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 19th Sep 2021 Shift1
Duration :	180
Total Marks :	200
Display Marks:	No
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? (SA type of questions will be always auto saved) :	Yes
Is this Group for Examiner? :	No

Mathematics

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Section Id :	477203370
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 1 Question Id : 47720318829 Display Question Number : Yes Is Question Mandatory : No

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$ then $AB^T =$

Options :

1. ✖ $\begin{bmatrix} 19 & 22 \\ 43 & 50 \end{bmatrix}$

2. ✔ $\begin{bmatrix} 17 & 23 \\ 39 & 53 \end{bmatrix}$

3. ✖ $\begin{bmatrix} 26 & 38 \\ 30 & 44 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 19 & 23 \\ 30 & 53 \end{bmatrix}$

Question Number : 2 Question Id : 47720318830 Display Question Number : Yes Is Question Mandatory : No

If A is any square matrix, then $A - A^T$ is

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Options :

1. ✖ a null matrix

2. ✖ an identity matrix

3. ✖ a symmetric matrix

4. ✔ a skew-symmetric matrix

Question Number : 3 Question Id : 47720318831 Display Question Number : Yes Is Question Mandatory : No

If $\begin{vmatrix} 4 & -5 & 6 \\ 7 & x & 8 \\ -1 & 2 & -3 \end{vmatrix} = 0$, then, x =

Options :

1. ✖ 0

2. ✖ $-\frac{55}{6}$

3. ✔ $-\frac{15}{2}$

4. ✖ 1

Question Number : 4 Question Id : 47720318832 Display Question Number : Yes Is Question

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Mandatory : No

If $A = \begin{bmatrix} 3 & -5 \\ -7 & 2 \end{bmatrix}$, $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and B is a square matrix such that $AB = I$, then, $B =$

Options :

1. ✖ $\begin{bmatrix} 2 & 5 \\ 7 & 3 \end{bmatrix}$

2. ✖ $\begin{bmatrix} -2 & 5 \\ 7 & -3 \end{bmatrix}$

3. ✔ $-\frac{1}{29}\begin{bmatrix} 2 & 5 \\ 7 & 3 \end{bmatrix}$

4. ✖ $-\frac{1}{29}\begin{bmatrix} -2 & 5 \\ 7 & -3 \end{bmatrix}$

Question Number : 5 Question Id : 47720318833 Display Question Number : Yes Is Question Mandatory : No

If $x = \alpha, y = \beta, z = \gamma$ is the unique solution of the system of simultaneous linear equations $x - 2y + z = 5$, $2x + y - 2z = -3$ and $x - 2y + 3z = 9$, then, $\gamma =$

Options :

1. ✔ 2

2. ✖ -2

3. ✖ -3

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4. ✖ 3

Question Number : 6 Question Id : 47720318834 Display Question Number : Yes Is Question Mandatory : No

If $\frac{4x-22}{3x^2+2x-8} = \frac{A}{x+2} + \frac{B}{3x-4}$, then, A+B =

Options :

1. ✔ -2

2. ✖ 0

3. ✖ 2

4. ✖ 4

Question Number : 7 Question Id : 47720318835 Display Question Number : Yes Is Question Mandatory : No

If $\frac{4-7x^2}{3x^3+6x^2} = \frac{A}{x} + \frac{Bx+C}{x^2+2}$, then, A+C =

Options :

1. ✖ 0

2. ✔ $\frac{2}{3}$

3. ✖

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$\frac{3}{2}$

2

4. ✖

Question Number : 8 Question Id : 47720318836 Display Question Number : Yes Is Question Mandatory : No

If $\tan\theta = -\frac{4}{3}$ and θ is not in the second quadrant, then, $\cos\theta + \csc\theta =$

Options :

1. ✔ $-\frac{13}{20}$

2. ✖ $-\frac{1}{5}$

3. ✖ $\frac{27}{20}$

4. ✖ $\frac{7}{5}$

Question Number : 9 Question Id : 47720318837 Display Question Number : Yes Is Question Mandatory : No

The sine function, whose period is $\frac{4}{5}$, is

Options :

1. ✖

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$\sin\frac{5\pi}{4}x$

$\sin\frac{4\pi}{5}x$

2. ✖

$\sin\frac{5\pi}{2}x$

3. ✔

$\sin\frac{2\pi}{5}x$

4. ✖

Question Number : 10 Question Id : 47720318838 Display Question Number : Yes Is Question Mandatory : No

If $A+B=\frac{3\pi}{4}$, then, $(1-\tan A)(1-\tan B)=$

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

4. ✖ -2

Question Number : 11 Question Id : 47720318839 Display Question Number : Yes Is Question

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Mandatory : No

If $0 < A < \frac{\pi}{4}$ and $\sin A = \frac{3}{5}$, then, $\sin 2A + \cos 2A =$

Options :

1. ✖ $\frac{17}{25}$

2. ✖ $\frac{24}{25}$

3. ✖ $\frac{9}{25}$

4. ✔ $\frac{31}{25}$

Question Number : 12 Question Id : 47720318840 Display Question Number : Yes Is Question Mandatory : No

$\cos 56^0 + \sin 26^0 - \sin 86^0 =$

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ 2

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Question Number : 13 Question Id : 47720318841 Display Question Number : Yes Is Question Mandatory : No

The general solution of the trigonometric equation $\sec x = 4\cos x$ is $x =$

Options :

1. ✔ $2n\pi \pm \frac{\pi}{3}$ or $2n\pi \pm \frac{2\pi}{3}$

2. ✖ $2n\pi \pm \frac{\pi}{6}$ or $2n\pi \pm \frac{5\pi}{6}$

3. ✖ $2n\pi \pm \frac{\pi}{4}$ or $2n\pi \pm \frac{3\pi}{4}$

4. ✖ $n\pi + (-1)^n \frac{\pi}{3}$ or $n\pi + (-1)^n \frac{2\pi}{3}$

Question Number : 14 Question Id : 47720318842 Display Question Number : Yes Is Question Mandatory : No

The general solution of the trigonometric equation $\cos 4\theta = \cos 3\theta$ is $\theta =$

Options :

1. ✖ $n\pi + \frac{\pi}{6}$

2. ✖ $2n\pi + \frac{\pi}{3}$

3. ✔ $\frac{2n\pi}{7}$ or $2n\pi$

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$\frac{n\pi}{7}$ or $n\pi$

4. ✖

Question Number : 15 Question Id : 47720318843 Display Question Number : Yes Is Question Mandatory : No

$$\cos\left[\frac{\pi}{2}+\cos^{-1}\left(-\frac{3}{5}\right)\right]=$$

Options :

1. ✖ $\frac{4}{5}$

2. ✖ $\frac{3}{5}$

3. ✔ $-\frac{4}{5}$

4. ✖ $-\frac{3}{5}$

Question Number : 16 Question Id : 47720318844 Display Question Number : Yes Is Question Mandatory : No

$$\cot\left[\mathrm{Tan}^{-1}\left(\frac{1}{6}\right)+\mathrm{Tan}^{-1}\left(\frac{5}{7}\right)\right]=$$

Options :

1. ✖

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0

2. ✖ $\frac{1}{\sqrt{3}}$

3. ✔ 1

4. ✖ $\sqrt{3}$

Question Number : 17 Question Id : 47720318845 Display Question Number : Yes Is Question Mandatory : No

In a triangle ABC, if $b = 3, c = 4$ and $\cos A = \frac{7}{8}$, then, $a =$

Options :

1. ✖ 5

2. ✔ 2

3. ✖ 6

4. ✖ 8

Question Number : 18 Question Id : 47720318846 Display Question Number : Yes Is Question Mandatory : No

If $i^2 = -1$, then, $(1 - i)^{2020} =$

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Options :

1. ✔ -2^{1010}

2. ✖ 2^{1010}

3. ✖ 2^{2020}

4. ✖ -2^{2020}

Question Number : 19 Question Id : 47720318847 Display Question Number : Yes Is Question Mandatory : No

If $i^2 == -1$, then, $(\sqrt{3}+i)^4 + (\sqrt{3}-i)^4 =$

Options :

1. ✖ 32

2. ✖ -32

3. ✖ 16

4. ✔ -16

Question Number : 20 Question Id : 47720318848 Display Question Number : Yes Is Question Mandatory : No

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If (1,2) and (2,1) are the ends of one of the diameters of a circle, then the equation of the circle is

Options :

1. ✖ $x^2 + y^2 - 3x - 3y - 4 = 0$

2. ✖ $x^2 + y^2 - 3x + 3y - 4 = 0$

3. ✖ $x^2 + y^2 + 3x - 3y - 4 = 0$

4. ✔ $x^2 + y^2 - 3x - 3y + 4 = 0$

Question Number : 21 Question Id : 47720318849 Display Question Number : Yes Is Question Mandatory : No

The equation of the circle of radius 2 with its centre at (2,2) is

Options :

1. ✔ $x^2 + y^2 - 4x - 4y + 4 = 0$

2. ✖ $x^2 + y^2 + 4x + 4y + 4 = 0$

3. ✖ $x^2 + y^2 - 4x - 4y + 12 = 0$

4. ✖ $x^2 + y^2 + 4x + 4y + 12 = 0$

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Question Number : 22 Question Id : 47720318850 Display Question Number : Yes Is Question Mandatory : No

If the centre of the circle $x^2 + y^2 - 6x + ky + 9 = 0$ lies on the line $2x + y - 4 = 0$, then, the radius of that circle is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 23 Question Id : 47720318851 Display Question Number : Yes Is Question Mandatory : No

Distance from the focus of the parabola $y^2 = 8x$ to the point $(2,4)$ on it is

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

Question Number : 24 Question Id : 47720318852 Display Question Number : Yes Is Question Mandatory : No

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If e is the eccentricity and a is the length of the semi-minor axis of the ellipse $9x^2 + 4y^2 = 36$, then, $e^2 + a^2 =$

Options :

1. ✔ $\frac{41}{9}$

2. ✖ $\frac{23}{9}$

3. ✖ $\frac{17}{3}$

4. ✖ $\frac{11}{3}$

Question Number : 25 Question Id : 47720318853 Display Question Number : Yes Is Question Mandatory : No

One of the foci of the hyperbola $\frac{x^2}{9} - \frac{y^2}{16} = -1$ is

Options :

1. ✖ $(5,0)$

2. ✔ $(0,5)$

3. ✖ $(4,0)$

4. ✖ $(0,3)$

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Question Number : 26 Question Id : 47720318854 Display Question Number : Yes Is Question Mandatory : No

$$\lim_{x \to 0} \frac{2^x - 1}{\sqrt{2+x} - \sqrt{2}} =$$

Options :

1. $\sqrt{2} \log 2$ ✗

2. $2 \log 2$ ✗

3. $2\sqrt{2} \log 2$ ✓

4. $\text{Log } 2$ ✗

Question Number : 27 Question Id : 47720318855 Display Question Number : Yes Is Question Mandatory : No

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

Options :

1. $\frac{4x}{(2-x^2)\sqrt{4-x^4}}$ ✓

2. $\frac{4x}{(2-x^2)\sqrt{4-x^2}}$ ✗

3. ✗

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$$\frac{4x}{(4-x^2)\sqrt{2-x^4}}$$

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

Question Number : 28 Question Id : 47720318856 Display Question Number : Yes Is Question Mandatory : No

If $2x^2 - 3xy + y^2 - 4x + 6y - 7 = 0$, then, $\frac{dy}{dx} =$

Options :

1. ✖ $$\frac{-4x-3y+4}{3x+2y+6}$$

2. ✔ $$\frac{4x-3y-4}{3x-2y-6}$$

3. ✖ $$\frac{4x+3y+4}{3x-2y-6}$$

4. ✖ $$\frac{4x-3y-4}{3x+2y-6}$$

Question Number : 29 Question Id : 47720318857 Display Question Number : Yes Is Question Mandatory : No

If the radius of a sphere is increased from 5 cm to 5.03 cm, then, the approximate relative error in its surface area is

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Options :

1. ✔ 0.012

2. ✖ 0.06

3. ✖ 0.08

4. ✖ 0.1

Question Number : 30 Question Id : 47720318858 Display Question Number : Yes Is Question Mandatory : No

The equation of the normal at $(1,1)$ to the curve $y = 2x^3 - 3x^2 + x + 1$ is

Options :

1. ✔ $x + y - 2 = 0$

2. ✖ $x - y = 0$

3. ✖ $2x - 3y + 1 = 0$

4. ✖ $x - 2y + 1 = 0$

Question Number : 31 Question Id : 47720318859 Display Question Number : Yes Is Question Mandatory : No

The angle between the curves $x^2 + y^2 = 2$ and $y^2 = x$ is

Options :

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1. ✔ $\mathrm{Tan}^{-1}(3)$

2. ✖ $\mathrm{Tan}^{-1}(2)$

3. ✖ $\frac{\pi}{4}$

4. ✖ $\frac{\pi}{2}$

Question Number : 32 Question Id : 47720318860 Display Question Number : Yes Is Question Mandatory : No

If the volume of a cube is increasing at the rate of 5 cu. cm./sec , the rate of change in the length of the edge of the cube, when the length of the edge is 5 cm., is

Options :

1. ✖ $\frac{1}{15}$ sq. cm. /sec

2. ✖ 15 cm. /sec

3. ✔ $\frac{1}{15}$ cm. /sec

4. ✖ $\frac{1}{3}$ cm. /sec

Question Number : 33 Question Id : 47720318861 Display Question Number : Yes Is Question

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Mandatory : No

The interval in which the function $f(x) = 2x^3 - 9x^2 + 12x - 6$ is strictly increasing is

Options :

1. ✖ $(1,2)$

2. ✖ $[1,2]$

3. ✖ $(-\infty, 1] \cup [2, \infty)$

4. ✔ $(-\infty, 1) \cup (2, \infty)$

Question Number : 34 Question Id : 47720318862 Display Question Number : Yes Is Question Mandatory : No

If the perimeter of a rectangle is 40 units, then the area of that rectangle is maximum when its dimensions are

Options :

1. ✖ 14, 6

2. ✖ 22, 18

3. ✔ 10, 10

4. ✖ 20, 20

Question Number : 35 Question Id : 47720318863 Display Question Number : Yes Is Question Mandatory : No

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If $u = \frac{x^2+y^2}{x-y}$, then, $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} =$

Options :

1. ✖ 0

2. ✖ u

3. ✔ $2\left(\frac{x+y}{x-y}\right)$

4. ✖ $2u$

Question Number : 36 Question Id : 47720318864 Display Question Number : Yes Is Question Mandatory : No

$$\int \frac{x^2+2x-1}{\sqrt{x^3+3x^2-3x+6}}\,dx =$$

Options :

1. ✔ $\frac{2}{3}\sqrt{x^3+3x^2-3x+6}+c$

2. ✖ $\frac{1}{3}\sqrt{x^3+3x^2-3x+6}+c$

3. ✖ $\frac{2}{3\sqrt{x^3+3x^2-3x+6}}+c$

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$$\frac{1}{6\sqrt{x^3+3x^2-3x+6}}+c$$

4. ✖

Question Number : 37 Question Id : 47720318865 Display Question Number : Yes Is Question Mandatory : No

$$\int e^{2x}\sec 2x(1+\tan 2x)\,dx =$$

Options :

$e^{2x}\sec 2x + c$

1. ✖

$e^{2x}\tan 2x + c$

2. ✖

$\frac{1}{2}e^{2x}\sec 2x + c$

3. ✔

$2e^{2x}\sec 2x + c$

4. ✖

Question Number : 38 Question Id : 47720318866 Display Question Number : Yes Is Question Mandatory : No

$$\int \frac{dx}{\sqrt{x^2-2x+5}} =$$

Options :

$\text{Tanh}^{-1}\left(\frac{x-1}{2}\right)+c$

1. ✖

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2. ✖ $\text{Sinh}^{-1}(x-1)+c$

3. ✖ $\text{Cosh}^{-1}\left(\frac{x-1}{2}\right)+c$

4. ✔ $\text{Sinh}^{-1}\left(\frac{x-1}{2}\right)+c$

Question Number : 39 Question Id : 47720318867 Display Question Number : Yes Is Question Mandatory : No

$$\int_{-2}^{2}\frac{x^2}{x-1}\,dx=$$

Options :

1. ✖ $8+\log\frac{1}{3}$

2. ✔ $4-\log 3$

3. ✖ $2-\log 3$

4. ✖ $4+\log 3$

Question Number : 40 Question Id : 47720318868 Display Question Number : Yes Is Question Mandatory : No

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The area enclosed between the X-axis and the curve $y = (x-2)^2 - 9$ is

Options :

1. ✗ 54

2. ✗ $\frac{320}{3}$

3. ✓ 36

4. ✗ $\frac{124}{3}$

Question Number : 41 Question Id : 47720318869 Display Question Number : Yes Is Question Mandatory : No

The volume formed when the area bounded by the parabola $y^2 = 8x$, the X-axis and the ordinates at $x = 0$ and $x = 2$ rotates about the X-axis is (in cubic units)

Options :

1. ✗ 4π

2. ✗ 8π

3. ✗ 32π

4. ✓ 16π

Question Number : 42 Question Id : 47720318870 Display Question Number : Yes Is Question

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Mandatory : No

Mean value of $\frac{1}{4+x^2}$ on $[-2,2]$ is

Options :

1. ✖ $\frac{\pi}{4}$

2. ✖ $\frac{\pi}{8}$

3. ✖ $\frac{\pi}{32}$

4. ✔ $\frac{\pi}{16}$

Question Number : 43 Question Id : 47720318871 Display Question Number : Yes Is Question Mandatory : No

Root Mean Square value of $\sqrt{9-2x^2}$ over the range $x = 0$ to $x = 3$ is

Options :

1. ✔ $\sqrt{3}$

2. ✖ 3

3. ✖ $\sqrt{6}$

4. ✖ 9

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Question Number : 44 Question Id : 47720318872 Display Question Number : Yes Is Question Mandatory : No

The differential equation of the family of curves $y = Ae^{3x} + Be^{-2x}$, where A and B are arbitrary constants, is

Options :

1. ✖ $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 0$

2. ✖ $\frac{d^2y}{dx^2} - \frac{dy}{dx} + 6y = 0$

3. ✖ $\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = 0$

4. ✔ $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 6y = 0$

Question Number : 45 Question Id : 47720318873 Display Question Number : Yes Is Question Mandatory : No

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

Options :

1. ✖ $e^x + e^y = c$

2. ✖ $e^x - e^y = c$

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3. ✔ $e^{x+y} + ce^{y} + 1 = 0$

4. ✖ $e^{x+y} = ce^{y} + 1$

Question Number : 46 Question Id : 47720318874 Display Question Number : Yes Is Question Mandatory : No

The general solution of the differential equation $\frac{dy}{dx} - \frac{3y}{x} = \frac{2y^2}{x^2}$ is

Options :

1. ✔ $y = cx^2(x + y)$

2. ✖ $\frac{y}{x - y} = cx^2$

3. ✖ $y = cx(x + y)$

4. ✖ $y = cx(x - y)$

Question Number : 47 Question Id : 47720318875 Display Question Number : Yes Is Question Mandatory : No

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

Options :

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1. ✖ $2y = xe^{2x} + 2cx^2$

2. ✔ $2y = x^2e^{2x} + 2cx^2$

3. ✖ $y = 2x^2e^{2x} + cx^2$

4. ✖ $y = x^2e^{2x} + cx$

Question Number : 48 Question Id : 47720318876 Display Question Number : Yes Is Question Mandatory : No

The general solution of the differential equation $\frac{dy}{dx} + y\cot x = y^3 \sin^2 x$ is

Options :

1. ✖ $2x^2y + \csc^2 x = cy$

2. ✖ $2xy^2 + \sin^2 x = cy^2$

3. ✔ $2xy^2 + \csc^2 x = cy^2$

4. ✖ $2xy + \csc^2 x = cy^2$

Question Number : 49 Question Id : 47720318877 Display Question Number : Yes Is Question Mandatory : No

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

Options :

1. ✖ $\frac{1}{20}e^{3x}$

2. ✖ $\frac{1}{16}e^{3x}$

3. ✖ $\frac{1}{3}e^{3x}$

4. ✔ $\frac{1}{2}e^{3x}$

Question Number : 50 Question Id : 47720318878 Display Question Number : Yes Is Question Mandatory : No

The particular integral of the differential equation $(D^2 + 9)y = \sin 3x$ is

Options :

1. ✔ $-\frac{x\cos 3x}{6}$

2. ✖ $\frac{x\cos 3x}{6}$

3. ✖ $-\frac{x\sin 3x}{6}$

4. ✖

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$$\frac{x \sin 3x}{6}$$

Physics

Section Id :	477203371
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 51 Question Id : 47720318879 Display Question Number : Yes Is Question Mandatory : No

The dimension of Universal Gas Constant "R" is:

Options :

1. ✖ $[M^2 L^2 T^{-2} K^{-1}]$

2. ✖ $[M^1 L^2 T^{-2}]$

3. ✔ $[M^1 L^2 T^{-2} K^{-1}]$

4. ✖ $[M^2 L^2 T^{-2} K^0]$

Question Number : 52 Question Id : 47720318880 Display Question Number : Yes Is Question Mandatory : No

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The value of Planck's constant 'h' is 6.626×10^{-34} J.Hz^{-1}. Its value in eV is

Options :

1. ✖ 1.054×10^{-34}

2. ✔ 4.135×10^{-15}

3. ✖ 0.241×10^{15}

4. ✖ Unchanged

Question Number : 53 Question Id : 47720318881 Display Question Number : Yes Is Question Mandatory : No

A unit vector perpendicular to $A=\hat{i}+\hat{j}-\hat{k}$ and $B=2\hat{i}-\hat{j}+3\hat{k}$ is

Options :

1. ✖ $\hat{n}=(2\hat{i}-\hat{j}-3\hat{k})/\sqrt{14}$

2. ✔ $\hat{n}=(2\hat{i}-5\hat{j}-3\hat{k})/\sqrt{38}$

3. ✖ $\hat{n}=(2\hat{i}-5\hat{j}-3\hat{k})/\sqrt{28}$

4. ✖ $\hat{n}=(\hat{i}-\hat{j}-\hat{k})/\sqrt{3}$

Question Number : 54 Question Id : 47720318882 Display Question Number : Yes Is Question Mandatory : No

If the two vectors **A** and **B** are such that $|\mathbf{A}-\mathbf{B}|=|\mathbf{A}+\mathbf{B}|$ then

Options :

1. ✖ $\mathbf{A}=\mathbf{B}$

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2. ✖ **A** is parallel to **B**

3. ✖ $|\mathbf{B}| = 0$

4. ✔ **A** is perpendicular to **B**

Question Number : 55 Question Id : 47720318883 Display Question Number : Yes Is Question Mandatory : No

A rubber ball of mass 0.2 kg falls onto the floor. The ball hits with a speed of 8 m/s and rebounds with approximately the same speed. High speed photographs show that the ball is in contact with the floor for 10^{-3} s. Then the average force exerted on the ball by the floor is

Options :

1. ✖ 1,600 N

2. ✖ 0 N

3. ✔ 3,200 N

4. ✖ 320 N

Question Number : 56 Question Id : 47720318884 Display Question Number : Yes Is Question Mandatory : No

A projectile is fired with a speed 'u' at an angle θ with the horizontal. Find its speed when its direction of motion makes an angle α with the horizontal.

Options :

1. ✖ $u\cos(\theta)\cos(\alpha)$

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2. ✖ $u\cos(\theta)$

3. ✖ $u\cos(\alpha)$

4. ✔ $u\cos(\theta)\sec(\alpha)$

Question Number : 57 Question Id : 47720318885 Display Question Number : Yes Is Question

Mandatory : No

A person travelling on a straight line moves with a uniform velocity 'v_1' for a distance 'x' and with a uniform velocity 'v_2' for the next equal distance. The average velocity 'v' is given by

Options :

1. ✖ $v = \frac{v_1 + v_2}{2}$

2. ✖ $v = \sqrt{v_1 v_2}$

3. ✔ $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

4. ✖ $\frac{1}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

Question Number : 58 Question Id : 47720318886 Display Question Number : Yes Is Question

Mandatory : No

A ball is dropped from a height 'H'. If it takes 0.2 sec to cross the last 6.0 m before hitting the ground, the value of height 'H' from which it was dropped is

Options :

1. ✔ 48 m

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2. ✖ 42 m

3. ✖ 12 m

4. ✖ 30 m

Question Number : 59 Question Id : 47720318887 Display Question Number : Yes Is Question Mandatory : No

Mark the correct statement about the frictional force 'f' when a body slides across a surface with coefficient of friction μ.

Options :

1. ✖ The magnitude of 'f' is less than μN

2. ✔ 'f' is independent of the area of contact

3. ✖ 'f' depends on the area of contact

4. ✖ 'f' is directly proportional to the instantaneous velocity of the body

Question Number : 60 Question Id : 47720318888 Display Question Number : Yes Is Question Mandatory : No

A body starts slipping down an incline and moves half meter in half second. How long will it take to move the next half meter?

Options :

1. ✔ 0.2 sec

2. ✖ 0.5 sec

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3. ✖ 1.0 sec

4. ✖ 0.1 sec

Question Number : 61 Question Id : 47720318889 Display Question Number : Yes Is Question Mandatory : No

The energy needed to eject a 50kg spacecraft from the surface of the earth is (radius of the earth is 6.4×10^6 m)

Options :

1. ✖ 1.1×10^4 J

2. ✖ 1.1×10^9 J

3. ✖ 3.13×10^4 J

4. ✔ 3.13×10^9 J

Question Number : 62 Question Id : 47720318890 Display Question Number : Yes Is Question Mandatory : No

A particle of mass 'm' moves in one dimension along the positive x-axis. It is acted on by a constant force directed towards the origin with magnitude 'B', and an inverse square law repulsive force with magnitude (A/x^2) away from the origin. The equilibrium position x_0 of the mass is at

Options :

1. ✖ $x_0=0$

2. ✔ $x_0=(A/B)^{1/2}$

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3. ✖ $x_0=(A/B)$

4. ✖ $x_0=(B/A)^{1/2}$

Question Number : 63 Question Id : 47720318891 Display Question Number : Yes Is Question Mandatory : No

Ocean thermal energy is due to

Options :

1. ✖ Energy stored by waves in the ocean

2. ✖ Tides arising out in the ocean

3. ✖ Pressure difference at different levels in the ocean

4. ✔ Temperature difference at different levels in the ocean

Question Number : 64 Question Id : 47720318892 Display Question Number : Yes Is Question Mandatory : No

Consider the wave $y = (10\ mm)\ sin[(2\ cm^{-1})x - (60\ s^{-1})t]$. The time period of this wave is

Options :

1. ✔ $\frac{\pi}{30}\sec$

2. ✖ $\frac{30}{\pi}\sec$

3. ✖ $\frac{\pi}{60}\sec$

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4. ✖ $\frac{\pi}{120}\text{sec}$

Question Number : 65 Question Id : 47720318893 Display Question Number : Yes Is Question Mandatory : No

If the speed of sound at 0^0 C is 332ms^{-1}, then the atmospheric temperature of a day when sound travels 336 m in one second is

Options :

1. ✖ 4^0 C

2. ✖ 20^0 C

3. ✖ 17^0 C

4. ✔ 7^0 C

Question Number : 66 Question Id : 47720318894 Display Question Number : Yes Is Question Mandatory : No

A sound source vibrates with a frequency of 1.0 kHz. Two sound waves, originating from this source, travel along different paths in air, where one path is 166 cm longer than other and then meet at a point. Then what will be the nature of interference? The speed of sound in air is 332 ms^{-1}.

Options :

1. ✔ It will be a constructive interference

2. ✖ It will be a destructive interference

3. ✖ Provided information is insufficient to say about nature of interference

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4. ✖ It will depend on the type of source

Question Number : 67 Question Id : 47720318895 Display Question Number : Yes Is Question Mandatory : No

A simple pendulum is taken to a place in space where its distance from the surface of the earth is equal to the radius of the earth. What will be the time period of small oscillations of the pendulum if the length of the string is 1.0 m. Take $g = \pi^2$ m/ s^2 at the surface of the earth.

Options :

1. ✖ 2 sec

2. ✔ 4 sec

3. ✖ $\frac{1}{\pi}$ sec

4. ✖ 2π sec

Question Number : 68 Question Id : 47720318896 Display Question Number : Yes Is Question Mandatory : No

The motion of a block of mass 'm' is restricted on x-axis by attaching two identical springs of spring constant 'k' on its opposite sides. The other ends of the springs are fixed on walls. When the mass is displaced from its equilibrium position on either side, it executes a simple harmonic motion. The period of oscillations for this oscillation is

Options :

1. ✖ $2\pi\sqrt{\frac{m}{k}}$

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2. ✖ $2\pi\sqrt{\frac{k}{m}}$

3. ✖ $2\pi\sqrt{\frac{2k}{m}}$

4. ✔ $2\pi\sqrt{\frac{m}{2k}}$

Question Number : 69 Question Id : 47720318897 Display Question Number : Yes Is Question Mandatory : No

Is it always true that $dU = C_v dT$?

Options :

1. ✖ Yes.

2. ✖ No, it is never true

3. ✔ It is true only for ideal gas

4. ✖ It is true only for non-ideal gas

Question Number : 70 Question Id : 47720318898 Display Question Number : Yes Is Question Mandatory : No

One mole of ideal monatomic gas is confined in a cylinder by a piston and is maintained at a constant temperature T_0 by thermal contact with a heat reservoir. The gas slowly expands from V_1 to V_2 while being held at the same temperature T_0. The change in internal energy of the gas is

Options :

1. ✖ $RT_0\ln(V_2/V_1)$

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2. ✔ zero

3. ✖ RT_0

4. ✖ $RT_0 \ln(V_1/V_2)$

Question Number : 71 Question Id : 47720318899 Display Question Number : Yes Is Question Mandatory : No

A pan filled with hot food cools from 94 °C to 86 °C in 2 minutes when the room temperature is at 20 °C. How long will it take to cool from 71 °C to 69 °C?

Options :

1. ✔ 0.7 min

2. ✖ 0.5 min

3. ✖ 0.4 min

4. ✖ 2 min.

Question Number : 72 Question Id : 47720318900 Display Question Number : Yes Is Question Mandatory : No

In an adiabatic expansion of an ideal gas

Options :

1. ✖ $PV = \text{constant}$

2. ✖ $PV^{\gamma-1} = \text{constant}$

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3. ✖ $TV^{\gamma} = \text{constant}$

4. ✔ $P^{1-\gamma}T^{\gamma} = \text{constant}$

Question Number : 73 Question Id : 47720318901 Display Question Number : Yes Is Question Mandatory : No

The rms speed of a nitrogen (N_2) molecule at 300K is (One mole of N_2 has a mass of 28 g and kB = 1.38×10^{23} JK^{-1})

Options :

1. ✖ 450 ms^{-1}

2. ✖ 123 ms^{-1}

3. ✔ 517 ms^{-1}

4. ✖ 230 ms^{-1}

Question Number : 74 Question Id : 47720318902 Display Question Number : Yes Is Question Mandatory : No

Which of the following are not the properties of superconductors?

Options :

1. ✖ They possess infinite conductivity

2. ✖ They possess zero resistivity

3. ✔ They are ferromagnetic in nature

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4. ✖ They are diamagnetic in nature

Question Number : 75 Question Id : 47720318903 Display Question Number : Yes Is Question Mandatory : No

The minimum energy required for a photoelectron to escape from a metal plate in a photocell is called

Options :

1. ✖ Planck's constant

2. ✔ Work function

3. ✖ Threshold energy

4. ✖ Stopping voltage

Chemistry

Section Id :	477203372
Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 76 Question Id : 47720318904 Display Question Number : Yes Is Question Mandatory : No

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Which of the following is not a fundamental particle?

Options :

1. ✖ Electron

2. ✖ Proton

3. ✔ Alpha particle

4. ✖ Neutron

Question Number : 77 Question Id : 47720318905 Display Question Number : Yes Is Question Mandatory : No

A given orbital labelled by the magnetic quantum number, m=-1. This cannot be

Options :

1. ✔ s-orbital

2. ✖ p-orbital

3. ✖ d-orbital

4. ✖ f-orbital

Question Number : 78 Question Id : 47720318906 Display Question Number : Yes Is Question Mandatory : No

Maximum number of electrons that may be present in one 4f-orbital is

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Options :

1. ✔ 2

2. ✖ 4

3. ✖ 7

4. ✖ 14

Question Number : 79 Question Id : 47720318907 Display Question Number : Yes Is Question Mandatory : No

Which of the following is favourable condition for the formation of ionic bond?

Options :

1. ✖ Small cation with small charge

2. ✖ Small anion with large charge

3. ✔ Large difference in the electronegativity

4. ✖ Small cation with large charge

Question Number : 80 Question Id : 47720318908 Display Question Number : Yes Is Question Mandatory : No

The covalency of nitrogen in HNO_2 is

Options :

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1. ✖ 0

2. ✖ 2

3. ✔ 3

4. ✖ 5

Question Number : 81 Question Id : 47720318909 Display Question Number : Yes Is Question Mandatory : No

The normality of 0.98%(w/v) H_2SO_4 solution is

Options :

1. ✖ 0.1N

2. ✔ 0.2N

3. ✖ 0.4N

4. ✖ 1 N

Question Number : 82 Question Id : 47720318910 Display Question Number : Yes Is Question Mandatory : No

The equivalent weight of $CuSO_4$ when it is converted to Cu_2I_2 (M= Mol.wt)

Options :

1. ✔

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M/1

2. ✖ M/2

3. ✖ M/3

4. ✖ 2M

Question Number : 83 Question Id : 47720318911 Display Question Number : Yes Is Question Mandatory : No

Which of the following is centi-normal solution ?

Options :

1. ✖ 1 N

2. ✖ N/10

3. ✖ N/20

4. ✔ N/100

Question Number : 84 Question Id : 47720318912 Display Question Number : Yes Is Question Mandatory : No

The unit for ionic product of water is

Options :

1. ✖ Mole/kg

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2. ✖ Mole-kg

3. ✔ $Mole^{2}lit^{-2}$

4. ✖ $Mole^{2}lit^{2}$

Question Number : 85 Question Id : 47720318913 Display Question Number : Yes Is Question Mandatory : No

Which of the following is relatively strong Lewis acid?

Options :

1. ✖ BF_3

2. ✖ BCl_3

3. ✖ BBr_3

4. ✔ BI_3

Question Number : 86 Question Id : 47720318914 Display Question Number : Yes Is Question Mandatory : No

The decrease in electrical conductivity of metals with increase in temperature is due to increase in

Options :

1. ✖ the velocity of electrons

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2. ✔ the resistance of the metal

3. ✖ the number of electrons

4. ✖ the number of metal atoms

Question Number : 87 Question Id : 47720318915 Display Question Number : Yes Is Question Mandatory : No

In the electrolytic cell, flow of electrons is from:

Options :

1. ✖ Cathode to anode in the solution

2. ✖ Cathode to anode through external circuit

3. ✔ Anode to cathode through external circuit

4. ✖ Anode to cathode in the solution

Question Number : 88 Question Id : 47720318916 Display Question Number : Yes Is Question Mandatory : No

The product of electrolysis of aqueous NaCl solution are

Options :

1. ✖ Na at cathode and Cl_2 at anode

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2. ✔ H_2 at cathode and Cl_2 at anode

3. ✖ H_2 at cathode and O_2 at anode

4. ✖ Na at cathode and O_2 at anode

Question Number : 89 Question Id : 47720318917 Display Question Number : Yes Is Question Mandatory : No

When zinc piece is kept in $CuSO_4$ solution, copper get precipitated because

Options :

1. ✖ Standard reduction potential of zinc is more than copper

2. ✔ Standard reduction potential of zinc is less than copper

3. ✖ Atomic number of zinc is larger than copper

4. ✖ Atomic number of zinc is lower than copper

Question Number : 90 Question Id : 47720318918 Display Question Number : Yes Is Question Mandatory : No

Hardness of water is expressed in terms of ------- equivalents.

Options :

1. ✔ $CaCO_3$

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2. ✖ $MgCO_3$

3. ✖ Na_2CO_3

4. ✖ K_2CO_3

Question Number : 91 Question Id : 47720318919 Display Question Number : Yes Is Question Mandatory : No

Anion exchange resin is regenerated by using

Options :

1. ✖ dil NaCl

2. ✖ dil HCl

3. ✔ dil NaOH

4. ✖ dil KCl

Question Number : 92 Question Id : 47720318920 Display Question Number : Yes Is Question Mandatory : No

Which of the following is responsible for temporary hardness?

Options :

1. ✖ $MgCl_2$

2. ✖ $CaSO_4$

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3. ✖ $MgSO_4$

4. ✔ $Mg(HCO_3)_2$

Question Number : 93 Question Id : 47720318921 Display Question Number : Yes Is Question Mandatory : No

Corrosion is an example of ---------

Options :

1. ✔ Oxidation

2. ✖ Reduction

3. ✖ Electrolysis

4. ✖ Hydrolysis

Question Number : 94 Question Id : 47720318922 Display Question Number : Yes Is Question Mandatory : No

In electrochemical corrosion, if the formed corrosion product is insoluble in the medium then the corrosion rate further --------

Options :

1. ✖ Increases

2. ✔ Decreases

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3. ✖ Partially increases

4. ✖ No change

Question Number : 95 Question Id : 47720318923 Display Question Number : Yes Is Question Mandatory : No

Which of the following is an example of co-polymer ?

Options :

1. ✖ PVC

2. ✖ Teflon

3. ✖ Polythene

4. ✔ Buna-S rubber

Question Number : 96 Question Id : 47720318924 Display Question Number : Yes Is Question Mandatory : No

Which of the following polymer contains nitrogen atoms ?

Options :

1. ✖ PVC

2. ✖ Bakelite

3. ✔ Nylon

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4. ✖ Teflon

Question Number : 97 Question Id : 47720318925 Display Question Number : Yes Is Question Mandatory : No

Isoprene is monomer of

Options :

1. ✖ Teflon

2. ✖ Nylon

3. ✔ Natural rubber

4. ✖ PVC

Question Number : 98 Question Id : 47720318926 Display Question Number : Yes Is Question Mandatory : No

The only liquid fuel in nature is

Options :

1. ✖ Kerosene

2. ✖ Diesel

3. ✖ Petrol

4. ✔ Petroleum

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Question Number : 99 Question Id : 47720318927 Display Question Number : Yes Is Question Mandatory : No

The medium which reacts with pollutant is called

Options :

1. ✔ Sink

2. ✖ Receptor

3. ✖ Speciation

4. ✖ Contaminant

Question Number : 100 Question Id : 47720318928 Display Question Number : Yes Is Question Mandatory : No

Which of the following is used in the estimation of Chemical Oxygen Demand (COD) ?

Options :

1. ✖ Methyl orange

2. ✔ $K_2Cr_2O_7 + 50\% H_2SO_4$

3. ✖ $CaOCl_2 + 50\% H_2SO_4$

4. ✖ Alum +CaO

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Computer Science and Engineering

Section Id : 477203373

Section Number : 4

Mandatory or Optional : Mandatory

Number of Questions : 100

Section Marks : 100

Enable Mark as Answered Mark for Review and Clear Response : Yes

Question Number : 101 Question Id : 47720318929 Display Question Number : Yes Is Question Mandatory : No

How many flip flops are required for the mod-16 counter?

Options :

1. ✖ 5

2. ✔ 4

3. ✖ 6

4. ✖ 3

Question Number : 102 Question Id : 47720318930 Display Question Number : Yes Is Question Mandatory : No

EPROM contents can be erased by exposing them to

Options :

1. ✖ Burst of microwaves

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2. ✖ Intense heat radiations

3. ✖ Infrared rays

4. ✔ Ultraviolet rays

Question Number : 103 Question Id : 47720318931 Display Question Number : Yes Is Question Mandatory : No

The digital logic family which has minimum power dissipation is

Options :

1. ✖ TTL

2. ✖ DTL

3. ✔ CMOS

4. ✖ RTL

Question Number : 104 Question Id : 47720318932 Display Question Number : Yes Is Question Mandatory : No

If the input to T-flipflop is 100 Hz signal, the final output of the two T- flipflops in cascade is

Options :

1. ✖ 1000 Hz

2. ✖ 50 Hz

3. ✔ 25 Hz

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4. ✖ 200 Hz

Question Number : 105 Question Id : 47720318933 Display Question Number : Yes Is Question Mandatory : No

The device which changes from serial data to parallel data is

Options :

1. ✔ DEMULTIPLEXER

2. ✖ MULTIPLEXER

3. ✖ COUNTER

4. ✖ FLIP-FLOP

Question Number : 106 Question Id : 47720318934 Display Question Number : Yes Is Question Mandatory : No

When simplified with Boolean Algebra, $(x + y)(x + z)$ simplifies to

Options :

1. ✖ $x(1 + yz)$

2. ✔ $x + yz$

3. ✖ $x + x(y + z)$

4. ✖ x

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Question Number : 107 Question Id : 47720318935 Display Question Number : Yes Is Question Mandatory : No

The 2's complement of the number 1101101 is

Options :

1. ✔ 0010011

2. ✖ 0110010

3. ✖ 0111110

4. ✖ 0101110

Question Number : 108 Question Id : 47720318936 Display Question Number : Yes Is Question Mandatory : No

The decimal equivalent of hex number 1A53 is

Options :

1. ✔ 6739

2. ✖ 6793

3. ✖ 6973

4. ✖ 6379

Question Number : 109 Question Id : 47720318937 Display Question Number : Yes Is Question Mandatory : No

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What is the order decided by a processor or the CPU of a controller to execute an instruction?

Options :

1. ✖ decode, fetch, execute

2. ✖ execute, fetch, decode

3. ✔ fetch, decode, execute

4. ✖ fetch, execute, decode

Question Number : 110 Question Id : 47720318938 Display Question Number : Yes Is Question Mandatory : No

The 8086 fetches instruction one after another from _____of memory

Options :

1. ✖ INSTRUCTION POINTER

2. ✖ STACK SEGMENT

3. ✖ ADDRESS SEGMENT

4. ✔ CODE SEGMENT

Question Number : 111 Question Id : 47720318939 Display Question Number : Yes Is Question Mandatory : No

Which instruction is used to load the address of operand into the provided register?

Options :

1. ✔

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LEA

2. ✖ LDS

3. ✖ LES

4. ✖ LAHF

Question Number : 112 Question Id : 47720318940 Display Question Number : Yes Is Question Mandatory : No

Which instructions affect the program counter?

Options :

1. ✖ Call and Return

2. ✔ Call and Jump

3. ✖ Push and Pop

4. ✖ Return and Jump

Question Number : 113 Question Id : 47720318941 Display Question Number : Yes Is Question Mandatory : No

Which register pair is used to indicate memory?

Options :

1. ✖ B and C

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2. ✔ H and L

3. ✖ D and E

4. ✖ W and Z

Question Number : 114 Question Id : 47720318942 Display Question Number : Yes Is Question Mandatory : No

The instructions that are used for reading an input port and writing an output port respectively are

Options :

1. ✔ IN, OUT

2. ✖ IN, MOV

3. ✖ MOV, IN

4. ✖ MOV, XCHG

Question Number : 115 Question Id : 47720318943 Display Question Number : Yes Is Question Mandatory : No

The 80286 is able to address the physical memory of

Options :

1. ✖ 8 MB

2. ✔ 16 MB

3. ✖

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24 MB

4. ✖ 64 MB

Question Number : 116 Question Id : 47720318944 Display Question Number : Yes Is Question Mandatory : No

The 80286 is an upward object code compatible with 8086 or 8088 when operated in

Options :

1. ✖ Normal mode

2. ✖ Real address mode only

3. ✖ Virtual address mode only

4. ✔ Real and virtual address mode

Question Number : 117 Question Id : 47720318945 Display Question Number : Yes Is Question Mandatory : No

In 8086, The instruction, MOV AX, [BX] is an example of

Options :

1. ✖ Direct addressing mode

2. ✖ Register addressing mode

3. ✔ Register indirect addressing mode

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4. ✖ Register relative addressing mode

Question Number : 118 Question Id : 47720318946 Display Question Number : Yes Is Question Mandatory : No

The status of the pending interrupts is checked at

Options :

1. ✔ The end of each instruction cycle

2. ✖ The beginning of every interrupt

3. ✖ The end of all the interrupts executed

4. ✖ The end of the main program

Question Number : 119 Question Id : 47720318947 Display Question Number : Yes Is Question Mandatory : No

The method for updating the main memory as soon as a word is removed from the Cache is called

Options :

1. ✔ write-back

2. ✖ Write-through

3. ✖ protected write

4. ✖ cache-write

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Question Number : 120 Question Id : 47720318948 Display Question Number : Yes Is Question Mandatory : No

Zero address instruction format is used for

Options :

1. ✖ RISC architecture.

2. ✖ CISC architecture.

3. ✔ Stack-organized architecture.

4. ✖ Von-Neuman architecture.

Question Number : 121 Question Id : 47720318949 Display Question Number : Yes Is Question Mandatory : No

Cache memory works on the principle of

Options :

1. ✖ The locality of data.

2. ✔ The locality of reference.

3. ✖ The locality of memory.

4. ✖ The locality of reference & memory.

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Question Number : 122 Question Id : 47720318950 Display Question Number : Yes Is Question Mandatory : No

Cycle stealing technique is used in

Options :

1. ✖ Interrupt based data transfer

2. ✖ Polled mode data transfer

3. ✔ DMA based data transfer

4. ✖ Data parallelism

Question Number : 123 Question Id : 47720318951 Display Question Number : Yes Is Question Mandatory : No

During DMA acknowledgement cycle, CPU relinquishes

Options :

1. ✖ Address bus only

2. ✖ Address bus & control bus

3. ✔ Data bus & address bus

4. ✖ Control bus & data bus

Question Number : 124 Question Id : 47720318952 Display Question Number : Yes Is Question Mandatory : No

In IEEE 32-bit representations, the mantissa of the fraction occupies_____ bits.

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Options :

1. ✔ 23

2. ✖ 24

3. ✖ 20

4. ✖ 16

Question Number : 125 Question Id : 47720318953 Display Question Number : Yes Is Question Mandatory : No

The extra time needed to bring the data into memory in case of a miss is called as _____

Options :

1. ✖ Delay

2. ✖ Propagation time

3. ✔ Miss penalty

4. ✖ Hit penalty

Question Number : 126 Question Id : 47720318954 Display Question Number : Yes Is Question Mandatory : No

The process where the processor constantly checks the status flags is called as

Options :

1. ✔ Polling

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2. ✖ Inspection

3. ✖ Reviewing

4. ✖ Echoing

Question Number : 127 Question Id : 47720318955 Display Question Number : Yes Is Question

Mandatory : No

A processor performing fetch or decoding of different instruction during the execution of another instruction is called _____

Options :

1. ✔ Pipe-lining

2. ✖ Super-scaling

3. ✖ Parallel Computation

4. ✖ Quantum Computing

Question Number : 128 Question Id : 47720318956 Display Question Number : Yes Is Question

Mandatory : No

The addressing mode, where you directly specify the operand value is called

Options :

1. ✖ Direct

2. ✖ Definite

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3. ✖ Relative

4. ✔ Immediate

Question Number : 129 Question Id : 47720318957 Display Question Number : Yes Is Question Mandatory : No

What is the following program doing?

```
main ()
{
int d = 1;
do
printf("%d\n", d++);
while (d < = 9);
}
```

Options :

1. ✖ Adding 9 integers

2. ✖ Adding integers from 1 to 9

3. ✔ Displaying integers from 1 to 9

4. ✖ Adding integers from 1 to 10

Question Number : 130 Question Id : 47720318958 Display Question Number : Yes Is Question Mandatory : No

The output of the following statements is

```
char ch[6]={'E', 'n', 'd', '\0', 'p'};
printf("%s", ch);
```

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Options :

1. ✖ Endp

2. ✖ End0

3. ✔ End

4. ✖ Error

Question Number : 131 Question Id : 47720318959 Display Question Number : Yes Is Question Mandatory : No

What is the output of the following program?

```
main( )
{
int i=4, z=12;
if(i=5 || z>50)
printf(“Hello”);
else
printf(“Hi”);
}
```

Options :

1. ✔ Hello

2. ✖ Hi

3. ✖ syntax error

4. ✖ HelloHi

Question Number : 132 Question Id : 47720318960 Display Question Number : Yes Is Question

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Mandatory : No

An infix expression can be converted to a postfix expression using a_____

Options :

1. ✔ Stack

2. ✖ Queue

3. ✖ Dequeue

4. ✖ Tree

Question Number : 133 Question Id : 47720318961 Display Question Number : Yes Is Question Mandatory : No

A sorted file contains 16 items. Using binary search, the maximum number of comparisons to search for an item in this file is

Options :

1. ✖ 15

2. ✔ 4

3. ✖ 8

4. ✖ 1

Question Number : 134 Question Id : 47720318962 Display Question Number : Yes Is Question Mandatory : No

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If the In-order and Pre-order traversal of a binary tree are D,B,F,E,G,H,A,C and A,B,D,E,F,G,H,C respectively, then the Post-order traversal of that tree is

Options :

1. ✖ D,F,G,A,B,C,H,E

2. ✖ F,H,D,G,E,B,C,A

3. ✖ C,G,H ,F,E,D,B,A

4. ✔ D,F,H,G,E,B,C,A

Question Number : 135 Question Id : 47720318963 Display Question Number : Yes Is Question Mandatory : No

How many distinct binary search trees can be formed which contain the integers 1, 2, 3?

Options :

1. ✖ 3

2. ✖ 4

3. ✔ 5

4. ✖ 6

Question Number : 136 Question Id : 47720318964 Display Question Number : Yes Is Question Mandatory : No

The number of comparisons required to sort 5 numbers in ascending order using bubble sort is

Options :

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1. ✖ 5

2. ✔ 10

3. ✖ 6

4. ✖ 7

Question Number : 137 Question Id : 47720318965 Display Question Number : Yes Is Question Mandatory : No

Which sorting algorithm is the best if the list is already in order?

Options :

1. ✖ Quicksort

2. ✔ Insertion sort

3. ✖ Merge sort

4. ✖ Heapsort

Question Number : 138 Question Id : 47720318966 Display Question Number : Yes Is Question Mandatory : No

How many times the following code prints the string "hello".

```
for(i=1; i<=1000; i++);
printf("hello");
```

Options :

1. ✔ 1

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2. ✖ 1000

3. ✖ 0

4. ✖ Syntax Error

Question Number : 139 Question Id : 47720318967 Display Question Number : Yes Is Question Mandatory : No

The term HTTP stands for _____.

Options :

1. ✔ Hypertext transfer protocol

2. ✖ Hyper terminal tracing program

3. ✖ Hypertext tracing protocol

4. ✖ Hypertext transfer program

Question Number : 140 Question Id : 47720318968 Display Question Number : Yes Is Question Mandatory : No

If two systems use separate protocols, which one of the following devices is used to link two systems?

Options :

1. ✖ Repeater

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2. ✔ Gateway

3. ✖ Bridge

4. ✖ Hub

Question Number : 141 Question Id : 47720318969 Display Question Number : Yes Is Question Mandatory : No

An endpoint of an inter-process communication flow across a computer network is called?

Options :

1. ✖ Pipe

2. ✔ Socket

3. ✖ Port

4. ✖ Machine

Question Number : 142 Question Id : 47720318970 Display Question Number : Yes Is Question Mandatory : No

ICMP is primarily used for _____

Options :

1. ✔ error and diagnostic functions

2. ✖

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Addressing

3. ✖ Forwarding

4. ✖ Routing

Question Number : 143 Question Id : 47720318971 Display Question Number : Yes Is Question Mandatory : No

Which type of communication is offered by TCP?

Options :

1. ✔ Full-duplex

2. ✖ Half-duplex

3. ✖ Semi-duplex

4. ✖ Byte by byte

Question Number : 144 Question Id : 47720318972 Display Question Number : Yes Is Question Mandatory : No

Which protocol assigns an IP address to the client connected to the Internet?

Options :

1. ✖ ARP

2. ✖ IP

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3. ✖ TELNET

4. ✔ DHCP

Question Number : 145 Question Id : 47720318973 Display Question Number : Yes Is Question Mandatory : No

A _____ is a device that operates only in the physical layer

Options :

1. ✖ Switch

2. ✖ Hub

3. ✔ Repeater

4. ✖ Router

Question Number : 146 Question Id : 47720318974 Display Question Number : Yes Is Question Mandatory : No

The Default network mask for CLASS B is

Options :

1. ✖ 255.0.0.0

2. ✖ 255.255.255.0

3. ✔ 255.255.0.0

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4. ✖ 255.255.255.255

Question Number : 147 Question Id : 47720318975 Display Question Number : Yes Is Question Mandatory : No

We need to subnet a network that has 5 subnets, each with at least 16 hosts.
Which classful subnet mask we will use?

Options :

1. ✖ 255.255.255.192

2. ✖ 255.255.255.240

3. ✔ 255.255.255.224

4. ✖ 255.255.255.248

Question Number : 148 Question Id : 47720318976 Display Question Number : Yes Is Question Mandatory : No

In Ethernet frame, both destination and sender addresses are of length

Options :

1. ✖ 1 Byte

2. ✔ 6 Bytes

3. ✖ 4 Bytes

4. ✖ 2 Bytes

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Question Number : 149 Question Id : 47720318977 Display Question Number : Yes Is Question Mandatory : No

The Basic Input Output System (BIOS) resides in

Options :

1. ✖ RAM

2. ✔ ROM

3. ✖ The CPU

4. ✖ Memory Cache

Question Number : 150 Question Id : 47720318978 Display Question Number : Yes Is Question Mandatory : No

The Banker's algorithm is used

Options :

1. ✖ to rectify deadlock

2. ✖ to detect deadlock

3. ✔ to prevent deadlock

4. ✖ to solve deadlock

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Question Number : 151 Question Id : 47720318979 Display Question Number : Yes Is Question Mandatory : No

First-in-First-Out (FIFO) scheduling is

Options :

1. ✔ Non-Preemptive Scheduling

2. ✖ Preemptive Scheduling

3. ✖ Fair Share Scheduling

4. ✖ Deadline Scheduling

Question Number : 152 Question Id : 47720318980 Display Question Number : Yes Is Question Mandatory : No

The interval from the time of submission of a process to the time of completion is termed as _____

Options :

1. ✖ waiting time

2. ✔ turnaround time

3. ✖ response time

4. ✖ throughput

Question Number : 153 Question Id : 47720318981 Display Question Number : Yes Is Question

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Mandatory : No

What is a Process Control Block?

Options :

1. ✖ Process type variable

2. ✔ A Data Structure to store information of a process

3. ✖ A secondary storage section

4. ✖ A Block in memory

Question Number : 154 Question Id : 47720318982 Display Question Number : Yes Is Question Mandatory : No

A computer system has 6 tape drives, with 'n' processes competing for them. Each process may need 3 tape drives. The maximum value of 'n' for which the system is guaranteed to be deadlock free

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 155 Question Id : 47720318983 Display Question Number : Yes Is Question Mandatory : No

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The address of a page table in memory is pointed by _____

Options :

1. ✖ stack pointer

2. ✖ page register

3. ✖ program counter

4. ✔ page table base register

Question Number : 156 Question Id : 47720318984 Display Question Number : Yes Is Question Mandatory : No

Consider a computer with 8M bytes of main memory and a 128K bytes cache. The cache block size is 4K bytes. It uses a direct mapping scheme for cache management. How many different main memory blocks can map onto a given physical cache block?

Options :

1. ✖ 2048

2. ✖ 8

3. ✔ 64

4. ✖ 256

Question Number : 157 Question Id : 47720318985 Display Question Number : Yes Is Question Mandatory : No

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A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because _____

Options :

1. ✖ it reduces the memory access time to read or write a memory location

2. ✔ it helps to reduce the size of the page table needed to implement the virtual address space of a process

3. ✖ it is required by the translation lookaside buffer

4. ✖ it helps to reduce the number of page faults in page replacement algorithms

Question Number : 158 Question Id : 47720318986 Display Question Number : Yes Is Question Mandatory : No

The time taken to move the disk arm to the desired cylinder is called the _____

Options :

1. ✖ positioning time

2. ✖ random access time

3. ✔ seek time

4. ✖ rotational latency

Question Number : 159 Question Id : 47720318987 Display Question Number : Yes Is Question

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Mandatory : No

In the _____ algorithm, the disk arm starts at one end of the disk and moves toward the other end, servicing requests till the other end of the disk. At the other end, the direction is reversed and servicing continues.

Options :

1. ✖ LOOK

2. ✔ SCAN

3. ✖ C-SCAN

4. ✖ C-LOOK

Question Number : 160 Question Id : 47720318988 Display Question Number : Yes Is Question

Mandatory : No

An SJF algorithm is simply a priority algorithm where the priority is _____

Options :

1. ✔ the predicted next CPU burst

2. ✖ the inverse of the predicted next CPU burst

3. ✖ the current CPU burst

4. ✖ anything the user wants

Question Number : 161 Question Id : 47720318989 Display Question Number : Yes Is Question

Mandatory : No

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Cartesian product in relational algebra is

Options :

1. ✖ a Unary operator

2. ✔ a Binary operator

3. ✖ a Ternary operator

4. ✖ Not Defined

Question Number : 162 Question Id : 47720318990 Display Question Number : Yes Is Question Mandatory : No

In an E-R diagram, attributes are represented by

Options :

1. ✖ Rectangle

2. ✔ Ellipse

3. ✖ Square

4. ✖ Triangle

Question Number : 163 Question Id : 47720318991 Display Question Number : Yes Is Question Mandatory : No

Which of the following operation is used if we are interested in only certain columns of a table?

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Options :

1. ✔ PROJECTION

2. ✖ SELECTION

3. ✖ UNION

4. ✖ JOIN

Question Number : 164 Question Id : 47720318992 Display Question Number : Yes Is Question Mandatory : No

Which two files are used during the operation of the DBMS ?

Options :

1. ✖ Query languages and utilities

2. ✖ DML and query language

3. ✔ Data dictionary and transaction log

4. ✖ Data dictionary and query language

Question Number : 165 Question Id : 47720318993 Display Question Number : Yes Is Question Mandatory : No

Consider the join of relation R with relation S. If R has m tuples and S has n tuples, then the maximum size of join would be:

Options :

1. ✔

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Mn

2. ✖ m+n

3. ✖ (m+n)/2

4. ✖ 2(m+n)

Question Number : 166 Question Id : 47720318994 Display Question Number : Yes Is Question Mandatory : No

Tables in second normal form (2NF):

Options :

1. ✔ Eliminate all hidden dependencies

2. ✖ Eliminate the possibility of insertion anomalies

3. ✖ Have a composite key

4. ✖ Have all non-key fields depend on the whole primary key

Question Number : 167 Question Id : 47720318995 Display Question Number : Yes Is Question Mandatory : No

Which of the normal form is based on multivalued dependencies?

Options :

1. ✖ First

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2. ✖ Second

3. ✖ Third

4. ✔ Fourth

Question Number : 168 Question Id : 47720318996 Display Question Number : Yes Is Question Mandatory : No

A data dictionary is a repository that manages _____

Options :

1. ✖ Memory

2. ✔ Metadata

3. ✖ Database schema

4. ✖ Data Validator

Question Number : 169 Question Id : 47720318997 Display Question Number : Yes Is Question Mandatory : No

In DBMS, values of one type can be converted to another domain using which of the following?

Options :

1. ✔ Cast

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2. ✖ Drop type

3. ✖ Alter type

4. ✖ Convert

Question Number : 170 Question Id : 47720318998 Display Question Number : Yes Is Question Mandatory : No

Which one of the following provides the ability to query information from the database and to insert tuples into, delete tuples from, and modify tuples in the database?

Options :

1. ✔ DML(Data Manipulation Langauge)

2. ✖ DDL(Data Definition Langauge)

3. ✖ Query

4. ✖ Relational Schema

Question Number : 171 Question Id : 47720318999 Display Question Number : Yes Is Question Mandatory : No

How can one implement the run-time Polymorphism in the C++ programming language?

Options :

1. ✖ By using the Template

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2. ✔ By using both the virtual functions and inheritance

3. ✖ By using the concepts of inheritance

4. ✖ By using only the virtual functions

Question Number : 172 Question Id : 47720319000 Display Question Number : Yes Is Question Mandatory : No

Which of the following refers to using the existing code instead of rewriting it?

Options :

1. ✔ Inheritance

2. ✖ Encapsulation

3. ✖ Abstraction

4. ✖ Polymorphism

Question Number : 173 Question Id : 47720319001 Display Question Number : Yes Is Question Mandatory : No

If class C is derived from class B, which is derived from class A, all through public inheritance, then class C member function can access

Options :

1. ✔ Protected data in A and B

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2. ✖ Protected and public data only in C and B

3. ✖ Private data in A and B

4. ✖ Protected and public data only in C

Question Number : 174 Question Id : 47720319002 Display Question Number : Yes Is Question Mandatory : No

Which is the correct statement about pure virtual functions?

Options :

1. ✖ They should be defined inside a base class

2. ✖ Pure keyword should be used to declare a pure virtual function

3. ✔ Pure virtual function is implemented in derived classes

4. ✖ Pure virtual function cannot be implemented in derived classes

Question Number : 175 Question Id : 47720319003 Display Question Number : Yes Is Question Mandatory : No

Which of the following operator cannot be used to overload when that function is declared as a friend function?

Options :

1. ✖ -=

2. ✖ ||

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3. ✖ ==

4. ✔ [ ]

Question Number : 176 Question Id : 47720319004 Display Question Number : Yes Is Question Mandatory : No

Which of the following gives the memory address of the first element in an array?

Options :

1. ✖ array[0];

2. ✖ array[1];

3. ✖ array(1);

4. ✔ array;

Question Number : 177 Question Id : 47720319005 Display Question Number : Yes Is Question Mandatory : No

What is a friend function in C++?

Options :

1. ✔ A function that can access all the private, protected and public members of a class

2. ✖ A function that is not allowed to access any member of any class

3. ✖ A function that is allowed to access public and protected members of a class

4. ✖

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A function that is allowed to access only public members of a class

Question Number : 178 Question Id : 47720319006 Display Question Number : Yes Is Question Mandatory : No

Which of the following cannot be used with the virtual keyword?

Options :

1. ✖ Class

2. ✖ Member functions

3. ✔ Constructors

4. ✖ Destructors

Question Number : 179 Question Id : 47720319007 Display Question Number : Yes Is Question Mandatory : No

What happens if a class does not have a name?

Options :

1. ✖ It will not have a constructor

2. ✔ It will not have a destructor

3. ✖ It is not allowed

4. ✖ It will neither have a constructor nor a destructor

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Question Number : 180 Question Id : 47720319008 Display Question Number : Yes Is Question Mandatory : No

Which of the following is not a type of inheritance?

Options :

1. ✖ Multiple

2. ✖ Multilevel

3. ✔ Distributive

4. ✖ Hierarchical

Question Number : 181 Question Id : 47720319009 Display Question Number : Yes Is Question Mandatory : No

Which of the following option leads to the portability and security of Java?

Options :

1. ✔ Bytecode is executed by JVM

2. ✖ The applet makes the Java code secure and portable

3. ✖ Use of exception handling

4. ✖ Dynamic binding between objects

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Question Number : 182 Question Id : 47720319010 Display Question Number : Yes Is Question Mandatory : No

Evaluate the following Java expression, if x=3, y=5, and z=10:

++z + y - y + z + x++

Options :

1. ✖ 20

2. ✖ 23

3. ✖ 24

4. ✔ 25

Question Number : 183 Question Id : 47720319011 Display Question Number : Yes Is Question Mandatory : No

When we create a string using a new operator in Java, in which memory this string is stored?

Options :

1. ✖ Stack

2. ✖ String memory

3. ✔ Heap memory

4. ✖ Random storage space

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Question Number : 184 Question Id : 47720319012 Display Question Number : Yes Is Question Mandatory : No

Which of the following modifiers can be used for a variable so that it can be accessed by any thread or a part of a program?

Options :

1. ✖ global

2. ✖ transient

3. ✖ default

4. ✔ volatile

Question Number : 185 Question Id : 47720319013 Display Question Number : Yes Is Question Mandatory : No

Which of these methods can be used to make the main thread to be executed last among all the threads?

Options :

1. ✖ stop()

2. ✔ sleep()

3. ✖ Join()

4. ✖ Call()

Question Number : 186 Question Id : 47720319014 Display Question Numbe... Yes Is Question

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Mandatory : No

Which method can be defined only once in a program?

Options :

1. ✔ main method

2. ✖ finalize method

3. ✖ static method

4. ✖ private method

Question Number : 187 Question Id : 47720319015 Display Question Number : Yes Is Question Mandatory : No

Which of these packages contains the exception Stack Overflow in Java?

Options :

1. ✔ java.lang

2. ✖ java.util

3. ✖ java.io

4. ✖ java.system

Question Number : 188 Question Id : 47720319016 Display Question Number : Yes Is Question Mandatory : No

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Which of these keywords can be used to prevent Method overriding?

Options :

1. ✖ Static

2. ✖ Constant

3. ✖ Protected

4. ✔ Final

Question Number : 189 Question Id : 47720319017 Display Question Number : Yes Is Question Mandatory : No

Which of these keywords must be used to inherit a class?

Options :

1. ✖ Super

2. ✖ This

3. ✖ Extent

4. ✔ Extends

Question Number : 190 Question Id : 47720319018 Display Question Number : Yes Is Question Mandatory : No

Which component is used to compile, debug and execute the java program?

Options :

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1. ✖ JVM

2. ✔ JDK

3. ✖ JRE

4. ✖ JIT

Question Number : 191 Question Id : 47720319019 Display Question Number : Yes Is Question Mandatory : No

_____ is used to store the data within the documents on the server.

Options :

1. ✔ XML

2. ✖ HTML

3. ✖ DHTML

4. ✖ CGI

Question Number : 192 Question Id : 47720319020 Display Question Number : Yes Is Question Mandatory : No

What does “error 404” or “Not Found” error while accessing a URL mean?

Options :

1. ✔ The server could not find the requested URL

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2. ✖ The requested HTML file is not available

3. ✖ The path to the interpreter of the script is not valid

4. ✖ The requested HTML file does not have sufficient permissions

Question Number : 193 Question Id : 47720319021 Display Question Number : Yes Is Question Mandatory : No

Which of the following method acts as a constructor function in a PHP class?

Options :

1. ✖ class_name()

2. ✔ __construct()

3. ✖ constructor

4. ✖ constructor()

Question Number : 194 Question Id : 47720319022 Display Question Number : Yes Is Question Mandatory : No

Which of the following function returns the number of characters in a string variable?

Options :

1. ✖ count($variable)

2. ✖ strcount($variable)

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3. ✖ len($variable)

4. ✔ strlen($variable)

Question Number : 195 Question Id : 47720319023 Display Question Number : Yes Is Question Mandatory : No

What will be the output of the following PHP code?

```
<?php
function hi()
{
  echo "HelloWorld";
}
$function_holder = "hi";
$function_holder();
?>
```

Options :

1. ✖ Error

2. ✖ No Output

3. ✔ HelloWorld

4. ✖ hi

Question Number : 196 Question Id : 47720319024 Display Question Number : Yes Is Question Mandatory : No

In PHP, which of the function is used to sort an array in descending order?

Options :

1. ✖ sort()

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2. ✖ asort()

3. ✔ rsort()

4. ✖ dsort()

Question Number : 197 Question Id : 47720319025 Display Question Number : Yes Is Question Mandatory : No

What will be the output of the following PHP code?

```
<?php
   function a()
   {
      function b()
      {
         echo 'BB';
         }
      echo 'AA';
   }
a();
b();
 ?>
```

Options :

1. ✖ AA

2. ✖ BBAA

3. ✔ AABB

4. ✖ Error

Question Number : 198 Question Id : 47720319026 Display Question Number : Yes Is Question Mandatory : No

A function in PHP which starts with __ (double underscore) is known as _____

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Options :

1. ✖ User-Defined Function

2. ✔ Magic Function

3. ✖ Inbuilt Function

4. ✖ Default Function

Question Number : 199 Question Id : 47720319027 Display Question Number : Yes Is Question Mandatory : No

_____ object is used to fill a DataSet/DataTable with query results in ADO.NET.

Options :

1. ✖ DataSet

2. ✔ DataAdapter

3. ✖ DataTable

4. ✖ DataReader

Question Number : 200 Question Id : 47720319028 Display Question Number : Yes Is Question Mandatory : No

_____ method is used to change the data in the database such as an update, delete, or insert statements.

Options :

1. ✖ ExecuteReader()

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2. ✖ ExecuteScalar()

3. ✖ ExecuteXML()

4. ✔ ExecuteNonQuery()

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