

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 :	Ceramic Technology 23rd Apr 2026 Shift 1
Subject Name :	Ceramic Technology
Creation Date :	2026-04-23 15:16:22
Duration :	180
Total Marks :	200
Display Marks:	No
Change Font Color :	No
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Ceramic Technology

Group Number :	1
Group Id :	77951855
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200

Mathematics

Section Id :	779518213
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 :	779518229
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 77951810809 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 : 77951810810 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 : 77951810811 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 : 77951810812 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 : 77951810813 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 : 77951810814 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 : 77951810815 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. ✓

1/9

3. ✘ $-1/3$

4. ✘ $2/3$

Question Number : 8 Question Id : 77951810816 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 : 77951810817 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 : 77951810818 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 : 77951810819 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 : 77951810820 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 : 77951810821 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 : 77951810822 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 : 77951810823 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 : 77951810824 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 : 77951810825 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 : 77951810826 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 : 77951810827 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 : 77951810828 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 : 77951810829 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 : 77951810830 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 : 77951810831 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 : 77951810832 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 : 77951810833 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 : 77951810834 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 : 77951810835 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 : 77951810836 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. ✘ $-a \operatorname{cosec}^2 x + b \operatorname{sec}^2 x + c \operatorname{cosec} x \cot x$

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

Question Number : 29 Question Id : 77951810837 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 : 77951810838 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 : 77951810839 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

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 : 77951810840 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $1 - 2^y$

2. ✘ $1 - \frac{1}{2^y}$

3. ✘ $1 + 2^{-y}$

4. ✘ $1 + 2^y$

Question Number : 33 Question Id : 77951810841 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

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 : 77951810842 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 : 77951810843 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 : 77951810844 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 : 77951810845 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 : 77951810846 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 : 77951810847 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. ✔ $x^2 + \frac{x^4}{2} + \frac{x^6}{3} + C$

Question Number : 40 Question Id : 77951810848 Question Type : MCQ

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 : 77951810849 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 : 77951810850 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 : 77951810851 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 : 77951810852 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 : 77951810853 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 : 77951810854 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 : 77951810855 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 : 77951810856 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 : 77951810857 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 : 77951810858 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 :	779518214
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 :	779518230
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 77951810859 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 : 77951810860 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 : 77951810861 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 : 77951810862 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 : 77951810863 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 : 77951810864 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 : 77951810865 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 : 77951810866 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 : 77951810867 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. ✘

12 J

4. ✓ 14 J

Question Number : 60 Question Id : 77951810868 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 : 77951810869 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. ✗

4 m/s

Question Number : 62 Question Id : 77951810870 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 : 77951810871 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 : 77951810872 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 : 77951810873 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 : 77951810874 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 : 77951810875 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 : 77951810876 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 : 77951810877 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 : 77951810878 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 : 77951810879 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 : 77951810880 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 : 77951810881 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 : 77951810882 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 : 77951810883 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 :	779518215
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 :	779518231
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 77951810884 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. ✘

d_{xz}, P_z

Question Number : 77 Question Id : 77951810885 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 : 77951810886 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. ✘ $n=4, l=3, m=-2, s=-1/2$

Question Number : 79 Question Id : 77951810887 Question Type : MCQ

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 : 77951810888 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 : 77951810889 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 : 77951810890 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 : 77951810891 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 CO₂ and 14 g of N₂

2. ✘ 16 g of O₃ and 16 g of CH₄

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 : 77951810892 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 : 77951810893 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

Question Number : 86 Question Id : 77951810894 Question Type : MCQ

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 : 77951810895 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 : 77951810896 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 : 77951810897 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 : 77951810898 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 $\text{H}=1$, $\text{C}=12$, $\text{O}=16$, $\text{Mg}=24$, $\text{Ca}=40$, $\text{S}=32$)

Options :

1. ✗ 20

2. ✗

3. ✓ 30

4. ✗ 40

Question Number : 91 Question Id : 77951810899 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 : 77951810900 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 : 77951810901 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In galvanised iron

Options :

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

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

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

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

Question Number : 94 Question Id : 77951810902 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ Sulphur

2. ✖ Phosphorus

3. ✖ Iodine

4. ✖ Sodium

Question Number : 95 Question Id : 77951810903 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a natural polymer?

Options :

1. ✓ Cellulose

2. ✗ Teflon

3. ✗ Polyvinylchloride

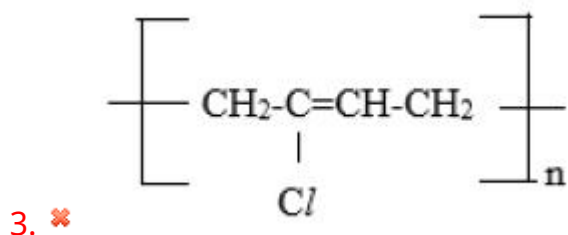
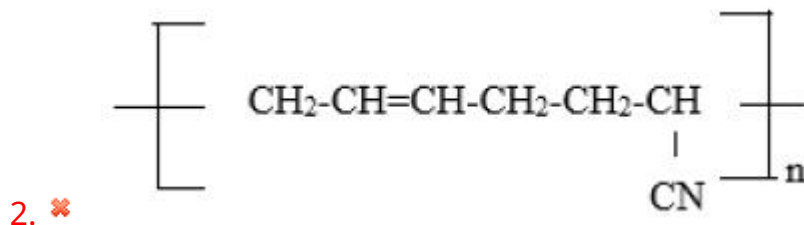
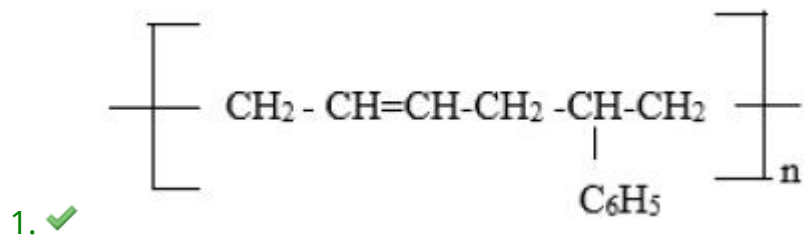
4. ✗ Neoprene rubber

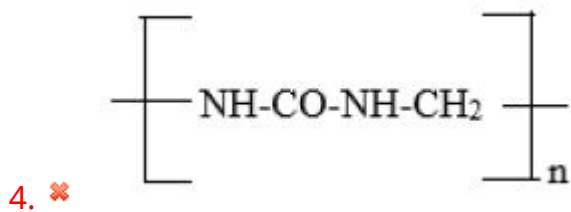
Question Number : 96 Question Id : 77951810904 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The structure of Buna -S polymer is

Options :





Question Number : 97 Question Id : 77951810905 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 : 77951810906 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✘ Wood

2. ✘ Petroleum

3. ✔ Coke

4. ✘ Coal

Question Number : 99 Question Id : 77951810907 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 : 77951810908 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

Ceramic Technology

Section Id :

779518216

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 :	779518232
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 77951810909 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ is a solid solution of Calcium carbonate and Magnesium carbonate

Options :

1. ✓ Dolomite
2. ✗ Magnesite
3. ✗ Chromite
4. ✗ Calcite

Question Number : 102 Question Id : 77951810910 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The chemical formula of Fluorspar is

Options :

1. ✗ MgF_2
2. ✓ CaF_2
3. ✗ NaF_2

4. ✘ NiF₂

**Question Number : 103 Question Id : 77951810911 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

The total number of Polymorphic forms of Quartz is

Options :

1. ✘ 2

2. ✘ 1

3. ✘ 4

4. ✔ 3

**Question Number : 104 Question Id : 77951810912 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

_____ is a waste/ by product obtained during burning of pulverized coal in thermal power plants during the production of electricity.

Options :

1. ✘ Blast furnace slag

2. ✔ Flyash

3. ✘ Phosphogypsum

4. ✘ Redmud

Question Number : 105 Question Id : 77951810913 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The Soda feldspar is also known as

Options :

1. ✘ Orthoclase
2. ✔ Albite
3. ✘ Anorthite
4. ✘ Dickite

Question Number : 106 Question Id : 77951810914 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The chemical formula of Bauxite is

Options :

1. ✘ $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
2. ✘ $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$
3. ✘ Al_2O_3
4. ✔ $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$

Question Number : 107 Question Id : 77951810915 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is called Black Mica?

Options :

1. ✘ Muscovite

2. ✔ Biotite

3. ✘ Lepidolite

4. ✘ Vermiculite

**Question Number : 108 Question Id : 77951810916 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

The Hardness of Corundum on Moh's scale is

Options :

1. ✘ 5

2. ✘ 6

3. ✘ 7

4. ✔ 9

**Question Number : 109 Question Id : 77951810917 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which of the following is an example of an Igneous rock?

Options :

1. ✘ Sandstone

2. ✘ Marble

3. ✓ Basalt

4. ✘ Lime stone

**Question Number : 110 Question Id : 77951810918 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Sedimentary rocks are formed mainly by

Options :

1. ✘ Melting and cooling

2. ✘ Heat and pressure

3. ✓ Deposition, compaction and cementation

4. ✘ Volcanic eruption

**Question Number : 111 Question Id : 77951810919 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which of the following is a Metamorphic rock?

Options :

1. ✘ Granite

2. ✘ Coal

3. ✘ Sandstone

4. ✓ Slate

Question Number : 112 Question Id : 77951810920 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The study of Minerals is called

Options :

1. ✘ Geology
2. ✔ Mineralogy
3. ✘ Petrology
4. ✘ Metallurgy

Question Number : 113 Question Id : 77951810921 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The Hardest mineral on the Moh's scale is

Options :

1. ✘ Quartz
2. ✘ Topaz
3. ✘ Corundum
4. ✔ Diamond

Question Number : 114 Question Id : 77951810922 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The color of a Mineral in powdered form is called

Options :

1. ✘

Luster

2. ✓ Streak

3. ✗ Texture

4. ✗ Shade

Question Number : 115 Question Id : 77951810923 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a Clay mineral?

Options :

1. ✗ Quartz

2. ✗ Gypsum

3. ✓ Kaolinite

4. ✗ Feldspar

Question Number : 116 Question Id : 77951810924 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a Triaxial material in whiteware?

Options :

1. ✗ Clay

2. ✗ Feldspar

3. ✗

Quartz

4. ✓ Rutile

**Question Number : 117 Question Id : 77951810925 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which kiln is used for Firing of Ceramic tiles?

Options :

1. ✗ Tunnel kiln

2. ✗ Shaft kiln

3. ✓ Roller hearth kiln

4. ✗ Rotary kiln

**Question Number : 118 Question Id : 77951810926 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

The Vitrified tile has a Water absorption of

Options :

1. ✗ Less than 5%

2. ✗ Less than 10%

3. ✓ Less than 0.5%

4. ✗ Less than 15%

Question Number : 119 Question Id : 77951810927 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is used to prepare granules from slip

Options :

1. ✓ Spray dryer
2. ✗ Infrared moisture balance
3. ✗ Filter press
4. ✗ Pug mill

Question Number : 120 Question Id : 77951810928 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is not Glaze application machine?

Options :

1. ✗ Water fall
2. ✗ The Bell
3. ✗ Rotating Disc
4. ✓ Digital printing machine

Question Number : 121 Question Id : 77951810929 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which product belongs to Heavy clay ware?

Options :

1. ✘ Bone china
2. ✘ Electrical porcelain
3. ✔ Sewer pipe
4. ✘ Sanitary ware

Question Number : 122 Question Id : 77951810930 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Quartz in White ware mainly acts as

Options :

1. ✘ Plasticizer
2. ✘ Flux
3. ✘ Colorant
4. ✔ Filler

Question Number : 123 Question Id : 77951810931 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Spark plugs are made up of

Options :

1. ✔ Alumina
2. ✘ Bone china

3. ✘ Cordierite

4. ✘ Soft Porcelain

Question Number : 124 Question Id : 77951810932 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Ability of Electrical insulator to resist the electrical breakdown is called

Options :

1. ✘ Dielectric constant

2. ✔ Dielectric Strength

3. ✘ Polarization

4. ✘ Loss factor

Question Number : 125 Question Id : 77951810933 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following forming technique is used to make ceramic rods and tubes?

Options :

1. ✘ Slip casting

2. ✘ Pressing

3. ✔ Extrusion

4. ✘ Injection molding

Question Number : 126 Question Id : 77951810934 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Black core defect in whiteware occurs due to

Options :

1. ✘ Excess Silica
2. ✔ Trapped carbon
3. ✘ Over vitrification
4. ✘ Rapid cooling

Question Number : 127 Question Id : 77951810935 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is used to test Crazing resistance

Options :

1. ✔ Autoclave
2. ✘ Impact tester
3. ✘ Penetration test
4. ✘ Pot mill

Question Number : 128 Question Id : 77951810936 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an Opacifier?

Options :

1. ✘ As_2O_3
2. ✘ Sb_2O_3
3. ✘ ZnO
4. ✔ Al_2O_3

Question Number : 129 Question Id : 77951810937 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following coloring agent is used to impart Blue color in Glaze?

Options :

1. ✘ NiO
2. ✔ CoO
3. ✘ MnO
4. ✘ ZnO

Question Number : 130 Question Id : 77951810938 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Dental Porcelain contains high percentage of

Options :

1. ✔ Feldspar
2. ✘ Quartz

3. ✘ Clay

4. ✘ Cordierite

Question Number : 131 Question Id : 77951810939 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The Modulus of Rupture (MOR) test for Tiles measures

Options :

1. ✘ Hardness

2. ✘ Plasticity

3. ✔ Flexural strength

4. ✘ Abrasion resistance

Question Number : 132 Question Id : 77951810940 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Bone ash content in Bone China is in the range of

Options :

1. ✘ 10-20%

2. ✘ 25-35%

3. ✔ 40-50%

4. ✘ 60-70%

Question Number : 133 Question Id : 77951810941 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The firing temperature of Porcelain is typically

Options :

1. ✘ 900-1000°C
2. ✘ 1000-1100°C
3. ✔ 1200-1400°C
4. ✘ Above 1600°C

Question Number : 134 Question Id : 77951810942 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which White ware has highest firing temperature?

Options :

1. ✘ Earthen ware
2. ✔ Porcelain
3. ✘ Stone ware
4. ✘ Terracotta

Question Number : 135 Question Id : 77951810943 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is the one of the Phase present in fired white ware products

Options :

1. ✓ Mullite
2. ✗ Rutile
3. ✗ Wollastonite
4. ✗ Cordierite

**Question Number : 136 Question Id : 77951810944 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

The Fusion temperature of Super refractory material is above

Options :

1. ✗ 1000°C
2. ✗ 1500°C
3. ✓ 2000°C
4. ✗ 1200°C

**Question Number : 137 Question Id : 77951810945 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

_____ is used to prepare Silica refractories

Options :

1. ✗ Quartz
2. ✓ Quartzite
3. ✗

Sandstone

4. ✘ Flint

Question Number : 138 Question Id : 77951810946 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a Basic refractory?

Options :

1. ✘ Silica

2. ✘ Fireclay

3. ✔ Magnesite

4. ✘ Alumina

Question Number : 139 Question Id : 77951810947 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Pyrometric Cone Equivalent (PCE) test measures

Options :

1. ✘ Porosity

2. ✘ Strength

3. ✔ Refractoriness

4. ✘ Thermal shock

Question Number : 140 Question Id : 77951810948 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Alumina content in Fireclay refractories is

Options :

1. ✘ 10-20%
2. ✔ 25-45%
3. ✘ 60-80%
4. ✘ 90-100%

Question Number : 141 Question Id : 77951810949 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Bonding Agent used in making Silica bricks is

Options :

1. ✘ Chromia powder
2. ✘ Zircon flour
3. ✔ Hydrated lime
4. ✘ Hydrated alumina

Question Number : 142 Question Id : 77951810950 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The chemical nature of Chromite refractory is

Options :

1. ✔ Neutral

2. ✘ Acidic

3. ✘ Basic

4. ✘ Super

Question Number : 143 Question Id : 77951810951 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which Refractories are used for Crown of Glass melting furnace?

Options :

1. ✘ Fire clay

2. ✘ Chromite

3. ✘ Magnesite

4. ✔ Silica

Question Number : 144 Question Id : 77951810952 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

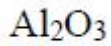
Dolomite refractory contains

Options :

1. ✘ MgO only

2. ✘ CaO only

3. ✔ CaO & MgO



4. ✘

Question Number : 145 Question Id : 77951810953 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The important characteristic of insulating refractory is

Options :

1. ✘ High density

2. ✔ High porosity

3. ✘ High strength

4. ✘ Metallic nature

Question Number : 146 Question Id : 77951810954 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Castables are a type of

Options :

1. ✘ Shaped refractory

2. ✔ Monolithic refractory

3. ✘ Insulating brick

4. ✘ Formed refractory

Question Number : 147 Question Id : 77951810955 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Refractoriness under load test is used to determine

Options :

1. ✘ Thermal conductivity
2. ✔ The temperature at which a brick collapse under load
3. ✘ Resistance to chemical corrosion
4. ✘ Abrasion resistance

Question Number : 148 Question Id : 77951810956 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The Alumina content in High Alumina refractory should be more than

Options :

1. ✘ 10%
2. ✘ 25%
3. ✘ 15%
4. ✔ 45%

Question Number : 149 Question Id : 77951810957 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Cermet's are combination of

Options :

1. ✘ Ceramics & glass

2. ✓ Ceramics & metal

3. ✘ Cement & Metal

4. ✘ Carbon and Metals

Question Number : 150 Question Id : 77951810958 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which Refractories are used in Regenerator of Glass tank furnace?

Options :

1. ✘ Carbon blocks

2. ✘ Dolomite

3. ✓ Magnesite

4. ✘ Silicon carbide

Question Number : 151 Question Id : 77951810959 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____refractories are used in construction of Coke oven wall

Options :

1. ✓ Silica

2. ✘ Fire clay

3. ✘ Magnesite

Chromite

4. ✘

Question Number : 152 Question Id : 77951810960 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ refractories are used in Hearth of Blast furnace

Options :

1. ✔ Carbon

2. ✘ Dolomite

3. ✘ Magnesite

4. ✘ Chromite

Question Number : 153 Question Id : 77951810961 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The specific gravity of Alumina is

Options :

1. ✘ 3.0

2. ✔ 4.0

3. ✘ 2.5

4. ✘ 5.0

Question Number : 154 Question Id : 77951810962 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The presence of _____ in chromite refractory leads to bursting

Options :

1. ✘ Lead oxide
2. ✘ Potassium oxide
3. ✔ Iron oxide
4. ✘ Magnesium oxide

Question Number : 155 Question Id : 77951810963 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Silica bricks have high thermal shock resistance above

Options :

1. ✔ 600°C
2. ✘ 400°C
3. ✘ 1000°C
4. ✘ 1200°C

Question Number : 156 Question Id : 77951810964 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Surface alkalinity of Glass is measured by using

Options :

1. ✔ Autoclave

2. ✘ Impact tester

3. ✘ Flame photometer

4. ✘ Dilatometer

**Question Number : 157 Question Id : 77951810965 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which of the following fabrication method is used to make Wide neck glass bottles?

Options :

1. ✘ Pressing

2. ✘ Blow & Blow

3. ✔ Press & Blow

4. ✘ Drawing

**Question Number : 158 Question Id : 77951810966 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which raw material is the most important mineral for supplying CaO in glass production?

Options :

1. ✘ Soda ash

2. ✘ Sand

3. ✘ Pearl ash

4. ✔

Lime stone

Question Number : 159 Question Id : 77951810967 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

B_2O_3 is a

Options :

1. ✓ Network former
2. ✗ Network modifier
3. ✗ Intermittent oxide
4. ✗ Stabilizing oxide

Question Number : 160 Question Id : 77951810968 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which impurity in Silica sand must be avoided for glass making?

Options :

1. ✗ Sodium chloride
2. ✗ Calcium oxide
3. ✗ Potassium oxide
4. ✓ Iron oxide

Question Number : 161 Question Id : 77951810969 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

'E-glass' is mainly used as

Options :

1. ✘ Bottles and jars for food storage
2. ✔ Reinforcement fibers for plastics & printed circuit boards
3. ✘ Architectural windows
4. ✘ Lead crystal vases

Question Number : 162 Question Id : 77951810970 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Making of glass bubble free is called

Options :

1. ✘ Oxidizing
2. ✘ Reducing
3. ✔ Refining
4. ✘ Firing

Question Number : 163 Question Id : 77951810971 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Uncontrolled crystallization of glass is called

Options :

1. ✘ Melting

2. ✘ Refining
3. ✘ Heat conditioning
4. ✔ Devitrification

Question Number : 164 Question Id : 77951810972 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Crooke's glass contains

Options :

1. ✔ Cerium oxide
2. ✘ Lead oxide
3. ✘ Potassium oxide
4. ✘ Sodium oxide

Question Number : 165 Question Id : 77951810973 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following process is absent in glass manufacturing?

Options :

1. ✘ Annealing
2. ✘ Forming
3. ✔ Sintering

4. ✘ Melting

Question Number : 166 Question Id : 77951810974 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Glass ceramics contain

Options :

1. ✘ Fully crystalline structure
2. ✔ Amorphous matrix with crystalline phases
3. ✘ Only silica
4. ✘ Only alumina

Question Number : 167 Question Id : 77951810975 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Lead glass is used for

Options :

1. ✘ Insulation
2. ✘ Tubes
3. ✘ Windows
4. ✔ Optical lenses

Question Number : 168 Question Id : 77951810976 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The main purpose of annealing is to

Options :

1. ✘ Increase optical clarity
2. ✔ Relieve stresses
3. ✘ Harden the surface
4. ✘ Add color

Question Number : 169 Question Id : 77951810977 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Borosilicate glass is widely used in

Options :

1. ✘ Containers
2. ✔ Laboratory ware
3. ✘ Lenses
4. ✘ Fiber glass

Question Number : 170 Question Id : 77951810978 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following, imparts Green color in glass?

Options :

1. ✘ Cupric oxide

2. ✘ Magnesium oxide

3. ✘ Selenium

4. ✔ Chromium oxide

Question Number : 171 Question Id : 77951810979 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The crown glass is an

Options :

1. ✔ Optical glass

2. ✘ Radiation shield glass

3. ✘ Tempered glass

4. ✘ Safety glass

Question Number : 172 Question Id : 77951810980 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Regenerators are associated with

Options :

1. ✘ Roller kiln

2. ✘ Pot furnace

3. ✔ Tank furnaces

4. ✘

Shuttle kiln

Question Number : 173 Question Id : 77951810981 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The Danner process is a

Options :

1. ✘ Continuous process for drawing fibers
2. ✘ Continuous process for drawing sheets
3. ✔ Continuous process for drawing rods & tubes
4. ✘ Container glass manufacturing process

Question Number : 174 Question Id : 77951810982 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is the first automatic glass bottle making machine?

Options :

1. ✘ IS Machine
2. ✔ Owen's machine
3. ✘ O'Nills machine
4. ✘ Twin table machine

Question Number : 175 Question Id : 77951810983 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Marved glass is called

Options :

1. ✘ Parison
2. ✔ Crany
3. ✘ Puffed glass
4. ✘ Preform

Question Number : 176 Question Id : 77951810984 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following phase is responsible for Strength of Cement?

Options :

1. ✘ C_2S
2. ✘ C_3A
3. ✔ C_3S
4. ✘ C_4AF

Question Number : 177 Question Id : 77951810985 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

What is the % of CaO in Portland Cement?

Options :

1. ✘ 40-45
2. ✘

70-75

3. ✘ 50-55

4. ✔ 60-65

Question Number : 178 Question Id : 77951810986 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Gypsum is added to cement to:

Options :

1. ✘ Accelerate setting

2. ✔ Retard setting

3. ✘ Increase strength

4. ✘ Reduce heat of hydration

Question Number : 179 Question Id : 77951810987 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

In Portland Pozzolana Cement, pozzolanic material reacts with

Options :

1. ✘ Water

2. ✔ Lime

3. ✘ Gypsum

Sand

4. ✘

Question Number : 180 Question Id : 77951810988 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is used to measure initial setting time of cement

Options :

1. ✘ Autoclave

2. ✔ Vicat apparatus

3. ✘ Sieve

4. ✘ Lechatelier apparatus

Question Number : 181 Question Id : 77951810989 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Heating of coal in absence of air is called

Options :

1. ✔ Carbonization

2. ✘ Calcination

3. ✘ Refining

4. ✘ Clinkerization

Question Number : 182 Question Id : 77951810990 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is used to analyze Flue gas?

Options :

1. ✘ Bomb calorimeter
2. ✔ Orsat apparatus
3. ✘ Infrared balance
4. ✘ Spectrophotometer

**Question Number : 183 Question Id : 77951810991 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Which of the following is Renewable Energy Sources?

Options :

1. ✘ Coal
2. ✘ Crude oil
3. ✘ Natural gas
4. ✔ Wind energy

**Question Number : 184 Question Id : 77951810992 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

A thermocouple works on the Principle of

Options :

1. ✘ Hall effect

2. ✘ Peltier effect

3. ✔

Seebeck effect

4. ✘

Ferroelectric effect

5. ✘

Question Number : 185 Question Id : 77951810993 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is Periodic kiln?

Options :

1. ✔ Scove kiln

2. ✘ Tunnel kiln

3. ✘ Rotary kiln

4. ✘ Roller hearth kiln

Question Number : 186 Question Id : 77951810994 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following conduct electricity but undergo internal charge polarization that allows for storage of an electrical charge?

Options :

1. ✔ Capacitor

2. ✘ Resistor

3. ✘ Diodes

4. ✘ Transistors

Question Number : 187 Question Id : 77951810995 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a Semiconductor?

Options :

1. ✘ Cu

2. ✘ Fe

3. ✔ Si

4. ✘ Au

Question Number : 188 Question Id : 77951810996 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The charge carriers in P-type semiconductor is

Options :

1. ✘ Electrons

2. ✔ Electron holes

3. ✘ Cations

4. ✘ Anions

Question Number : 189 Question Id : 77951810997 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ have zero electrical resistance

Options :

1. ✘ Semiconductors
2. ✘ Conductors
3. ✘ Insulators
4. ✔ Super conductors

Question Number : 190 Question Id : 77951810998 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following material has highest Dielectric constant?

Options :

1. ✘ Rubber
2. ✘ Al_2O_3
3. ✘ Glass
4. ✔ BaTiO_3

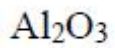
Question Number : 191 Question Id : 77951810999 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Acheson process is used to prepare

Options :

1. ✔ SiC
2. ✘



3. ✘ Y_2O_3

4. ✘ ZrO_2

**Question Number : 192 Question Id : 77951811000 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Thin sheets used for substrates for electronics are produced by

Options :

1. ✘ Extrusion

2. ✘ Injection moulding

3. ✘ Isostaic pressing

4. ✔ Tape casting

**Question Number : 193 Question Id : 77951811001 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0**

Bayer process is used to produce

Options :

1. ✘ TiO_2

2. ✔ Al_2O_3

3. ✘ ZrO_2

4. ✘



Question Number : 194 Question Id : 77951811002 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Advanced Ceramics are also known as

Options :

1. ✘ Traditional ceramics
2. ✘ Whiteware
3. ✘ Structural ceramics
4. ✔ Technical ceramics

Question Number : 195 Question Id : 77951811003 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which of the following is a non-oxide ceramic?

Options :

1. ✘ Alumina
2. ✘ Zirconia
3. ✔ Silicon nitride
4. ✘ Magnesia

Question Number : 196 Question Id : 77951811004 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A Cation vacancy and an anion vacancy in a crystal of the type AB is called

Options :

1. ✘ Frenkel defect
2. ✔ Schottky defect
3. ✘ Vacancy defect
4. ✘ Interstitial defect

Question Number : 197 Question Id : 77951811005 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Burger's vector is perpendicular to

Options :

1. ✔ Edge dislocation
2. ✘ Screw dislocation
3. ✘ Frenkel defect
4. ✘ Schottky defect

Question Number : 198 Question Id : 77951811006 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The eutectic point in the SiO_2 - Na_2O phase diagram occurs at

Options :

1. ✘ 1200°C

2. ✘ 1590°C

3. ✘ 1390°C

4. ✔ 790°C

Question Number : 199 Question Id : 77951811007 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

A Covalent bond is formed due to

Options :

1. ✘ Transfer of electrons

2. ✔ Sharing of electrons

3. ✘ Attraction between ions

4. ✘ Presence of free electrons

Question Number : 200 Question Id : 77951811008 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Diffusion in Solids occurs mainly due to

Options :

1. ✘ Gravitational force

2. ✘ Electric field

3. ✔ Concentration gradient

4. ✘

Magnetic force