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
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

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

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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. ✔

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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^o

2. ✔ 45^o

3. ✖ 60^o

4. ✖ 90^o

Question Number : 9 Question Id : 77951810817 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $2x\sqrt{1-x^2}$

2. ✖ $2x$

3. ✖ x^2

4. ✖ $1-2x^2$

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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. ✖ $\pi/4$

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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

$tan9^o - tan\ 27^o - tan\ 63^o + tan\ 81^o =$

Options :

1. ✖ 2

2. ✖ 1

3. ✔ 4

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

3. ✖ $\frac{1}{4}(a^3 + \frac{1}{a^3})$

4. ✖ $\frac{1}{3}(a^3 + \frac{1}{a^3})$

Question Number : 16 Question Id : 77951810824 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 1/4

2. ✖ -1/8

3. ✖ -1/4

4. ✔ 1/8

Question Number : 17 Question Id : 77951810825 Question Type : MCQ

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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

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

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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. ✔ $x^2+y^2-4x+2y-45=0$

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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. ✖ $(\frac{9}{4}, \frac{5}{4})$

2. ✔ $(\frac{9}{2}, \frac{5}{4})$

3. ✖ $(\frac{9}{2}, \frac{5}{2})$

4. ✖ $(9, \frac{5}{2})$

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

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

Options :

1. ✖ 0

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2. ✖ 1

3. ✔ e

4. ✖ ∞

Question Number : 27 Question Id : 77951810835 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 0

2. ✔ $1/2$

3. ✖ 1

4. ✖ ∞

Question Number : 28 Question Id : 77951810836 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $-a\,cosec^2 x - c\ cosec\ x \cot x$

2. ✖ $-a$

3. ✖ $-a\,cosec^2 x + b\sec^2 x + c\ cosec\ x \cot x$

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4. ✖ $a\,cosec^2 x - c\,cosec\,x\cot x$

Question Number : 29 Question Id : 77951810837 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

$If\ \ y = \sqrt{x + \sqrt{x + \sqrt{x + \text{-----}\infty}}}$ 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. ✖ 1/46

Question Number : 31 Question Id : 77951810839 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $\frac{2}{5}\log 5$

2. ✔ $\frac{4}{5}\log 5$

3. ✖ $\frac{3}{5}\log 5$

4. ✖ $20 \log 5$

Question Number : 32 Question Id : 77951810840 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $1 - 2^y$

2. ✖ $1 - \frac{1}{2^y}$

3. ✖ $1 + 2^{-y}$

4. ✖ $1 + 2^y$

Question Number : 33 Question Id : 77951810841 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

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

Options :

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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. ✖ $3x^2y^2 + e^y \sin x$

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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

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

Options :

1. ✖ $tanx + \cot x + c$

2. ✔ $tanx - \cot x + c$

3. ✖ $tanx \cot x + c$

4. ✖ $tanx + \sec x + c$

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

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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 $\int \frac{sin^3 x + cos^3 x}{sin^2 x \ cos^2 x} dx = A \ sec \ x + B \ cosec \ x + c$, 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. ✔ $x^2 + \frac{x^4}{2} + \frac{x^6}{3} + C$

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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

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

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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 :

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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 $y = x\frac{dy}{dx} + a\sqrt{1 + (\frac{dy}{dx})^2}$ 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

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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. ✔ 2/3

4. ✖ 1

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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

Physics

Section Id :	77951821
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. v Sin βt where **F** is force and **v** is velocity then the dimensions of P and β are

Options :

1. ✔ ML^2T^{-3}, T^{-1}

2. ✖ $ML\,T^{-2}, T^{-2}$

3. ✖ ML^2T^{-1}, T^{-1}

4. ✖ ML^2T^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. ✔ $E^1V^{-2}T^{-2}$

2. ✖ $E^1V^{-1}T^{-2}$

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 **A** and **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

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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. ✖ $\frac{T}{\sqrt{2}}$

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2. ✖ $\sqrt{2}\,T$

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

4. ✖ $(\frac{1}{\sqrt{2}-1})$ 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 5^{th} second and 6^{th} 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, $g = 10\ ms^{-2}$)

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

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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:

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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

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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

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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

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

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

(Use $h = 4.14 \times 10^{-15}$ eV · s, $c = 3 \times 10^{8}$ 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

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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 $\underline{X}$ of hydrogen atom is $^{2h}/_{\pi}$.

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

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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, $H_2C_2O_4.2H_2O$ (M.wt 126) is present in 1500 mL of solution. The normality of that solution is

Options :

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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 CO_2 and 14 g of N_2

2. ✖ 16 g of O_3 and 16 g of CH_4

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3. ✔ 5 g of H_2 and 40 g of CH_4

4. ✖ 28 g of N_2 and 22 g of CO_2

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 H_2SO_4 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. ✖ H_2SO_4

2. ✖ NH_3

3. ✔ NaOH

4. ✖ CaO

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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 $\underline{X}$ at anode and gas $\underline{Y}$ 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 $Mg(HCO_3)_2$ =7.3 mg/L, $Ca(HCO_3)_2$= 8.1 mg/L and 27.2 mg/L of $CaSO_4$.

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

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

Options :

1. ✖ 20

2. ✖

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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. ✔ - SO_3H

3. ✖ - NH_2

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

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

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

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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

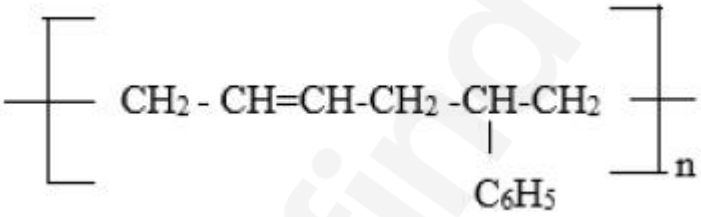
3. ✖ Polyvinylchloride

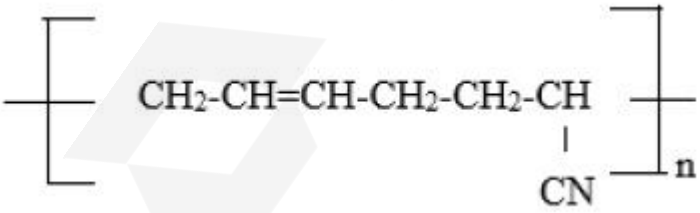
4. ✖ Neoprene rubber

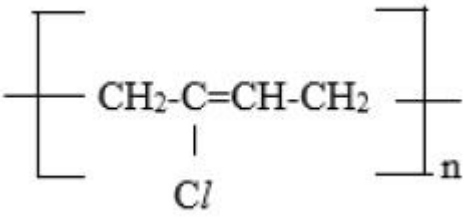
Question Number : 96 Question Id : 77951810904 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

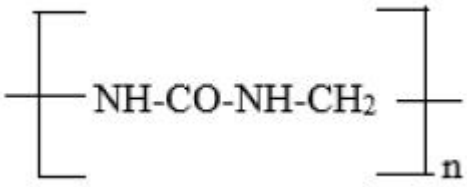
The structure of Buna –S polymer is

Options :

1. ✔ 

2. ✖ 

3. ✖ 

4. ✖ 

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

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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

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4. ✖ NiF_2

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. ✖ $Al_2O_3\ H_2O$

2. ✖ $Al_2O_3\ 3H_2O$

3. ✖ Al_2O_3

4. ✔ $Al_2O_3\ 2H_2O$

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

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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

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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%

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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

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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

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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

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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%

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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. ✖ Wallostanite

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

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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

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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

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4. ✖ Al_2O_3

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

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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

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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

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4. ✖ Chromite

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 cursting

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

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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

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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

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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

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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. ✖

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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

4. ✖ Sand

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

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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

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2. ✖ Peltier effect

3. ✔ Seebeck effect

4. ✖ Ferroelectric effect

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

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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. ✖

Al_2O_3

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. ✖

SiO_2

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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

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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^oC

2. ✖ $1590^{o}C$

3. ✖ $1390^{o}C$

4. ✔ $790^{o}C$

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. ✖

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