110 Question Id : 77951811518 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ testing technique does NOT require knowledge of internal code structure

Options :

1. ✓ Black-box testing
2. ✗ Control flow testing
3. ✗ Path testing
4. ✗ White-box testing

Question Number : 111 Question Id : 77951811519 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A design principle that limits the interaction between modules is called

Options :

1. ✗ High cohesion
2. ✓ Low coupling
3. ✗ Functional dependence
4. ✗ Stepwise refinement

Question Number : 112 Question Id : 77951811520 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Software reliability refers to the probability that software will

Options :

1. ✗ Run faster
2. ✗ Be reused

3. ✘ Consume less memory
4. ✔ Operate without failure

Question Number : 113 Question Id : 77951811521 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The register that holds the address of the next instruction to be executed is

Options :

1. ✘ Instruction Register
2. ✘ Stack Pointer
3. ✘ Flag Register
4. ✔ Program Counter

Question Number : 114 Question Id : 77951811522 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which addressing mode specifies the operand within the instruction itself?

Options :

1. ✘ Direct
2. ✔ Immediate
3. ✘ Indirect
4. ✘ Register

Question Number : 115 Question Id : 77951811523 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

How many address lines are available in the 8086 microprocessor?

Options :

1. ✘ 16
2. ✔ 20
3. ✘ 24
4. ✘ 32

Question Number : 116 Question Id : 77951811524 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In 2's complement representation, the most significant bit (MSB) indicates

Options :

1. ✘ Magnitude
2. ✘ Carry
3. ✘ Overflow
4. ✔ Sign of the number

Question Number : 117 Question Id : 77951811525 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a status flag in 8086?

Options :

1. ✘ Direction flag
2. ✘

Interrupt flag

3. ✘ Trap flag

4. ✔ Overflow flag

Question Number : 118 Question Id : 77951811526 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The main advantage of cache memory is that it

Options :

1. ✘ Increases storage capacity

2. ✔ Reduces access time

3. ✘ Stores permanent data

4. ✘ Supports I/O operations

Question Number : 119 Question Id : 77951811527 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which number representation is commonly used to represent negative integers in computers?

Options :

1. ✘ Sign-magnitude

2. ✘ 1's complement

3. ✔ 2's complement

4. ✘

Question Number : 120 Question Id : 77951811528 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which binary arithmetic operation is easiest to implement using shift operations?

Options :

1. ✘ Addition
2. ✘ Subtraction
3. ✔ Multiplication
4. ✘ Division

Question Number : 121 Question Id : 77951811529 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which searching technique requires the data to be sorted before searching?

Options :

1. ✘ Linear Search
2. ✘ Hashing
3. ✔ Binary Search
4. ✘ Sequential Search

Question Number : 122 Question Id : 77951811530 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which operation removes an element from the top of a stack.

Options :

1. ✘ Push
2. ✔ Pop
3. ✘ Remove
4. ✘ Delete

Question Number : 123 Question Id : 77951811531 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Queue follows the principle of

Options :

1. ✔ FIFO
2. ✘ FILO
3. ✘ LIFO
4. ✘ Random

Question Number : 124 Question Id : 77951811532 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A tree data structure is best described as

Options :

1. ✘ Linear Structure
2. ✘

Sequential Structure

3. ✓ Non-linear structure

4. ✗ Circular Structure

Question Number : 125 Question Id : 77951811533 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The best-case time complexity of Bubble Sort is

Options :

1. ✗ $O(n^2)$

2. ✗ $O(n \log n)$

3. ✓ $O(n)$

4. ✗ $O(\log n)$

Question Number : 126 Question Id : 77951811534 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which data structure is best suited for implementing recursion?

Options :

1. ✗ Array

2. ✓ Stack

3. ✗ Linked List

4. ✘ Queue

Question Number : 127 Question Id : 77951811535 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which sorting algorithm follows the divide-and-conquer strategy?

Options :

1. ✔ Merge sort
2. ✘ Bubble sort
3. ✘ Selection sort
4. ✘ Insertion sort

Question Number : 128 Question Id : 77951811536 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The time complexity of linear search in the worst case is

Options :

1. ✘ $O(1)$
2. ✘ $O(\log n)$
3. ✔ $O(n)$
4. ✘ $O(n \log n)$

Question Number : 129 Question Id : 77951811537 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which data structure is best suited to represent hierarchical data?

Options :

1. ✘ Array

2. ✘ Stack

3. ✘ Queue

4. ✔ Tree

Question Number : 130 Question Id : 77951811538 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which queue variation allows insertion and deletion at both ends?

Options :

1. ✘ Circular queue

2. ✘ Priority queue

3. ✔ Deque

4. ✘ Simple queue

Question Number : 131 Question Id : 77951811539 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A network covering a university campus is classified as

Options :

1. ✘ PAN

2. ✘ WAN

3. ✘ MAN

4. ✔ LAN

Question Number : 132 Question Id : 77951811540 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ topology provides maximum reliability in computer networks.

Options :

1. ✔ Mesh

2. ✘ Star

3. ✘ Bus

4. ✘ Ring

Question Number : 133 Question Id : 77951811541 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a valid IPv4 address?

Options :

1. ✘ 192.168.1.256

2. ✘ 172.16.5

3. ✔ 10.0.0.1

4. ✘ 300.25.1.5

Question Number : 134 Question Id : 77951811542 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ enables efficient IP address usage, improved performance, and enhanced security control.

Options :

1. ✘ Routing
2. ✔ Subnetting
3. ✘ Address Resolution
4. ✘ Switching

Question Number : 135 Question Id : 77951811543 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is a technique which converts readable data into an unreadable form to ensure confidentiality.

Options :

1. ✘ Authentication
2. ✘ Authorization
3. ✔ Encryption
4. ✘ Logging

Question Number : 136 Question Id : 77951811544 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ to a computing system is a set of circumstances that has the potential to cause loss or harm.

Options :

1. ✘ Vulnerability
2. ✔ Threat
3. ✘ Attack
4. ✘ Risk

Question Number : 137 Question Id : 77951811545 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A program in execution is referred to as a

Options :

1. ✘ Job
2. ✔ Process
3. ✘ Thread
4. ✘ Task Manager

Question Number : 138 Question Id : 77951811546 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which OS component is responsible for keeping track of the state of a process?

Options :

1. ✘ Page Table
2. ✔ Process Control Block

3. ✘ Scheduler queue

4. ✘ File descriptor

Question Number : 139 Question Id : 77951811547 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Deadlock can occur only if

Options :

1. ✘ Resources are sharable

2. ✘ CPU scheduling is preemptive

3. ✔ Circular wait condition exists

4. ✘ A process releases all its resources while waiting

Question Number : 140 Question Id : 77951811548 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In paging, the logical address is divided into

Options :

1. ✔ Page number and offset

2. ✘ Segment number and offset

3. ✘ Frame number and offset

4. ✘ Block number and index

Question Number : 141 Question Id : 77951811549 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which disk scheduling strategy services requests closest to the current head position?

Options :

1. ✘ FCFS
2. ✘ SCAN
3. ✔ SSTF
4. ✘ C-SCAN

Question Number : 142 Question Id : 77951811550 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ state indicates that a process is waiting for an I/O operation to complete.

Options :

1. ✔ Blocked
2. ✘ Ready
3. ✘ Running
4. ✘ Terminated

Question Number : 143 Question Id : 77951811551 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is a memory allocation technique which divides memory into fixed-size blocks.

Options :

1. ✘

2. ✘ Compaction
3. ✔ Paging
4. ✘ Swapping

Question Number : 144 Question Id : 77951811552 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The mapping between virtual addresses and physical addresses is maintained by

Options :

1. ✘ CPU
2. ✘ Disk controller
3. ✘ File system
4. ✔ Page Table

Question Number : 145 Question Id : 77951811553 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which page replacement algorithm replaces the page that will not be used for the longest time in future?

Options :

1. ✘ FIFO
2. ✔ Optimal
3. ✘

4. ✘ LFU

Question Number : 146 Question Id : 77951811554 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ disk scheduling algorithm moves the disk arm in one direction servicing requests.

Options :

1. ✘ FIFO

2. ✔ SCAN

3. ✘ SSTF

4. ✘ FCFS

Question Number : 147 Question Id : 77951811555 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A foreign key is mainly used to

Options :

1. ✘ Improve indexing

2. ✔ Enforce referential integrity

3. ✘ Speed up queries

4. ✘ Remove redundancy

Correct Marks : 1 Wrong Marks : 0

Which SQL clause is used to filter grouped results?

Options :

1. ✘ WHERE
2. ✘ GROUP BY
3. ✔ HAVING
4. ✘ ORDER BY

Question Number : 149 Question Id : 77951811557 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ SQL statement is used to remove a table permanently

Options :

1. ✘ TRUNCATE
2. ✘ DELETE
3. ✘ REMOVE
4. ✔ DROP

Question Number : 150 Question Id : 77951811558 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

MongoDB stores data in the form of

Options :

1. ✔ Documents

2. ✘ Tables

3. ✘ Rows

4. ✘ Columns

**Question Number : 151 Question Id : 77951811559 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which SQL command adds a new column to an existing table?

Options :

1. ✘ UPDATE

2. ✔ ALTER

3. ✘ MODIFY

4. ✘ INSERT

**Question Number : 152 Question Id : 77951811560 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which of the following is a key feature of NoSQL databases?

Options :

1. ✘ Fixed schema

2. ✘ Vertical scaling only

3. ✔ Schema flexibility

4. ✘ Mandatory joins

Question Number : 153 Question Id : 77951811561 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which PL/SQL structure allows repeated execution of a block of code?

Options :

1. ✘ IF
2. ✔ LOOP
3. ✘ SELECT
4. ✘ REPEAT

Question Number : 154 Question Id : 77951811562 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is an advantage of NoSQL over traditional RDBMS?

Options :

1. ✘ Strong schema enforcement
2. ✘ Limited scalability
3. ✔ Horizontal scalability
4. ✘ Mandatory normalization

Question Number : 155 Question Id : 77951811563 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ keyword is used to prevent a method from being overridden.

Options :

1. ✘ static
2. ✘ abstract
3. ✘ private
4. ✔ final

Question Number : 156 Question Id : 77951811564 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which Java construct is used to achieve multiple inheritance?

Options :

1. ✘ Abstract classes
2. ✔ Interfaces
3. ✘ Packages
4. ✘ final

Question Number : 157 Question Id : 77951811565 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which keyword is used to explicitly throw an exception in Java?

Options :

1. ✘ throws
2. ✔ throw

3. ✘ try

4. ✘ catch

Question Number : 158 Question Id : 77951811566 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ interface must be implemented to create a thread in Java.

Options :

1. ✘ Thread

2. ✘ IO

3. ✔ Runnable

4. ✘ Start

Question Number : 159 Question Id : 77951811567 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which Java collection does not allow duplicate elements?

Options :

1. ✘ Vector

2. ✘ List

3. ✘ ArrayList

4. ✔ Set

Question Number : 160 Question Id : 77951811568 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

An applet's execution begins with which method?

Options :

1. ✘ start()
2. ✘ main()
3. ✔ init()
4. ✘ paint()

Question Number : 161 Question Id : 77951811569 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which event is generated when a button is clicked in AWT?

Options :

1. ✘ MouseEvent
2. ✔ ActionEvent
3. ✘ WindowEvent
4. ✘ KeyEvent

Question Number : 162 Question Id : 77951811570 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which exception occurs when dividing a number by zero?

Options :

1. ✓ ArithmeticException

2. ✘ IOException

3. ✘ NumberFormatException

4. ✘ NullPointerException

Question Number : 163 Question Id : 77951811571 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ in Java is the process of hiding implementation details and showing only the essential features of an object.

Options :

1. ✘ Inheritance

2. ✘ Polymorphism

3. ✘ Encapsulation

4. ✓ Abstraction

Question Number : 164 Question Id : 77951811572 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

What is the output of the java Pseudo code

```
int a = 7;  
double b = 2;  
System.out.println(a / b);
```

Options :

1. ✘

2. ✘ 3.0

3. ✔ 3.5

4. ✘ Compilation error

Question Number : 165 Question Id : 77951811573 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ HTML tag is used to define a hyperlink.

Options :

1. ✘ <link>

2. ✘ <url>

3. ✘ <href>

4. ✔ <a>

Question Number : 166 Question Id : 77951811574 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ CSS property controls the space inside an element's border.

Options :

1. ✘ margin

2. ✔ padding

3. ✘ border-spacing

4. ✘ spacing

Question Number : 167 Question Id : 77951811575 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

JavaScript is mainly executed on the

Options :

1. ✘ Web server
2. ✘ Database server
3. ✔ Client browser
4. ✘ Mail server

Question Number : 168 Question Id : 77951811576 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which JavaScript function displays a message in a pop-up message box?

Options :

1. ✘ print()
2. ✘ display()
3. ✘ message()
4. ✔ alert()

Question Number : 169 Question Id : 77951811577 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which XML rule is mandatory?

Options :

1. ✘ Tags can be unclosed
2. ✔ Tags must be properly nested
3. ✘ Tags are case-insensitive
4. ✘ Multiple root elements allowed

Question Number : 170 Question Id : 77951811578 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In JSP, which tag is used to insert Java code directly into the page?

Options :

1. ✘ `<jsp:include>`
2. ✘ `<%= %>`
3. ✔ `<% %>`
4. ✘ `<jsp:script>`

Question Number : 171 Question Id : 77951811579 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which symbol is used to declare a variable in PHP?

Options :

1. ✘ `#`

2. ✘ @

3. ✘ &

4. ✔ \$

Question Number : 172 Question Id : 77951811580 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The “A” in AJAX stands for

Options :

1. ✘ Application

2. ✔ Asynchronous

3. ✘ Automatic

4. ✘ Advanced

Question Number : 173 Question Id : 77951811581 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which characteristic of Big Data refers to the speed at which data is generated and processed?

Options :

1. ✘ Volume

2. ✔ Velocity

3. ✘ Veracity

4. ✘

Question Number : 174 Question Id : 77951811582 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which framework is widely used for distributed storage and processing of Big Data?

Options :

1. ✘ MySQL
2. ✔ Hadoop
3. ✘ Apache Tomcat
4. ✘ Bootstrap

Question Number : 175 Question Id : 77951811583 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ cloud service model provides virtual machines and storage resources.

Options :

1. ✔ IaaS
2. ✘ PaaS
3. ✘ SaaS
4. ✘ DaaS

Question Number : 176 Question Id : 77951811584 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Data mining is mainly used to

Options :

1. ✘ Store raw data
2. ✘ Process transactions
3. ✔ Discover hidden patterns in data
4. ✘ Encrypt data

Question Number : 177 Question Id : 77951811585 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which data mining technique is used to group similar data objects?

Options :

1. ✘ Classification
2. ✔ Clustering
3. ✘ Regression
4. ✘ Sorting

Question Number : 178 Question Id : 77951811586 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A _____ is a cloud computing environment dedicated to a single organization.

Options :

1. ✘ Public cloud
2. ✔ Private cloud

Private cloud

3. ✘ Hybrid cloud

4. ✘ Community cloud

Question Number : 179 Question Id : 77951811587 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ file contains the configuration details of an Android application.

Options :

1. ✘ MainActivity.java

2. ✘ build.gradle

3. ✘ layout.xml

4. ✔ AndroidManifest.xml

Question Number : 180 Question Id : 77951811588 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which component represents a single screen with a user interface?

Options :

1. ✘ Service

2. ✘ BroadcastReceiver

3. ✔ Activity

4. ✘ Intent

Question Number : 181 Question Id : 77951811589 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ class is used to send messages between Android components.

Options :

1. ✘ Message

2. ✔ Intent

3. ✘ Context

4. ✘ Bundle

Question Number : 182 Question Id : 77951811590 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which database is commonly used in Android for local storage?

Options :

1. ✘ MySQL

2. ✘ MongoDB

3. ✘ Oracle

4. ✔ SQLite

Question Number : 183 Question Id : 77951811591 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ component responds to system-wide broadcast messages.

Options :

1. ✓ BroadcastReceiver
2. ✗ ContentProvider
3. ✗ BroadcastService
4. ✗ ContentReceiver

**Question Number : 184 Question Id : 77951811592 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

_____ file defines the user interface layout in Android.

Options :

1. ✗ Java file
2. ✓ XML layout file
3. ✗ Manifest file
4. ✗ Gradle file

**Question Number : 185 Question Id : 77951811593 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which component in IoT collects data from the physical environment?

Options :

1. ✗ Actuator
2. ✓ Sensor

3. ✘ Gateway

4. ✘ Server

Question Number : 186 Question Id : 77951811594 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ protocol is commonly used in IoT for lightweight messaging.

Options :

1. ✘ HTTP

2. ✘ FTP

3. ✘ SMTP

4. ✔ MQTT

Question Number : 187 Question Id : 77951811595 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which IoT layer handles data storage and analytics?

Options :

1. ✔ Application layer

2. ✘ Network layer

3. ✘ Perception layer

4. ✘ Physical layer

Question Number : 188 Question Id : 77951811596 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which protocol is widely used for constrained IoT devices and is based on UDP?

Options :

1. ✓ CoAP
2. ✗ FTP
3. ✗ TCP
4. ✗ XMPP

Question Number : 189 Question Id : 77951811597 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which communication technology is commonly used for short-range IoT connectivity?

Options :

1. ✗ 4G LTE
2. ✓ Bluetooth
3. ✗ Satellite
4. ✗ Fiber optic

Question Number : 190 Question Id : 77951811598 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which IoT application focuses on real-time patient monitoring?

Options :

1. ✗ Smart Home

2. ✓ Smart healthcare

3. ✗ Smart Cities

4. ✗ Smart Energy

**Question Number : 191 Question Id : 77951811599 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

In smart homes, IoT devices often communicate using which short-range protocol?

Options :

1. ✓ Zigbee

2. ✗ FTP

3. ✗ ICMP

4. ✗ SMTP

**Question Number : 192 Question Id : 77951811600 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

An IoT connected irrigation system that adjusts water supply based on soil conditions primarily improves

Options :

1. ✗ Random water usage

2. ✓ Agricultural efficiency

3. ✗ Manual farming

4. ✘ Network bandwidth utilization

Question Number : 193 Question Id : 77951811601 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Python is categorized as which type of programming language?

Options :

1. ✘ Compiled only
2. ✔ Interpreted high-level language
3. ✘ Assembly language
4. ✘ Markup language

Question Number : 194 Question Id : 77951811602 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a valid variable name in Python?

Options :

1. ✘ 2value
2. ✘ value-1
3. ✔ _value
4. ✘ value@

Question Number : 195 Question Id : 77951811603 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

How many times will this loop execute?

```
for i in range(1,5):  
    print(i)
```

Options :

1. ✘ 5
2. ✔ 4
3. ✘ 3
4. ✘ Error

Question Number : 196 Question Id : 77951811604 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ statement is used to exit a loop immediately.

Options :

1. ✘ skip
2. ✘ stop
3. ✔ break
4. ✘ continue

Question Number : 197 Question Id : 77951811605 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which data structure does not allow duplicate elements?

Options :

1. ✘ List

- 2. ✘ Tuple
- 3. ✔ Set
- 4. ✘ Dictionary

Question Number : 198 Question Id : 77951811606 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

What is the output?

```
L = [1,2,3]
L.insert(1, 9)
print(L)
```

Options :

- 1. ✘ [1,2,3,9]
- 2. ✔ [1,9,2,3]
- 3. ✘ [9,1,2,3]
- 4. ✘ Error

Question Number : 199 Question Id : 77951811607 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which method reads one line at a time?

Options :

- 1. ✘ read()
- 2. ✔ readline()

3. ✘ line()

4. ✘ readall()

Question Number : 200 Question Id : 77951811608 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which statement is used to manually raise an exception in Python?

Options :

1. ✘ throw

2. ✘ error

3. ✘ except

4. ✔ raise

