Question Paper Preview

Question Paper Name :	Ceramic Technology 14th Sep 2020 S1
Subject Name :	Ceramic Technology
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Is this Group for Examiner? :	No

Mathematics

Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes

Question Number : 1 Question Id : 61097513029 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $\begin{vmatrix} 15-x & 11 & 10 \\ 11-3x & 17 & 16 \\ 7-x & 14 & 13 \end{vmatrix}=0$ then the value of x is

Options :

1. 6

2. 5

3. 7

4. -6

Question Number : 2 Question Id : 61097513030 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The co-factors of the elements 2,-5 in the matrix $\begin{pmatrix} -1 & 0 & 5 \\ 1 & 2 & -2 \\ -4 & -5 & 3 \end{pmatrix}$ is

Options :

1. 16,3

2. 17,-3

3. 17,3

4. -17,-3

Question Number : 3 Question Id : 61097513031 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of the following simultaneous linear equations by using Cramer's rule $3x+4y+5z=18$; $2x-y+8z=13$; $5x-2y+7z=20$ is

Options :

1. -3,-1,1

2. 3,1,1

3. 3,0,1

4. 3,1,-1

Question Number : 4 Question Id : 61097513032 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $A = \begin{pmatrix} 0 & 4 & -2 \\ -4 & 0 & 8 \\ 2 & -8 & x \end{pmatrix}$ is a skew symmetric matrix then the value of x is

Options :

1. 1

2. -8

3. -4

4. 0

Question Number : 5 Question Id : 61097513033 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The adjoint of the matrix $A = \begin{pmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} 0 & 4 & -2 \\ 4 & -2 & 8 \\ 2 & -8 & 0 \end{pmatrix}$

2. $\begin{pmatrix} 7 & -3 & -3 \\ -1 & 1 & 0 \\ -1 & 0 & 1 \end{pmatrix}$

3. $\begin{pmatrix} 7 & 3 & 3 \\ 1 & 1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$

4. $\begin{pmatrix} 5 & 4 & 2 \\ 4 & 2 & 8 \\ 2 & -8 & 0 \end{pmatrix}$

Question Number : 6 Question Id : 61097513034 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Resolve the rational function $\frac{5x+1}{(x+2)(x-1)}$ into partial fractions

Options :

1. $\frac{3}{x+2} + \frac{2}{x-1}$

2. $\frac{3}{x+2}-\frac{2}{x-1}$

3. $\frac{-3}{x+2}+\frac{2}{x-1}$

4. $\frac{3}{x-2}+\frac{2}{x+1}$

Question Number : 7 Question Id : 61097513035 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Resolve the rational function $\frac{x^3}{(x^2+1)^2}$ into partial fractions

Options :

1. $\frac{x}{x^2+1}+\frac{x}{(x^2+1)^2}$

2. $\frac{x}{x^2-1}-\frac{x}{(x^2+1)^2}$

3. $\frac{x}{x^2+1}-\frac{x}{(x^2-1)^2}$

4. $\frac{x}{x^2+1}-\frac{x}{(x^2+1)^2}$

Question Number : 8 Question Id : 61097513036 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Suppose that A, B, C are positive and $A + B + C = 90^0$ then the value of $\sum tanA\, tanB$ is

Options :

1. -1

2. -2

3. 1

4. 3

Question Number : 9 Question Id : 61097513037 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $cos100^0 cos40^0 + sin100^0 sin40^0$ is

Options :

1. $\frac{1}{2}$

2. $-\frac{1}{2}$

3. $\frac{1}{4}$

4. $\frac{1}{8}$

Question Number : 10 Question Id : 61097513038 Question Type : MCQ Display Question

Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

If $\frac{cos\alpha}{a} = \frac{sin\alpha}{b}$ then the value of $acos2\alpha + bsin2\alpha$ is

Options :

1. $-a$

2. b

3. a

4. $-a$

Question Number : 11 Question Id : 61097513039 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $x + \frac{1}{x} = 2cos\theta$ then the value of $x^3 + \frac{1}{x^3}$ is

Options :

1. $2cos3\theta$

2. $2cos2\theta$

3. $3cos3\theta$

4. $2sin3\theta$

Question Number : 12 Question Id : 61097513040 Question Type : MCQ Display Question

Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

If $sinx + siny = \frac{1}{4}$ and $cosx + cosy = \frac{1}{3}$ then the value of $tan\left(\frac{x+y}{2}\right)$ is

Options :

1. $-\frac{3}{4}$

2. $\frac{5}{4}$

3. $\frac{7}{4}$

4. $\frac{3}{4}$

Question Number : 13 Question Id : 61097513041 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

The general solution for $\sqrt{3}cos\theta = sin\theta$ is

Options :

1. $-n\pi + \frac{\pi}{3}$

2. $n\pi + \frac{\pi}{3}$

3. $n\pi - \frac{\pi}{3}$

4. $n\pi + \frac{2\pi}{3}$

Question Number : 14 Question Id : 61097513042 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The common solution for $cos\theta = -\frac{1}{\sqrt{2}}, tan\theta = -1$ is

Options :

1. $n\pi + \frac{2\pi}{3}$

2. $2n\pi + \frac{5\pi}{3}$

3. $5n\pi + \frac{\pi}{3}$

4. $2n\pi + \frac{3\pi}{4}$

Question Number : 15 Question Id : 61097513043 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If x is an acute angle and $sin(x + 10^0) = cos(3x - 68^0)$ then the value of x is

Options :

1. -37^0

2. 37^0

3. 38^0

4. 10^0

Question Number : 16 Question Id : 61097513044 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $tan^{-1}(2) + tan^{-1}(3)$ is

Options :

1. $\frac{3\pi}{4}$

2. $\frac{3\pi}{5}$

3. $\frac{5\pi}{4}$

4. $\frac{\pi}{4}$

Question Number : 17 Question Id : 61097513045 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $cos\left[sin^{-1}\left(\frac{1}{2}\right) + cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$ is

Options :

1. 0

2. 1

3. 3

4. -1

Question Number : 18 Question Id : 61097513046 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The modulus of the complex number $(-1-\sqrt{3}i)$ is

Options :

1. 1

2. 6

3. 2

4. 4

Question Number : 19 Question Id : 61097513047 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\left(\frac{\sqrt{3}}{2}+\frac{i}{2}\right)^5-\left(\frac{\sqrt{3}}{2}-\frac{i}{2}\right)^5$ is

Options :

1. i

2. $-i$

3. $2i$

4. $-3i$

Question Number : 20 Question Id : 61097513048 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The radius of the circle of the equation $x^2 + y^2 - 4x - 8y - 41 = 0$ is

Options :

1. $\sqrt{31}$

2. $\sqrt{41}$

3. $\sqrt{71}$

4. $\sqrt{61}$

Question Number : 21 Question Id : 61097513049 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the line $2y = 5 + k$ is a tangent to the parabola $y^2 = 6x$ then the value of k is

Options :

1. $\frac{2}{5}$

2.

$\frac{3}{5}$

3. $\frac{6}{5}$

4. $\frac{7}{5}$

Ans : no correct option

Question Number : 22 Question Id : 61097513050 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The length of latus rectum of the ellipse $9x^2 + 16y^2 = 144$ is

Options :

1. $\frac{7}{2}$

2. $\frac{9}{2}$

3. $\frac{3}{2}$

4. $\frac{5}{2}$

Question Number : 23 Question Id : 61097513051 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The centre of the hyperbola $4x^2 - 5y^2 - 16x + 10y + 31 = 0$ is

Options :

1. $(2,1)$

2. $(3,1)$

3. $(-2,1)$

4. $(2,-1)$

Question Number : 24 Question Id : 61097513052 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The angle between two tangents drawn from the point $(1,4)$ to the parabola $y^2 = 12x$ is

Options :

1. $tan^{-1}(2)$

2. $tan^{-1}(3)$

3. $tan^{-1}(5)$

4. $tan^{-1}\left(\frac{1}{2}\right)$

Question Number : 25 Question Id : 61097513053 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The length of the tangent from $(1,3)$ to the circle $x^2 + y^2 - 2x + 4y - 11 = 0$ is

Options :

1. -3

2. 3

3. 5

4. 4

Question Number : 26 Question Id : 61097513054 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{x\to 0}\left(\frac{\sqrt{1+x}-1}{x}\right)$ is

Options :

1. $\frac{1}{3}$

2. $-\frac{1}{3}$

3. $\frac{1}{5}$

4. $\frac{1}{2}$

Question Number : 27 Question Id : 61097513055 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

The derivative of $f(x) = \frac{a-x}{a+x}$ $(x \neq -a)$ is

Options :

1. $\frac{-2a}{(a+x)^2}$

2. $\frac{2a}{(a+x)^2}$

3. $\frac{-2a}{(a-x)^2}$

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

Question Number : 28 Question Id : 61097513056 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $x = a\left[\cos t + log\left(tan\frac{t}{2}\right)\right]$, $y = a\sin t$ then $\frac{dy}{dx}$ is

Options :

1. $-\tan t$

2. $\tan t$

3. $\tan t + \sin t$

4. $\sin t$

Question Number : 29 Question Id : 61097513057 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If an error of 3% occurs in measuring the side of a cube then the percentage error in its volume is

Options :

1. -9

2. 7

3. 8

4. 9

Question Number : 30 Question Id : 61097513058 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The slope of the tangent to the curve $y = 5x^2$ at the point $x = -1$ is

Options :

1. 10

2. 7

3. -10

4. -9

Question Number : 31 Question Id : 61097513059 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The angle between the curves $xy = 2$ and $x^2 + 4y = 0$ is

Options :

1. $-tan^{-1}(3)$

2. $tan^{-1}(3)$

3. $sin^{-1}(3)$

4. $cos^{-1}(3)$

Question Number : 32 Question Id : 61097513060 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For all values of a and b, $f(x) = x^3 + 3ax^2 + 3a^2x + 3a^3 + b$ is

Options :

1. Increasing only

2. Decreasing only

3. Increasing and Decreasing

4. maximum

Question Number : 33 Question Id : 61097513061 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The minimum value of $f(x) = 4x^2 - 4x + 11$ for any x in R is

Options :

1. $-10 \ at \ x = \frac{1}{2}$

2. $10 \ at \ x = -\frac{1}{2}$

3. $8 \ at \ x = \frac{1}{2}$

4. $10 \ at \ x = \frac{1}{2}$

Question Number : 34 Question Id : 61097513062 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $z = log(\tan x + \tan y)$ then $(\sin 2x)\frac{\partial z}{\partial x} + (\sin 2y)\frac{\partial z}{\partial y}$ is

Options :

1. 2

2. -2

3. 4

4. 6

Question Number : 35 Question Id : 61097513063 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $u = tan^{-1}\left(\frac{x^3+y^3}{x+y}\right)$ then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ is

Options :

1. $-\frac{1}{2}\sin 2u$

2. $-\frac{1}{2}\cos 2u$

3. $\frac{1}{2}\sin 2u$

4. $\frac{1}{2}\tan 2u$

Ans : no correct option

Question Number : 36 Question Id : 61097513064 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int sin^2x\ dx$ on R is

Options :

1. $\frac{x}{2} + \frac{\sin 2x}{4} + c$

2. $\frac{x}{2} - \frac{\sin 3x}{4} + c$

3. $\frac{x}{2}-\frac{\cos 2x}{4}+c$

4. $\frac{x}{2}-\frac{\sin 2x}{4}+c$

Question Number : 37 Question Id : 61097513065 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int x\sqrt{x}\,dx$ on $(0,\infty)$ is

Options :

1. $\frac{2}{5}x^{5/2}+c$

2. $-\frac{2}{5}x^{5/2}+c$

3. $\frac{2}{5}x^{-5/2}+c$

4. $\frac{2}{3}x^{3/2}+c$

Question Number : 38 Question Id : 61097513066 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^2 \sqrt{4-x^2}\,dx$ is

Options :

1.

$\frac{\pi}{2}$

2. $-\frac{\pi}{2}$

3. π

4. $-\pi$

Question Number : 39 Question Id : 61097513067 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int_{\pi/6}^{\pi/3} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}} dx$ is

Options :

1. $\frac{\pi}{2}$

2. $\frac{\pi}{12}$

3. $-\frac{\pi}{12}$

4. π

Question Number : 40 Question Id : 61097513068 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

The area enclosed by the curves $y = 3x$ and $y = 6x - x^2$ in square units is

Options :

1. $\frac{7}{2}$

2. $\frac{5}{2}$

3. $\frac{3}{2}$

4. $\frac{9}{2}$

Question Number : 41 Question Id : 61097513069 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{e^x(1+x)}{(2+x)^2}\,dx$ on $I \in R \setminus\{-2\}$ is

Options :

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

2. $-\frac{e^x}{2+x} + c$

3. $\frac{e^x}{2-x} + c$

4. $\frac{e^{3x}}{2+x} + c$

Question Number : 42 Question Id : 61097513070 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{1}{1+4x^2}\,dx$ on R is

Options :

1. $-\frac{1}{2}tan^{-1}(2x)+c$

2. $\frac{1}{2}tan^{-1}(5x)+c$

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

4. $\frac{1}{2}tan^{-1}(2x)+c$

Question Number : 43 Question Id : 61097513071 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{2x^2-5x+1}{x^2(x^2-1)}\,dx$ is

Options :

1. $\frac{1}{x}+\log\left|\frac{x^5}{(x^2-1)(x+1)^3}\right|+C$

2. $\frac{1}{x}-\log\left|\frac{x^5}{(x^2-1)(x+1)^3}\right|+C$

3. $\frac{1}{x}+\log\left|\frac{x^5}{(x^2+1)(x+1)^3}\right|+C$

4. $\frac{1}{x}-\log\left|\frac{x^5}{(x^2+1)(x+1)^3}\right|+C$

Question Number : 44 Question Id : 61097513072 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx}=\frac{x-2y+1}{2x-4y}$ is

Options :

1. $(x+2y)^2+2x=c$

2. $(x-2y)^2-2x=c$

3. $(x-2y)^2+2x=c$

4. $(x-4y)^2+2x=c$

Question Number : 45 Question Id : 61097513073 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of the homogeneous differential equation $xy^2\,dy-(x^3+y^3)\,dx=0$ is

Options :

1. $y^3=-3x^3\log(xc)$

2. $y^3 = 3x^3\log(x/c)$

3. $y^3 = 3x^3\log(x^2c)$

4. $y^3 = 3x^3\log(xc)$

Question Number : 46 Question Id : 61097513074 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of the linear differential equation $\frac{dy}{dx} + y\cot x = \cos x$ is

Options :

1. $y - \sin x = -\frac{\cos 2x}{4} + c$

2. $y/\sin x = -\frac{\cos 2x}{4} + c$

3. $y\sin x = -\frac{\cos 2x}{4} + c$

4. $y\sin x = \frac{\cos 2x}{4} + c$

Question Number : 47 Question Id : 61097513075 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of Bernoulli's equation $x^3\frac{dy}{dx} - x^2y = -y^4\cos x$ is

Options :

1. $\frac{x^3}{y^3} = 3\sin x + c$

2. $\frac{x^3}{y^3} = -3\sin x + c$

3. $\frac{x^3}{y^3} = 3\sin x^3 + c$

4. $\frac{x^4}{y^4} = 3\sin x + c$

Question Number : 48 Question Id : 61097513076 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The particular integral for the differential equation $(D^2 + 3D + 2)y = 12x^2$ is

Options :

1. $6x^2 + 18x - 21$

2. $6x^2 - 18x + 21$

3. $-6x^2 + 18x - 21$

4. $6x^2 + 18x + 21$

Question Number : 49 Question Id : 61097513077 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The particular integral for the differential equation $6\frac{d^2y}{dx^2} + 17\frac{dy}{dx} + 12y = e^{-x}$ is

Options :

1. $-e^{-x}$

2. e^{x}

3. e^{-2x}

4. e^{-x}

Question Number : 50 Question Id : 61097513078 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The particular integral for the differential equation $(D^2 - 4D + 13)y = \cos 2x$ is

Options :

1. $\frac{1}{145}(9\cos 2x - 8\sin 2x)$

2. $\frac{1}{145}(9\cos 2x + 8\sin 2x)$

3. $\frac{1}{145}(-9\cos 2x - 8\sin 2x)$

4. $\frac{1}{135}(9\cos 2x - 8\sin 2x)$

Physics

Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes

Question Number : 51 Question Id : 61097513079 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Young's modulus of steel is 2×10^{11} N/m^2. Its value in dyne/cm^2 is

Options :

1. 2×10^{12}

2. 2×10^{10}

3. 2×10^{8}

4. 2×10^{-11}

Question Number : 52 Question Id : 61097513080 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Dimension of velocity gradient is

Options :

1. $[M^0L^0T^{-1}]$

2. $[ML^{-1}T^{-1}]$

3. $[M^0LT^{-1}]$

4. $[ML^0T^{-1}]$

Question Number : 53 Question Id : 61097513081 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Unit vector parallel to the resultant of vectors $A = 4\hat{i} - 3\hat{j}$ and $B = 8\hat{i} + 8\hat{j}$ will be

Options :

1. $\frac{24\hat{i}+5\hat{j}}{13}$

2. $\frac{12\hat{i}+5\hat{j}}{13}$

3. $\frac{6\hat{i}+5\hat{j}}{13}$

4. $\frac{12\hat{i}-5\hat{j}}{13}$

Question Number : 54 Question Id : 61097513082 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The resultant of two forces 3P and 2P is R. If the first force is doubled, then the resultant is also doubled. The angle between the two forces is

Options :

1. 60^0

2. 120^0

3. 30^0

4. 135^0

Question Number : 55 Question Id : 61097513083 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A particle is projected vertically upward with a speed of 40 m/s, then the velocity of the particle 2 seconds before it reaches the maximum height is (Take $g = 10\ m/s^2$)

Options :

1.

$20\ m/s^2$

2. $4.2\ m/s^2$

3. $9.8\ m/s^2$

4. $10\ m/s^2$

Question Number : 56 Question Id : 61097513084 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A car moving with constant acceleration covered the distance between two points 60 m apart in 6 s. Its speed as it passes the second point was 15 m/s. The acceleration is

Options :

1. $\frac{1}{3}ms^{-2}$

2. $\frac{2}{3}ms^{-2}$

3. $\frac{3}{5}ms^{-2}$

4. $\frac{5}{3}ms^{-2}$

Question Number : 57 Question Id : 61097513085 Question Type : MCQ Display Question

Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A stone is thrown vertically upwards. When stone is at half of its maximum height, its speed is 10 ms^{-1}; then the maximum height attained by the stone is $(g=10m/s^2)$

Options :

1. 25m

2. 10m

3. 15m

4. 20m

Question Number : 58 Question Id : 61097513086 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Identify the correct statement.

Options :

1. Static friction depends on the area of contact.

2. Kinetic friction depends on the area of contact.

3. Coefficient of static friction does not depend on the area of the surface in contact.

4. Coefficient of kinetic friction is less than the coefficient of static friction.

Question Number : 59 Question Id : 61097513087 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The coefficient of friction between the tyres and the road is 0.25. The maximum speed with which a car can be driven round a curve of radius 40 m without skidding is (assume $g=10m/s^2$)

Options :

1. $40\ ms^{-1}$

2. $20\ ms^{-1}$

3. $15\ ms^{-1}$

4. $10\ ms^{-1}$

Question Number : 60 Question Id : 61097513088 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

During a projectile motion, if the maximum height is equal to the horizontal range, then the angle of projection with the horizontal is

Options :

1. $\tan^{-1}(1)$

2. $\tan^{-1}(2)$

3. $\tan^{-1}(4)$

4. $\tan^{-1}(3)$

Question Number : 61 Question Id : 61097513089 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The potential energy of a certain spring when stretched through a distance S is 10 joule. The amount of work (in joule) that must be done on this spring to stretch it through additional distance S will be

Options :

1. 30

2. 40

3. 10

4. 20

Question Number : 62 Question Id : 61097513090 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A machine gun fires six bullets per second into a target. The mass of each bullet is 3 g and the speed is 500 m/s. The power delivered to the bullets is

Options :

1. 1.5 kW

2. 2.25 kW

3. 0.75 kW

4. 375 kW

Question Number : 63 Question Id : 61097513091 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is the cheapest renewable energy ?

Options :

1. Solar energy

2. Wind energy

3. Hydel energy

4. Nuclear energy

Question Number : 64 Question Id : 61097513092 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum velocity of particle executing simple harmonic motion with an amplitude of 7 mm is 4.4 m/s. The time period of oscillation is

Options :

1. 100 s

2. 10 s

3. 0.1 s

4. 0.01 s

Question Number : 65 Question Id : 61097513093 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two waves of lengths 50 cm and 51 cm produced 12 beats per second. The velocity of sound is

Options :

1. 340 m/s

2. 331 m/s

3. 306 m/s

4. 360 m/s

Question Number : 66 Question Id : 61097513094 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The apparent frequency of the whistle of an engine changes in the ratio 9:8 as the engine passes a stationary observer. If the velocity of the sound is 340 ms^{-1}, then the velocity of the engine is

Options :

1. 40 m/s

2. 20 m/s

3. 340 m/s

4. 180 m/s

Question Number : 67 Question Id : 61097513095 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Quality of sound is decided by

Options :

1. loudness

2. intensity

3. number of overtones

4. frequency

Question Number : 68 Question Id : 61097513096 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Inaudibility limit is

Options :

1. one hundredth of initial intensity

2. one tenth of initial intensity

3. one thousandth of initial intensity

4. one millionth of initial intensity

Question Number : 69 Question Id : 61097513097 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A Carnot's engine operates with source at 127^0C and sink at 27^0C. If the source supplies 40 kJ of heat energy, the work done by the engine is

Options :

1. 30 kJ

2. 10 kJ

3. 4 kJ

4. 1 kJ

Question Number : 70 Question Id : 61097513098 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A monoatomic gas initially at 17^0C is suddenly compressed to one eighth of its original volume. The temperature after compression is

Options :

1. 1160K

2. 36.25K

3. 2320K

4. 887K

Question Number : 71 Question Id : 61097513099 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two cylinders of volumes 20 cc and 30 cc have gases at pressures 40 cm and 50 cm of Hg under the same temperature. If they are connected by a very narrow pipe the pressure in cm of Hg will be

Options :

1. 45

2. 50

3. 46

4. 15

Question Number : 72 Question Id : 61097513100 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In an adiabatic expansion, a gas does 25J of work while in an adiabatic compression 100J of work is done on a gas. The change of internal energy in the two processes repectively are

Options :

1. 25J and -100J

2. - 25J and 100J

3. -25J and -100J

4. 25J and 100J

Question Number : 73 Question Id : 61097513101 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The volume of one mole of an ideal gas changes from V to 2V at temperature of 300 K. If R is universal gas constant, then work done in this process is

Options :

1. $300Rln2$

2. 600Rln2

3. 300ln2

4. 600ln2

Question Number : 74 Question Id : 61097513102 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum kinetic energy of the photoelectrons emitted from a surface is dependent on the

Options :

1. intensity of incident radiation

2. potential of the collector electrode

3. frequency of incident radiation

4. angle of incident of radiation of the surface

Question Number : 75 Question Id : 61097513103 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In an optical fibre, relation between refractive index of core (n_1) and refractive index of cladding (n_2) is

Options :

1. $n_1 > n_2$

2. $n_1 < n_2$

3. $n_1 = n_2$

4. $n_1 << n_2$

Chemistry

Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes

Question Number : 76 Question Id : 61097513104 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The nucleus consists of

Options :

1. Proton and electron

2. Proton and Neutron

3. Proton and Duterium

4. Proton and photan

Question Number : 77 Question Id : 61097513105 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The shape of P-Orbital is

Options :

1. Spherical

2. Dumbbell

3. Double Dumbbell

4. Oval

Question Number : 78 Question Id : 61097513106 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum number of electrons that a f-orbital can accommodate is

Options :

1. 2

2. 6

3. 10

4. 14

Question Number : 79 Question Id : 61097513107 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In NaCl formation Sodium is donating ----- electrons

Options :

1. 0

2. 2

3. 1

4. 3

Question Number : 80 Question Id : 61097513108 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

O_2 molecule contains

Options :

1. Covalent bond

2. Ionic bond

3. Hydrogen bond

4. Metalic bond

Question Number : 81 Question Id : 61097513109 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Avagadro Number is

Options :

1. $6.023X\ 10^{-23}$

2. $6.023X\ 10^{23}$

3. $60.23X\ 10^{23}$

4. $6.023X\ 10^{25}$

Question Number : 82 Question Id : 61097513110 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The normality of the solution obtained by dissolving 8 gm of NaOH in 1 Litre is

Options :

1. 2N

2. 0.2N

3. 0.25N

4. 0.02N

Question Number : 83 Question Id : 61097513111 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Molecular weight of $MgSO_4$ is

Options :

1. 120

2. 121

3. 119

4. 122

Question Number : 84 Question Id : 61097513112 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A Lewis base is a substance which

Options :

1. Accept protons

2. Accept a lone pair of electrons

3. Donate protons

4. Donate a lone pair of electrons

Question Number : 85 Question Id : 61097513113 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

P^H of a solution is 4.5, the solution is

Options :

1. Basic

2. Acidic

3. Neutral

4. Amphoteric

Question Number : 86 Question Id : 61097513114 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

One Faraday is equal to

Options :

1. 96485 C

2. 98485 C

3. 96465 C

4. 96585 C

Question Number : 87 Question Id : 61097513115 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Common electrolyte used in the salt bridge is

Options :

1. NaOH

2. NaCl

3. KCl

4. KOH

Question Number : 88 Question Id : 61097513116 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

SI Units of Electrical conductivity are

Options :

1. Seimens per meter

2. Seimens per centimeter

3. Seimens per millimeter

4. Seimens per kilometer

Question Number : 89 Question Id : 61097513117 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Calculate the standard e.m.f of the Zn-Cu cell, if the cell is represented as Zn, Zn^{-2}; Cu^{+}, Cu ($E^{0}Zn^{+2}$,Zn) =0.86 and ($E^{0}Cu^{+2}$,Cu) = 0.34.

Options :

1. 1.20V

2. 0.52V

3. -1.20V

4. -0.11V

Question Number : 90 Question Id : 61097513118 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Permanent Hardness is caused due to

Options :

1. Carbonates and Bicarbonates

2. Carbonates and Sulphates

3. Chlorides and Sulphates

4. Chlorides and Carbonates

Question Number : 91 Question Id : 61097513119 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Permutit is chemically

Options :

1. Sodium Silicate

2. Aluminium Silicate

3. Hydrated Sodium alumino silicate

4. Calcium silicate

Question Number : 92 Question Id : 61097513120 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The anion exchange resin possesses

Options :

1. Acidic group

2. Basic group

3. Amphoteric group

4. Benzo group

Question Number : 93 Question Id : 61097513121 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Chemically the rust is

Options :

1. Fe_2O_3

2. Fe_2O_3. FeO

3. $Fe_2O_3.XH_2O$

4. $Fe_2O_3 . NH_3$

Question Number : 94 Question Id : 61097513122 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The gradual loss of a metal by chemical or electrochemical action of environment is called

Options :

1. Corrosion

2. Caustic embrittlement

3. Priming

4. foaming

Question Number : 95 Question Id : 61097513123 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is a thermosetting plastic ?

Options :

1. Bakelite

2. Polystyrene

3. Polythene

4. Nylon

Question Number : 96 Question Id : 61097513124 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Tetra Fluoro Ethane is a monomer of

Options :

1. Teflon

2. Nylon

3. Styrene

4. Rubber

Question Number : 97 Question Id : 61097513125 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Buna-N is a copolymer of

Options :

1. Butadiene and Styrene

2. Butadiene and Acrylonitrile

3. Butadiene and Isoprene

4. Formaldehyde and Styrene

Question Number : 98 Question Id : 61097513126 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Main constituent of Producer gas is

Options :

1. $CO+N_2$

2. $CO+H_2$

3. $CO+CO_2$

4. $CO_2+ H_2$

Question Number : 99 Question Id : 61097513127 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Ozone layer is present at

Options :

1. Staratosphere

2. Inosphere

3.

Thermosphere

4. Atmosphere

Question Number : 100 Question Id : 61097513128 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Acid Rain is caused due to

Options :

1. Chloro Fluoro Carbons

2. Methane

3. Oxides of Sulphur and Nitrogen

4. Carbon monaxide

Ceramic Technology

Section Number :	4
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	Yes

Mark As Answered Required? : Yes

Question Number : 101 Question Id : 61097513129 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Lustre doesn't depend on

Options :

1. Refractive index of mineral

2. Absorption of mineral

3. Transmittance of mineral

4. Nature of reflecting surface

Question Number : 102 Question Id : 61097513130 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Hardness of a mineral depends upon _____

Options :

1. Chemical composition only

2. Atomic constitution only

3. Physical makeup

4. Chemical composition and atomic constitution

Question Number : 103 Question Id : 61097513131 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The scale of hardness is

Options :

1. Ritcher

2. Mohs

3. Ohm

4. Mho

Question Number : 104 Question Id : 61097513132 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The mineral not belonging to the quartz group is _____

Options :

1. Amethyst

2. Agate

3. Jasper

4. Calcite

Question Number : 105 Question Id : 61097513133 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is a Igneous rock ?

Options :

1. Quartz

2. Lime stone

3. Basalt

4. Marble

Question Number : 106 Question Id : 61097513134 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The Hardness of Apatite on Moh's scale is

Options :

1. 6

2. 5

3. 4

4. 7

Question Number : 107 Question Id : 61097513135 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Black mica is also known as

Options :

1. Muscovite

2. Phlogopite

3. Biotite

4. Vermiculate

Question Number : 108 Question Id : 61097513136 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Bauxite has a chemical formula of

Options :

1. $Al_2O_3\ 2H_2O$

2. $Al_2O_3\ 3H_2O$

3. $2Al_2O_3\ 3\ H_2O$

4. $Al_2O_3\ 5H_2O$

Question Number : 109 Question Id : 61097513137 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The temperature at which α-tridymite changes into α-cristabolite

Options :

1. 573°C

2. 870°C

3. 1728°C

4. 1470°C

Question Number : 110 Question Id : 61097513138 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The crystal structure of α- quartz is

Options :

1. Trigonal

2. Hexagonal

3. Cubic

4. Tetragonal

Question Number : 111 Question Id : 61097513139 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which oxide gives blue color to glaze

Options :

1. Copper oxide

2. Cobalt oxide

3. Manganese oxide

4. Nickel oxide

Question Number : 112 Question Id : 61097513140 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Albite has a chemical formula of

Options :

1. $K_2O\ Al_2O_3\ 6\ SiO_2$

2. $CaO\ Al_2O_3\ 2SiO_2$

3. $Na_2O\ Al_2O_3\ 6\ SiO_2$

4. $MgO\ Al_2O_3\ 6SiO_2$

Question Number : 113 Question Id : 61097513141 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following material is used to make moulds for slip casting

Options :

1. Plaster of paris

2. Gypsum

3. Alumina

4. Zirconia

Question Number : 114 Question Id : 61097513142 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is the main constituent in Porcelain ?

Options :

1. Ball clay

2. Fire clay

3. China clay

4. Black clay

Question Number : 115 Question Id : 61097513143 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Melting point of Beryllium oxide is

Options :

1. 1728°C

2. 2570°C

3. 3500°C

4. 2000°C

Question Number : 116 Question Id : 61097513144 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which pressing technique employs a rubber envelope and application of pressure by fluid?

Options :

1. Hot pressing

2. Uniaxial pressing

3. Isostatic pressing

4. Powder pressing

Question Number : 117 Question Id : 61097513145 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The spark plugs are made of

Options :

1. Porcelain

2. Bone china

3. Earthen ware

4. Alumina

Question Number : 118 Question Id : 61097513146 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The following process is used to make ceramic tubes

Options :

1. Hot pressing

2. Extrusion

3. Injection moulding

4. Slip casting

Question Number : 119 Question Id : 61097513147 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Vitrified tiles have a porosity of

Options :

1. 3%

2. 5%

3. 0%

4. 8%

Question Number : 120 Question Id : 61097513148 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which is not a characteristic property of ceramic material ?

Options :

1. high temperature stability

2. high mechanical strength

3. low elongation

4. low hardness

Question Number : 121 Question Id : 61097513149 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is a Periodic kiln ?

Options :

1. Shaft kiln

2. Rotary kiln

3. Roller hearth kiln

4. Tunnel kiln

Question Number : 122 Question Id : 61097513150 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The firing temperature of Hard porcelain is

Options :

1. 1225-1250°C

2. 1145-1165°C

3. 1310-1450°C

4. 1510-1650°C

Question Number : 123 Question Id : 61097513151 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Parian porcelain contains feldspar in the range of

Options :

1. 10-15%

2. 50-60%

3. 80-90%

4. 30-40%

Question Number : 124 Question Id : 61097513152 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Jigger and Jollying process is used to make

Options :

1. Cups

2. Tubes

3. Tiles

4. Bricks

Question Number : 125 Question Id : 61097513153 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In which of the following process uniaxial pressure and heat is applied simultaneously ?

Options :

1. Isostaic pressing

2. Pressing

3. Extrusion

4. Hot pressing

Question Number : 126 Question Id : 61097513154 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The opacity in Dental ceramics is achieved by

Options :

1. Boric oxide

2. Titanium oxide

3. Silica

4. Copper oxide

Question Number : 127 Question Id : 61097513155 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Injection molding can be used for parts of thickness up to _____

Options :

1. 4 mm

2. 6 mm

3. 8 mm

4. 12 mm

Question Number : 128 Question Id : 61097513156 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which technique is used to remove air bubbles from plastic mass ?

Options :

1. Forming

2. Molding

3. Scoring

4. Wedging

Question Number : 129 Question Id : 61097513157 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The Bicottura is a

Options :

1. Single fired floor tile

2. Double fired floor tile

3. Single fired wall tile

4. Double fired wall tile

Question Number : 130 Question Id : 61097513158 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The fire clay is used in

Options :

1. Earthen ware

2. Porcelain

3. Bone china

4. Stone ware

Question Number : 131 Question Id : 61097513159 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Salt glaze is used on

Options :

1. Porcelain

2. Stone ware

3. Earthen ware

4. Terracotta

Question Number : 132 Question Id : 61097513160 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

BCR compression plastometer is used to determine

Options :

1. Particle size

2. Density

3. Plasticity

4. Surface area

Question Number : 133 Question Id : 61097513161 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Maximum Alumina content in high alumina refractories is

Options :

1. 60%

2. 40%

3. 90%

4. 30%

Question Number : 134 Question Id : 61097513162 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Chromite refractories are

Options :

1. Acidic refractories

2. Neutral refractories

3. Basic refractories

4. Fired at 600°C only

Question Number : 135 Question Id : 61097513163 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is not high alumina refractory

Options :

1. Kyanite

2. Silimanite

3. Andalusite

4. Periclase

Question Number : 136 Question Id : 61097513164 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Capacity of a refractory brick to withstand-sudden changes in temperature is denoted by the property called

Options :

1. Refractoriness under load

2. Pyrometric cone equivalent

3. Spalling resistance

4. Chemical resistance

Question Number : 137 Question Id : 61097513165 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum safe working temperature of Fireclay refractories is

Options :

1. 1200°C

2. 1545°C

3. 1750°C

4. 1945°C

Question Number : 138 Question Id : 61097513166 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The hearth of Basic open hearth furnace is constructed with

Options :

1. Chromite refractories

2. Magnesite refractories

3. Silica refractories

4. Alumina refractories

Question Number : 139 Question Id : 61097513167 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Fusion point of a basic refractory material is

Options :

1. reduced by the addition of acid oxides.

2. increased by the addition of acid oxides

3. not affected by the addition of acid oxides.

4. always less than 1000°C.

Question Number : 140 Question Id : 61097513168 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following brick have close values of RUL and PCE

Options :

1. Fire clay brick

2. Magnesite brick

3. Chromite brick

4. Silica brick

Question Number : 141 Question Id : 61097513169 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

…….. brick is used for burning zone of cement rotary kiln

Options :

1. High alumina

2. Silica

3. Magnesite

4. Chrome-magnesite

Question Number : 142 Question Id : 61097513170 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The hearth of the blast furnace is constructed with

Options :

1. Fire clay refractories

2. Carbon refractories

3. Silica refractories

4. Chromite refractories

Question Number : 143 Question Id : 61097513171 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The following test is done under the controlled action of heat and load

Options :

1. PCE

2. Density

3. Thermal conductivity

4. RUL

Question Number : 144 Question Id : 61097513172 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Hot blast main(carrying air at 1000°C) in Blast furnace are lined with ..... bricks

Options :

1. Silica

2. Alumina

3. Fire clay

4. Magnesite

Question Number : 145 Question Id : 61097513173 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following brick should not be used in Oxidizing atmosphere ?

Options :

1. Magnesite

2. Chromite

3. Silica

4. Carbon

Which of the following bricks are used in Crown of Glass melting furnace ?

Options :

1. Dolomite

2. Fire clay

3. Silica

4. Magnesite

Question Number : 147 Question Id : 61097513175 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the melting point of Magnesite ?

Options :

1. 2800°C

2. 2000°C

3. 3200°C

4. 1800°C

Which of the following property is not associated with refractories ?

Options :

1. High melting temperature

2. High heat resistance

3. Good Corrosion resistance

4. High coefficient of thermal expansion

Question Number : 149 Question Id : 61097513177 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Mullite refractories belong to

Options :

1. Acid refractory

2. Special refractory

3. Nuetral refractory

4. Basic refractory

Question Number : 150 Question Id : 61097513178 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Which of the following glass is used for laboratory ware ?

Options :

1. Soda lime glass

2. Potash lime glass

3. Lead glass

4. Borosilicate glass

Question Number : 151 Question Id : 61097513179 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The process of removing strain in glass is called

Options :

1. Annealing

2. Tempering

3. Silvering

4. Ionizing

Question Number : 152 Question Id : 61097513180 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which is of the following oxide is responsible for Devitrification in glass ?

Options :

1. Silica

2. Lime

3. Magnesia

4. Alumina

Question Number : 153 Question Id : 61097513181 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Danner process is used to make

Options :

1. Sheet glass

2. Bottles

3. Fiber Glass

4. Tubes

Question Number : 154 Question Id : 61097513182 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

.....is the maximum temperature at which equilibrium exists between the molten glass and its primary crystalline phase

Options :

1. Solidus temperature

2. Solvus temperature

3. Liquidus temperature

4. Congruent temperature

Question Number : 155 Question Id : 61097513183 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the Kovar type of glass ?

Options :

1. Low expansion type

2. Low electrical loss type

3. Sealing type

4. Ultraviolet transmitting type

Question Number : 156 Question Id : 61097513184 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is a crown glass ?

Options :

1. Laboratory apparatus grade

2. Optical grade

3. Sealing type

4. Ultraviolet transmitting type

Question Number : 157 Question Id : 61097513185 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Where 96% of silica glass is used ?

Options :

1. Heat shield

2. Combustion tubes

3. Electronic tubes

4. Thermometers

Question Number : 158 Question Id : 61097513186 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which glass is used in the manufacture of artificial gems, bulbs, lenses, etc?

Options :

1. Soda-lime glass

2. Special glass

3. Potash-lead glass

4. Fiber glass

Question Number : 159 Question Id : 61097513187 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Melting temperature of SiO_2 is

Options :

1. 2000°C

2. 1728°C

3. 1550°C

4. 1350°C

Question Number : 160 Question Id : 61097513188 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Chromatic glass is used in:

Options :

1. ICU and meeting rooms

2. Aquariums

3. Mobile screen protectors

4. Monitors

Question Number : 161 Question Id : 61097513189 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is an example of network modifiers ?

Options :

1. SiO_2

2. Na_2O

3. Al_2O_3

4. TiO_2

Question Number : 162 Question Id : 61097513190 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The presence of the following ions have a large effect on the color of glass

Options :

1. Na^{+} ions

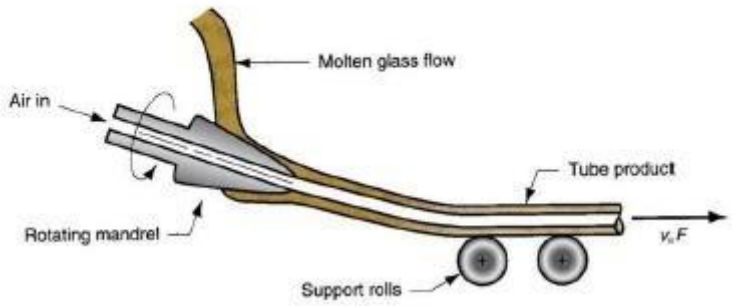
2. Ca^{2+} ions

3. Fe^{2+} ions

4. K^{+} ions

Question Number : 163 Question Id : 61097513191 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Identify the fabrication process shown below



Options :

1. Rolling

2. Floating

3. Drawing

Pressing

4.

Question Number : 164 Question Id : 61097513192 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A special glass that is used to generate power

Options :

Low thermal emissivity

1.

Insulated glass

2.

Tempered glass

3.

Solar panel glass

4.

Question Number : 165 Question Id : 61097513193 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Identify above glass

Options :

1. Patterned glass

2. Fritted glass

3. Silverd glass

4. Wired glass

Question Number : 166 Question Id : 61097513194 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Lens are made up of

Options :

1. Pyrex glass

2. Flint glass

3. Soda lime silica glass

4. Aluminosilicate glass

Question Number : 167 Question Id : 61097513195 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Why is natural cement used very limitedly ?

Options :

1. Brown in Colour

2. Standard consistency is not met with

3. Sets too quickly

4. Particle size is too fine

Question Number : 168 Question Id : 61097513196 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which chemical constituent is highest content used in Ordinary Portland Cement ?

Options :

1. Alumina

2. Silica

3. Lime

4. Iron Oxide

Question Number : 169 Question Id : 61097513197 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Who invented Portland cement and in which year?

Options :

1. William Aspdin, 1824

2. William Aspdin, 1840

3. Joseph Aspdin, 1840

4. Joseph Aspdin, 1824

Question Number : 170 Question Id : 61097513198 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the meaning of soundness of cement?

Options :

1. Ability to flow when mixed

2. Ability to make ringing noise when struck

3. Ability to form strong and sound structure

4. Ability to retain volume after setting.

Question Number : 171 Question Id : 61097513199 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Use of coarser cement particles leads to:

Options :

1. Low durability

2. Higher strength

3. Low consistency

4. Higher soundness

Question Number : 172 Question Id : 61097513200 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Excess silica in cement causes _____

Options :

1. The cement to set slowly

2. The cement to set quickly

3. The cement to expand

4. The cement to disintegrate

Question Number : 173 Question Id : 61097513201 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which compound gives the colour to the cement ?

Options :

1. Lime

2. Silica

3. Iron Oxide

4. Alumina

Question Number : 174 Question Id : 61097513202 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which equipment is used to test the setting time of cement ?

Options :

1. Core cutter

2. Vibrator

3. Universal testing machine (UTM)

4. Vicat apparatus

Question Number : 175 Question Id : 61097513203 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the minimum initial setting time of cement ?

Options :

1. 1 hour

2. 30 minutes

3. 15 minutes

4. 30 hours

Question Number : 176 Question Id : 61097513204 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The energy Gap in Diamond is

Options :

1. 2-3eV

2. 5.4eV

3. 1.1eV

4. 0.08eV

Question Number : 177 Question Id : 61097513205 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The majority charge carriers in P- type semiconductor is

Options :

1. Free electrons

2. Ions

3. Holes

4. Conduction electrons

Question Number : 178 Question Id : 61097513206 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The temperature of the antiferromagnetic to paramagnetic transition is called

Options :

1. Antiferromagnetic curie temperature

2. Curie-weiss temperature

3. Neel temperature

4. Debye temperature

Question Number : 179 Question Id : 61097513207 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The magnetic moment of a ferric ion in Nickel-zinc ferrite is

Options :

1. 5

2. 0

3. Depends on Zn%

4. 2.2

Question Number : 180 Question Id : 61097513208 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following material has Zero resistance ?

Options :

1. P- type semiconductor

2. n-type semiconductor

3. Supercondcutor

4. Ferrite

Question Number : 181 Question Id : 61097513209 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following material has high di-electric constant ?

Options :

1. $ZnTiO_3$

2. $BaTiO_3$

3. $SrTiO_3$

4. $MgZnTiO_4$

Question Number : 182 Question Id : 61097513210 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which is not a major contributor of engineering ceramics ?

Options :

1. SiC

2. SiO_2

3. Si_3N_4

4. Al_2O_3

Question Number : 183 Question Id : 61097513211 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Hot isostatic pressing is not a viable option if the chief criterion is

Options :

1. strength without grain growth

2. low cost

3. zero porosity

4. processing refractory ceramics

Question Number : 184 Question Id : 61097513212 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Composite materials are

Options :

1. made mainly to improve temperature resistance

2. used for improved optical properties

3. made with strong fibres embedded in weaker and softer matrix to obtain strength better than strength of matrix.

4. made with strong fibres embedded in weaker and softer matrix to obtain strength better than strength of both matrix and filler.

Question Number : 185 Question Id : 61097513213 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Ionic Polarization

Options :

1. Decreases with temperature

2. Increases with temperature

3. May increase or decrease with temperature

4. Is independent of temperature

Question Number : 186 Question Id : 61097513214 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following fuel has highest calorific value ?

Options :

1. Coal

2. Peat

3. Bituminous coal

4. Anthracite coal

Question Number : 187 Question Id : 61097513215 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Main component of sewage gas produced during anaerobic decomposition of organic waste (by suitable bacteria) during sewage disposal is

Options :

1. H_2

2. CO_2

3. N_2

4. CH_4

Question Number : 188 Question Id : 61097513216 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In flue gas analysis by Orsat's apparatus, carbon monoxide is absorbed by

Options :

1. Cuprous chloride

2. Pottasium hydroxide

3. Sodium chloride

4. Potassium chloride

Question Number : 189 Question Id : 61097513217 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following kiln is used for firing of Tiles ?

Options :

1. Tunnel kiln

2. Rotary kiln

3. Roller hearth kiln

4. Down draft kiln

Question Number : 190 Question Id : 61097513218 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following kiln is used for making cement ?

Options :

1. Down draft kiln

2. Up draft kiln

3. Roller hearth kiln

4. Rotary kiln

Question Number : 191 Question Id : 61097513219 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Glaze is applied after

Options :

1. Pressing

2. Drying

3. Firing

4. Spray drying

Question Number : 192 Question Id : 61097513220 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is used as opacifiers in glazes ?

Options :

1. Sb_2O_3

2. Na_2O

3. K_2O

4. SiO_2

Question Number : 193 Question Id : 61097513221 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following glaze is a low temperature glaze ?

Options :

1. Raw glazes

2. Fritted glazes

3. Bristol glazes

4. Lead glazes

Question Number : 194 Question Id : 61097513222 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following oxide gives Red color to glaze ?

Options :

1. Copper oxide

2. Ferric oxide

3. Nickel oxide

4. Uranium oxide

Question Number : 195 Question Id : 61097513223 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The following defect occurs when glaze and body are mismatched

Options :

1. Pinholes

2. Black specks

3. Crazing

4. Chip off

Question Number : 196 Question Id : 61097513224 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A glassy coating on metal is called ……

Options :

1. Glass

2. Glaze

3. Nano coating

4. Enamel

Question Number : 197 Question Id : 61097513225 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

…….. metal is commonly used in enamels

Options :

1. Sheet iron

2. Cast iron

3. Aluminum

4. Copper

Question Number : 198 Question Id : 61097513226 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The second coat that is applied on metal sheet is called….

Options :

1. Ground coat

2. White cover coat

3. Color coat

4. engobe

Question Number : 199 Question Id : 61097513227 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Annealing of metal sheet is done to remove

Options :

1. Dust

2. Oil

3. Stress

4. Uneven surface

Question Number : 200 Question Id : 61097513228 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following glaze is applied on Sewer pipes ?

Options :

1. Salt glaze

2. Raw glaze

3. Fritted glaze

4. Tin glaze