Question Paper Preview

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 :	BSc MATHEMATICS 12th May 2025 Shift1
Subject Name :	BSc Mathematics
Creation Date :	2025-05-12 13:25:54
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

BSc MATHEMATICS

Group Number :	1
Group Id :	50696138
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 :	506961146
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100

Number of Questions to be attempted :	100
Section Marks :	100
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	506961167
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 5069617416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The domain of the function $f(x,y) = \log(x+y)$ is

Options :

1. ✖ $\{(x,y): x+y<0\}$

2. ✔ $\{(x,y): x+y>0\}$

3. ✖ $\{(x,y): xy=-1\}$

4. ✖ $\{(x,y): x+y=0\}$

Question Number : 2 Question Id : 5069617417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\lim_{(x,y)\to(0,1)} \tan^{-1}\left(\frac{y}{x}\right) =$$

Options :

1. ✖ $\frac{\pi}{2}$

2. ✖ $-\frac{\pi}{2}$

3. ✖ 0

4. ✔ does not exist

Question Number : 3 Question Id : 5069617418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = f(x+2y)+g(x-2y)$ and if $k\frac{\partial^2 z}{\partial x^2}+\frac{\partial^2 z}{\partial y^2}=0$, then $k=$

Options :

1. ✔ -4

2. ✖ 4

3. ✖ 2

4. ✖ -2

Question Number : 4 Question Id : 5069617419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u(x,y,z)=\begin{vmatrix} x^2 & y^2 & z^2 \\ x & y & z \\ 1 & 1 & 1 \end{vmatrix}$, then $\frac{\partial u}{\partial x}(1,1,1)=$

Options :

1. ✖ 4

2. ✖

-1

3. ✔ 0

4. ✖ 2

Question Number : 5 Question Id : 5069617420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = \log\left(\frac{x^2+y^2}{x+y}\right)$, then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ $\log u$

4. ✖ 2

Question Number : 6 Question Id : 5069617421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $f(x,y) = x^2 + y^2$, $x = \frac{t^2-1}{t}$, $y = \frac{t}{t^2+1}$, then the value of $\frac{df}{dt}$ at $t = 1$ is

Options :

1. ✖

$\frac{1}{4}$

2. ✖ $\frac{2}{9}$

3. ✖ $\frac{1}{2}$

4. ✔ 0

Question Number : 7 Question Id : 5069617422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = x^2 - y^2$, $x = 2r - 3s + 4$, $y = -r + 8s - 5$, then $\frac{\partial z}{\partial s} =$

Options :

1. ✖ $4x + 2y$

2. ✖ $6x + 16y$

3. ✔ $-6x - 16y$

4. ✖ $-4x + 2y$

Question Number : 8 Question Id : 5069617423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $\frac{16xy}{(2x-y^2)^3}$

2. ✖ $\frac{2xy}{(y^2-2x)^3}$

3. ✖ $\frac{16xy}{(y^2-2x)^2}$

4. ✖ $\frac{8xy}{(y^2-2x)^3}$

Question Number : 9 Question Id : 5069617424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $f(x,y)=\frac{xy^3}{x+y^2},(x,y)\neq(0,0)$ and $f(0,0)=0$, then $\frac{\partial^2 f}{\partial y\partial x}$ at $(0,0)=$

Options :

1. ✖ 2

2. ✖ -1

3. ✖ 0

4. ✔

1

Question Number : 10 Question Id : 5069617425 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\log(x+e^y)=\log 2+a\left[(x-1)+y\right]-\ldots,$ then $a=$

Options :

1. ✖ $\frac{1}{8}$

2. ✖ $\frac{1}{4}$

3. ✔ $\frac{1}{2}$

4. ✖ 8

Question Number : 11 Question Id : 5069617426 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the function $f(x,y)=kx^2+y^2-x$ has the minimum value at $\left(\frac{1}{6},0\right)$,

then $k=$

Options :

1. ✔ 3

2. ✖ 2

3. ✖

6

4. ✖ 1

Question Number : 12 Question Id : 5069617427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The extreme value of $f(x,y)=xy$ such that $x+y=2$, $x\geq 0$, $y\geq 0$ is

Options :

1. ✔ 1

2. ✖ 2

3. ✖ $\frac{1}{2}$

4. ✖ $\frac{1}{4}$

Question Number : 13 Question Id : 5069617428 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The radius of curvature of the curve $x^4+y^4=2$ at P(1,1) is

Options :

1. ✖ $\frac{\sqrt{3}}{2}$

2. ✔

$\frac{\sqrt{2}}{3}$

3. ✖ $\sqrt{\frac{2}{3}}$

4. ✖ $\sqrt{\frac{3}{2}}$

Question Number : 14 Question Id : 5069617429 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The radius of curvature of the curve at any point $P(a\cos^3\theta, a\sin^3\theta)$ on the curve $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ is

Options :

1. ✖ $4a\sin\theta\cos\theta$

2. ✖ $6a\sin\theta\cos\theta$

3. ✔ $3a\sin\theta\cos\theta$

4. ✖ $a\sin\theta\cos\theta$

Question Number : 15 Question Id : 5069617430 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The centre of curvature of the curve $xy = 2$ at $P(2,1)$ is

Options :

1. ✖ $\left(\frac{13}{2}, \frac{7}{4}\right)$

2. ✔ $\left(\frac{13}{4}, \frac{7}{2}\right)$

3. ✖ $(13,7)$

4. ✖ $(7,13)$

Question Number : 16 Question Id : 5069617431 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The evolute of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is

Options :

1. ✖ $(ax)^{\frac{5}{3}} + (by)^{\frac{5}{3}} = (a^2 - b^2)^{\frac{5}{3}}$

2. ✖ $(ax)^{\frac{1}{3}} + (by)^{\frac{1}{3}} = (a^2 - b^2)^{\frac{1}{3}}$

3. ✖ $xy = a^2 + b^2$

$$(ax)^{\frac{2}{3}}+(by)^{\frac{2}{3}}=(a^2-b^2)^{\frac{2}{3}}$$

4. ✔

Question Number : 17 Question Id : 5069617432 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The envelope of the family of curves $x\tan p+y\sec p=4$ is

Options :

$$y^2-x^2=16$$

1. ✔

$$y^2+x^2=16$$

2. ✖

$$y^2+2x^2=16$$

3. ✖

$$2y^2+x^2=16$$

4. ✖

Question Number : 18 Question Id : 5069617433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the curve $y=\log\left(\frac{e^x-1}{e^x+1}\right)$ from x=1 to x=2 is

Options :

$$\log\left(e+\frac{2}{e}\right)$$

1. ✖

2. ✖

$\log\left(e^2+e\right)$

3. $\log\left(e+\frac{1}{e}\right)$ ✔

4. $\log\left(e^2+\frac{1}{e^2}\right)$ ✖

Question Number : 19 Question Id : 5069617434 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the complete arc of the cycloid $x=a(\theta-\sin\theta), y=a(1-\cos\theta)$ is

Options :

1. 6a ✖

2. 8a ✔

3. 4a ✖

4. 2a ✖

Question Number : 20 Question Id : 5069617435 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The curvature of the curve y= sin x at $P(\frac{\pi}{2},1)$ is

Options :

1. 1 ✔

2. 2 ✖

3. $\frac{1}{2}$ ✖

4. $\frac{1}{\sqrt{2}}$ ✖

Question Number : 21 Question Id : 5069617436 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx}=4x^3e^{-y}$, $y(1)=0$ is

Options :

1. $e^y-x^4=1$ ✖

2. $e^{-y}-x^4=1$ ✖

3. $e^{-y}-x^4=0$ ✖

4. ✔

$e^y = x^4$

Question Number : 22 Question Id : 5069617437 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx} = \frac{y}{x} + \cot\left(\frac{y}{x}\right)$ is

Options :

$x\cos\left(\frac{y}{x}\right) = c$

1. ✔

$x\cos\left(\frac{x}{y}\right) = c$

2. ✖

$y\sin\left(\frac{y}{x}\right) = c$

3. ✖

$y\sin\left(\frac{x}{y}\right) = c$

4. ✖

Question Number : 23 Question Id : 5069617438 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $y(x)$ satisfies the differential equation $\frac{dy}{dx} = \frac{1}{e^y + x}$, then $(c+y)e^y =$

Options :

1. ✖ x^2

2. ✖ y

3. ✔ x

4. ✖ y^3

Question Number : 24 Question Id : 5069617439 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following differential equations is linear?

Options :

1. ✖ $x\frac{dy}{dx}+y^2=e^x$

2. ✖ $\frac{dy}{dx}-xy=y^{1/2}$

3. ✖ $\frac{dy}{dx}+xy^2=e^y$

4. ✔ $x\frac{dy}{dx}+x^2y=\sin x$

Question Number : 25 Question Id : 5069617440 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the equation $[f(x)+g(y)]dx+[h(x)+k(y)]dy=0$ is exact, then

Options :

1. $f'(x)=h'(x)$ ✖

2. $f'(x)=k'(y)$ ✖

3. $g'(y)=h'(x)$ ✔

4. $g'(y)=k'(y)$ ✖

Question Number : 26 Question Id : 5069617441 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an integrating factor of $xdy-ydx=0$?

Options :

1. $\frac{1}{y^2}$ ✖

2. $\frac{1}{x^3}$ ✔

3. ✖

$\frac{1}{xy}$

4. ✖ $\frac{1}{x^2+y^2}$

Question Number : 27 Question Id : 5069617442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $y(x)$ is the solution of $(\cos x + y\sin x)dx = (\cos x)dy$, $y(\pi) = 0$, then $y\left(\frac{\pi}{4}\right) =$

Options :

1. ✔ 1

2. ✖ 0

3. ✖ -1

4. ✖ 2

Question Number : 28 Question Id : 5069617443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An integrating factor of $(xy)dx + (x^2 + 2y^2 + 2)dy = 0$ is

Options :

1. ✖

x

2. ✔ y

3. ✖ $\frac{1}{x}$

4. ✖ $\frac{1}{y}$

Question Number : 29 Question Id : 5069617444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\left(\frac{dy}{dx}\right)^2 - 2\cosh x \ \frac{dy}{dx} + 1 = 0$ is

Options :

1. ✔ $(y - e^x - c)(y + e^{-x} - c) = 0$

2. ✖ $(y + e^x - c)(y - e^{-x} - c) = 0$

3. ✖ $(y + x - c)(y - x - c) = 0$

4. ✖ $(x - e^y - c)(x + e^{-y} - c) = 0$

Question Number : 30 Question Id : 5069617445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\cos\left(y - x\frac{dy}{dx}\right) = \frac{dy}{dx}$ is

Options :

1. $y = cx + x^2$ ✖

2. $y = cx + \cos^{-1} c$ ✔

3. $(y - cx)^2 = c$ ✖

4. $y^2 = cx + c$ ✖

Question Number : 31 Question Id : 5069617446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $D \equiv \frac{d}{dx}$. The general solution of the differential equation $\left(D^4 + 18D^2 + 81\right)y = 0$ is

Options :

1. $y = c_1 e^{3x} + c_2 e^{-3x} + c_3 \cos 3x + c_4 \sin 4x$ ✖

2. ✔

$$y=(c_1+c_2x)\cos 3x+(c_3+c_4x)\sin 3x$$

$$y=c_1e^{3x}+c_2e^{-3x}+c_3e^{4x}+c_4e^{-4x}$$

3. ✖

$$y=(c_1+c_2x)\cos 2x+(c_3+c_4x)\sin 2x$$

4. ✖

Question Number : 32 Question Id : 5069617447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{D^4-2D^2+1}e^x=$$

Options :

$$\frac{xe^x}{8}$$

1. ✖

$$\frac{xe^{2x}}{8}$$

2. ✖

$$\frac{x^2e^x}{8}$$

3. ✔

$$\frac{x^4e^x}{4}$$

4. ✖

Question Number : 33 Question Id : 5069617448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{D^4+1}(x^4-x^3+10)=$$

Options :

x^4+x^3+34

1. ✖

x^4-x^3-14

2. ✔

x^4+2x^3-14

3. ✖

x^4+2x^3+120

4. ✖

Question Number : 34 Question Id : 5069617449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{D^2-3D+2}10\sin x=$$

Options :

$3\sin x+2\cos x$

1. ✖

$3\sin x+6\cos x$

2. ✖

$\sin x + 3\cos x$

3. ✔

$3\sin x + 5\cos x$

4. ✖

Question Number : 35 Question Id : 5069617450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of the differential equation $\left(D^2 - 10D + 25\right)y = 18xe^{5x}$ is

Options :

$15x^2e^{5x}$

1. ✖

$30x^4e^{5x}$

2. ✖

$5x^2e^{5x}$

3. ✖

$3x^3e^{5x}$

4. ✔

Question Number : 36 Question Id : 5069617451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of the differential equation $\left(D^2-2D+1\right)y=x^{-3}e^x$ is

Options :

1. ✔ $\frac{e^x}{2x}$

2. ✖ $\frac{xe^x}{4}$

3. ✖ $\frac{xe^x}{6}$

4. ✖ $\frac{xe^x}{8}$

Question Number : 37 Question Id : 5069617452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\left(x^2D^2+2xD-20\right)y=0$ is

Options :

1. ✖ $y=c_1x^5+c_2x^4$

2. ✖ $y=c_1x^5+c_2x^{-4}$

3. ✔

$y = c_1 x^{-5} + c_2 x^4$

$y = c_1 x^{-5} + c_2 x^{-4}$

4. ✖

Question Number : 38 Question Id : 5069617453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The partial differential equation satisfied by $z = ax + by + a^4 + b^4$, where a,b are arbitrary constants is

Options :

$z = px^2 + qy^2$

1. ✖

$z = px + qy + p^4 + q^4$

2. ✔

$z = xp^2 + yq^2$

3. ✖

$z^2 = px^2 + qy^2$

4. ✖

Question Number : 39 Question Id : 5069617454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The complete integral of the partial differential equation $p^2 - q^2 = x - y$ is

Options :

$2z = (a+x)(a+y)+b$

1. ✖

$2z = (a+x)+(a+y)^2+b$

2. ✖

$2z = (a+x)^2+(a+y)+b$

3. ✖

$3z = 2(a+x)^{3/2}+(a+y)^{3/2}+3b$

4. ✔

Question Number : 40 Question Id : 5069617455 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The complete integral of the partial differential equation $p^2 - 3q^2 = 8$ is

Options :

$z = 8ax+3y+b$

1. ✖

$z = 8ax^2+ay^2+b$

2. ✖

$z = \sqrt{8+3a^2}x+ay+b$

3. ✔

$z = 8ax^2 + by^3$

4. ✖

Question Number : 41 Question Id : 5069617456 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following sequences is not convergent?

Options :

1. ✖ $\left\{\frac{1}{n!}\right\}$

2. ✖ $\left\{\frac{1}{2^n}\right\}$

3. ✔ $\{(-1)^n\}$

4. ✖ $\left\{\frac{(-1)^n}{n}\right\}$

Question Number : 42 Question Id : 5069617457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\lim_{n\to\infty}\left(\sqrt{n^2+1}-n\right)=$

Options :

1. ✖ 0

2. ✖

1

2. ✖

2

3. ✖

$\frac{1}{2}$

4. ✔

Question Number : 43 Question Id : 5069617458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The limit inferior of the sequence $\left\{\sin\left(\frac{n\pi}{2}\right)\right\}$ is

Options :

1. ✔ -1

2. ✖ 0

3. ✖ 1

4. ✖ 2

Question Number : 44 Question Id : 5069617459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is false?

Options :

1. ✖ Every convergent sequence is a Cauchy sequence.

2. ✖ Every Cauchy sequence is convergent.

3. ✔ Every bounded sequence is a Cauchy sequence.

4. ✖ Every Cauchy sequence is bounded.

Question Number : 45 Question Id : 5069617460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The subsequence $\{x, x^4, x^9, x^{16}, ...\}$ of $\{x^n\}$ converges to zero if

Options :

1. ✖ $|x| > 1$

2. ✖ $|x| = 1$

3. ✔ $|x| < 1$

4. ✖ $|x| = 2$

Question Number : 46 Question Id : 5069617461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following series is divergent?

Options :

1. ✖ $\sum \frac{1}{n!}$

2. ✖ $\sum \left(\frac{1}{2^n} - \frac{1}{n^2} \right)$

3. ✖ $\sum \left(1 + \frac{1}{\sqrt{n}} \right)^{-n^{3/2}}$

4. ✔ $\sum \left(\frac{5^n + 5}{3^n + 2} \right)$

Question Number : 47 Question Id : 5069617462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following alternating series is convergent?

Options :

1. ✖ $\sum (-1)^n \sqrt{n}$

2. ✖

$\sum(-1)^n \frac{n+1}{n}$

$\sum(-1)^n \frac{2^n}{n^2}$

3. ✖

$\sum(-1)^{n+1} \frac{1}{n\sqrt{n}}$

4. ✔

Question Number : 48 Question Id : 5069617463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The series $\sum_{n=2}^{\infty} \frac{1}{n(\log n)^p}$ is convergent, if

Options :

1. ✔ $p > 1$

$p < 1$

2. ✖

$p \leq 1$

3. ✖

$p \geq 0$

4. ✖

Question Number : 49 Question Id : 5069617464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $\frac{1}{5}$

2. ✖ $\frac{1}{4}$

3. ✖ $\frac{1}{3}$

4. ✔ $\frac{1}{2}$

Question Number : 50 Question Id : 5069617465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The function $f:\mathbb{R}\to\mathbb{R}$ defined by $f(x)=|x|$ is

Options :

1. ✔ Continuous for all $x\in\mathbb{R}$.

2. ✖ Continuous at $x=0$ only.

3. ✖ Discontinuous at $x=0$ only.

4. ✖

Discontinuous for all $x \in \mathbb{R}$.

Question Number : 51 Question Id : 5069617466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 1

2. ✔ -1

3. ✖ 2

4. ✖ -2

Question Number : 52 Question Id : 5069617467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $P = \{0,1,2,4,5,6,9,10\}$ be a partition of $[0,10]$, then mesh(P) =

Options :

1. ✖ 1

2. ✔ 3

3. ✖ 2

4. ✖ 4

Question Number : 53 Question Id : 5069617468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $x^{\sin x}\cos x \log x$

2. ✔ $x^{\sin x}\left(\cos x \log x + \frac{\sin x}{x}\right)$

3. ✖ $x^{\sin x}\cos x$

4. ✖ $x^{\sin x}\left(\cos x + \log x\right)$

Question Number : 54 Question Id : 5069617469 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The c value of Rolle's theorem for the function $f(x) = (x-5)^4(x-6)^8$ on $[5,6]$ is

Options :

1. ✖ $\frac{19}{3}$

2. ✖ $\frac{13}{3}$

3. ✖ $\frac{17}{3}$

4. ✔ $\frac{16}{3}$

Question Number : 55 Question Id : 5069617470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The c value of generalized mean value theorem for the functions $f(x)=e^{x}, g(x)=e^{-x}$ on $[4,6]$ is

Options :

1. ✖ 4

2. ✔ 5

3. ✖ 6

4. ✖ 8

Question Number : 56 Question Id : 5069617471 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The coefficient of x^3 in the expansion of e^{3x} is

Options :

1. ✔ $\frac{9}{2}$

2. ✖ $\frac{11}{2}$

3. ✖ $\frac{13}{2}$

4. ✖ $\frac{15}{2}$

Question Number : 57 Question Id : 5069617472 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x\to 0}\frac{a^x-b^x}{x}=$$

Options :

1. ✖ $\log a$

2. ✖ $\log b$

3. ✔ $\log\left(\frac{a}{b}\right)$

4. ✖ $\log\left(\frac{a^2}{b^3}\right)$

Question Number : 58 Question Id : 5069617473 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x\to 0}\frac{x-\log(1+x)}{x^2}=$$

Options :

1. ✖ $\frac{1}{4}$

2. ✖ $\frac{1}{5}$

3. ✔ $\frac{1}{2}$

4. ✖ $\frac{1}{3}$

Question Number : 59 Question Id : 5069617474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $f:[a,b]\to\mathbb{R}$ be a bounded function. Which of the following statement is false?

Options :

1. ✖

If f is continuous on [a, b], then f is Riemann integrable on [a,b].

If f is monotonic on [a, b], then f is Riemann integrable on [a,b].

2. ✖

If P_1, P_2 are any two partitions of [a,b] such that $P_1 \subseteq P_2$, then $L(f, P_1) \leq L(f, P_2)$.

3. ✖

If P_1, P_2 are any two partitions of [a,b] such that $P_1 \subseteq P_2$, then $U(f, P_1) \leq U(f, P_2)$.

4. ✔

Question Number : 60 Question Id : 5069617475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $f: \mathbb{R} \to \mathbb{R}$ be a continuous function and if for $x \in \mathbb{R}$, $F(x) = \int_{x-4}^{x+4} f(t)\,dt$, then $F'(x) =$

Options :

$f(x+4) - f(x-4)$

1. ✔

$f(x+4)$

2. ✖

$f(x-4)$

3. ✖

$f(x+4)+f(x-4)$

4. ✖

Question Number : 61 Question Id : 5069617476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the group of integers $\mathbb{Z}$ w.r.t. the operation defined by $a \oplus b = a + b + 2$ for all $a, b \in \mathbb{Z}$. What is the inverse of -2?

Options :

1. -2 ✔

2. 2 ✖

3. 1 ✖

4. -4 ✖

Question Number : 62 Question Id : 5069617477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The set of integers under ordinary multiplication is not a group because

Options :

1. closure property fails ✖

2. associative property fails ✖

identity property fails

3. ✖

inverse property fails

4. ✔

Question Number : 63 Question Id : 5069617478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In $GL(2, \mathbb{Z}_{13})$, the determinant of the matrix $\begin{pmatrix} 7 & 4 \\ 2 & 5 \end{pmatrix}$ is

Options :

1. 3 ✖

2. 11 ✖

3. 1 ✔

4. 12 ✖

Question Number : 64 Question Id : 5069617479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the group $U(15) = \{1, 2, 4, 7, 8, 11, 13, 14\}$ under the multiplication modulo 15. What is the order of element 14?

Options :

1. ✖

3

2. ✖ 4

3. ✔ 2

4. ✖ 5

Question Number : 65 Question Id : 5069617480 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the group G, if $a,b \in G$ and n is any integer, then $(a^{-1}ba)^n =$

Options :

1. ✖ b^n

2. ✔ $a^{-1}b^n a$

3. ✖ $a^{-n}b^n a^n$

4. ✖ b

Question Number : 66 Question Id : 5069617481 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of subgroups of order 4 of the Dihedral group D_4 is

Options :

1. ✔

3

2. ✖ 2

3. ✖ 1

4. ✖ 5

Question Number : 67 Question Id : 5069617482 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a is an element of a group G and $|a| = 15$, then $|a^{12}| =$

Options :

1. ✖ 2

2. ✖ 4

3. ✔ 5

4. ✖ 6

Question Number : 68 Question Id : 5069617483 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\alpha = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 2 & 1 & 3 & 5 & 4 & 6 \end{pmatrix}$ and $\beta = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 6 & 1 & 2 & 4 & 3 & 5 \end{pmatrix}$ are permutations, then $\beta\alpha =$

Options :

$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 1 & 6 & 2 & 3 & 4 & 5 \end{pmatrix}$

1. ✔

$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 1 & 2 & 6 & 3 & 5 & 4 \end{pmatrix}$

2. ✖

$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 2 & 1 & 6 & 3 & 4 & 5 \end{pmatrix}$

3. ✖

$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 1 & 2 & 3 & 4 & 5 & 6 \end{pmatrix}$

4. ✖

Question Number : 69 Question Id : 5069617484 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Suppose that ϕ is an isomorphism from a group G onto a group G'. Then which of the following is false?

Options :

ϕ^{-1} is an isomorphism from G' onto a group G.

1. ✖

2. ✖ G is an abelian iff G' is an abelian.

3. ✖ G is cyclic iff G' is abelian.

4. ✔ $\phi(Z(G)) \neq Z(G')$.

Question Number : 70 Question Id : 5069617485 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Cayley's theorem states that

Options :

1. ✖ if G is a finite group and H is a subgroup of G, then $|H|$ divides $|G|$.

2. ✖ every group of prime order is cyclic.

3. ✔ every group is isomorphic to a group of permutations.

4. ✖ for every positive integer n, Aut(Z_n) is isomorphic to $U(n)$.

Question Number : 71 Question Id : 5069617486 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The order of the element $14+\langle 8\rangle$ in the factor group $\frac{\mathbb{Z}_{24}}{<8>}$ is

Options :

1. ✖ 5

2. ✔ 4

3. ✖ 2

4. ✖ 1

Question Number : 72 Question Id : 5069617487 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of homomorphisms from A_4 onto Z_4 is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ 2

4. ✖ 3

Question Number : 73 Question Id : 5069617488 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is an idempotent element in the ring $(\mathbb{Z}_{10}, +_{10}, \times_{10})$?

Options :

1. 8 ✖

2. 9 ✖

3. 5 ✔

4. 7 ✖

Question Number : 74 Question Id : 5069617489 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of ideals of a field F is

Options :

1. 1 ✖

2. 2 ✔

3. 3 ✖

4. 4 ✖

Question Number : 75 Question Id : 5069617490 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a maximal ideal in the ring of integers $\mathbb{Z}$?

Options :

1. $4\mathbb{Z}$ ✖

2. $6\mathbb{Z}$ ✖

3. $8\mathbb{Z}$ ✖

4. $7\mathbb{Z}$ ✔

Question Number : 76 Question Id : 5069617491 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of solutions of $x^2 - 5x + 6 = 0$ in the ring $\mathbb{Z}_{10}$ is

Options :

1. 4 ✔

2. 3 ✖

3. 2 ✖

4. 6 ✖

Question Number : 77 Question Id : 5069617492 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The characteristic of the ring $\mathbb{Z}_3 \times \mathbb{Z}_5$ is

Options :

1. 30 ✖

2. 15 ✔

3. 10 ✖

4. 12 ✖

Question Number : 78 Question Id : 5069617493 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is false?

Options :

1. Every field is an integral domain. ✖

2. In a ring with unity, each maximal ideal is a prime ideal. ✖

3. In any integral domain, (0) is a prime ideal. ✖

Let R be a ring and $a \in R$ .Then $Ra = \{xa : x \in R\}$ is a right ideal.

4. ✔

Question Number : 79 Question Id : 5069617494 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a unit in the ring $(\mathbb{Z}_6, +_6, \times_6)$?

Options :

1. 2 ✖

2. 3 ✖

3. 5 ✔

4. 4 ✖

Question Number : 80 Question Id : 5069617495 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The number of homomorphisms from the ring of integers $\mathbb{Z}$ to $\mathbb{Z}$ is

Options :

1. 1 ✖

2. 2 ✔

3. ✖

3

4

4. ✖

Question Number : 81 Question Id : 5069617496 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a vector space?

Options :

The set of all real valued functions defined on an interval.

1. ✖

The set of all polynomials of degree at most $n, n \geq 0$.

2. ✖

$\mathbb{R}^3(\mathbb{R})$

3. ✖

The set of all points in $\mathbb{R}^2$ of the form $(3s, 2 + 5s), s \in \mathbb{R}$.

4. ✔

Question Number : 82 Question Id : 5069617497 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is false?

Options :

$\mathbb{R}^2$ is not a subspace of $\mathbb{R}^3$.

1. ✖

2. ✖

The set of all polynomials of the form $P(t) = at^2$, where $a \in \mathbb{R}$, is a subspace of P_n, the space of all polynomials of degree at most n.

The set of all polynomials of degree at most 3 with integers coefficients is a subspace of P_n

3. ✔

The set of all polynomials of the form $P(t) = a + t^2$, where $a \in \mathbb{R}$, is not a subspace of P_n.

4. ✖

Question Number : 83 Question Id : 5069617498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of vectors in Span $\left\{\begin{bmatrix}1\\0\\-1\end{bmatrix}, \begin{bmatrix}2\\1\\3\end{bmatrix}, \begin{bmatrix}4\\2\\6\end{bmatrix}\right\}$ is

Options :

2

1. ✖

4

2. ✖

6

3. ✖

infinite

4. ✔

Question Number : 84 Question Id : 5069617499 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The column space of an $m \times n$ matrix A is a subspace of

Options :

1. ✔ $\mathbb{R}^n$

2. ✖ $\mathbb{R}^m$

3. ✖ $\mathbb{R}^{m+n}$

4. ✖ $\mathbb{R}^{n^2}$

Question Number : 85 Question Id : 5069617500 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The null space of the transformation $T: \mathbb{R}^2 \to \mathbb{R}^3$ defined by $T\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x+y \\ x-y \\ y \end{pmatrix}$ is

Options :

1. ✖ $\left\{\begin{pmatrix} 1 \\ 1 \end{pmatrix}\right\}$

2. ✖

$\left\{\begin{pmatrix}0\\0\end{pmatrix},\begin{pmatrix}2\\2\end{pmatrix}\right\}$

$\left\{\begin{pmatrix}2\\2\end{pmatrix}\right\}$

3. ✖

$\left\{\begin{pmatrix}0\\0\end{pmatrix}\right\}$

4. ✔

Question Number : 86 Question Id : 5069617501 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following sets is linearly independent?

Options :

$\left\{\begin{pmatrix}1\\2\end{pmatrix},\begin{pmatrix}2\\3\end{pmatrix}\right\}$

1. ✔

$\left\{\begin{pmatrix}1\\-1\end{pmatrix},\begin{pmatrix}-2\\2\end{pmatrix}\right\}$

2. ✖

$\left\{\begin{pmatrix}0\\2\end{pmatrix},\begin{pmatrix}-1\\2\end{pmatrix},\begin{pmatrix}-3\\8\end{pmatrix}\right\}$

3. ✖

4. ✖

$$\left\{\begin{pmatrix}3\\4\end{pmatrix},\begin{pmatrix}0\\0\end{pmatrix}\right\}$$

Question Number : 87 Question Id : 5069617502 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\begin{pmatrix}6\\16\\-5\end{pmatrix}=a\begin{pmatrix}0\\2\\-1\end{pmatrix}+b\begin{pmatrix}2\\2\\0\end{pmatrix}$, then $a^2+b^2=$

Options :

1. 8 ✖

2. 16 ✖

3. 52 ✖

4. 34 ✔

Question Number : 88 Question Id : 5069617503 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider a basis $\beta=\left\{\begin{pmatrix}1\\0\end{pmatrix},\begin{pmatrix}1\\2\end{pmatrix}\right\}$ for $\mathbb{R}^2$. Suppose an x in $\mathbb{R}^2$ has the coordinate vector $[x]_\beta=\begin{pmatrix}-2\\3\end{pmatrix}$, then $x=$

Options :

1. $\begin{pmatrix} 1 \\ 6 \end{pmatrix}$ ✔

2. $\begin{pmatrix} 2 \\ 10 \end{pmatrix}$ ✖

3. $\begin{pmatrix} 10 \\ 5 \end{pmatrix}$ ✖

4. $\begin{pmatrix} 1 \\ 1 \end{pmatrix}$ ✖

Question Number : 89 Question Id : 5069617504 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The dimension of the subspace $H = \left\{ \begin{pmatrix} 2a \\ -4b \\ -2a \end{pmatrix} : a, b \in \mathbb{R} \right\}$ is

Options :

1. 1 ✖

2. 3 ✖

3. 2 ✔

4. ✖ 4

Question Number : 90 Question Id : 5069617505 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If A is 3×7 matrix, then the smallest possible dimension of Nul A is

Options :

1. ✖ 2

2. ✔ 4

3. ✖ 3

4. ✖ 5

Question Number : 91 Question Id : 5069617506 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The eigen values of the matrix $A=\begin{pmatrix}5 & 0 & 4\\ 0 & 7 & 6\\ 0 & 0 & 8\end{pmatrix}$ are

Options :

1. ✖ $4,5,6$

2. ✖ $6,7,8$

3. ✔ $5,7,8$

4. ✖ $4,6,8$

Question Number : 92 Question Id : 5069617507 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the eigen values of a 3x3 matrix A are $\frac{1}{2},\frac{2}{3},\frac{5}{2}$,then the sum of the eigen values of A^{-1} is

Options :

1. ✖ $\frac{10}{39}$

2. ✔ $\frac{39}{10}$

3. ✖ $\frac{37}{10}$

4. ✖ $\frac{10}{37}$

Question Number : 93 Question Id : 5069617508 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A=\begin{pmatrix} 1 & 5 \\ -1 & 7 \end{pmatrix}$ and $A^2=\alpha A+\beta I$, then $\alpha+\beta=$

Options :

-1

1. ✖

-2

2. ✖

-3

3. ✖

-4

4. ✔

Question Number : 94 Question Id : 5069617509 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The characteristic equation of the matrix $A=\begin{pmatrix} 0 & 0 & 6 \\ 1 & 0 & -11 \\ 0 & 1 & 6 \end{pmatrix}$ is

Options :

$x^3+6x^2-11x+6=0$

1. ✖

$x^3-6x^2+11x-6=0$

2. ✔

3. ✖

$x^3 - 11x^2 + 6x + 6 = 0$

$x^3 + 11x^2 - 6x - 6 = 0$

4. ✖

Question Number : 95 Question Id : 5069617510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the vector $\begin{pmatrix} 5 \\ 4 \\ 3 \end{pmatrix}$ is

Options :

1. ✖ $\sqrt{61}$

2. ✖ $\sqrt{13}$

3. ✔ $\sqrt{50}$

4. ✖ 1

Question Number : 96 Question Id : 5069617511 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the vectors $\begin{pmatrix} 8 \\ -5 \end{pmatrix}, \begin{pmatrix} 10 \\ k \end{pmatrix}$ are orthogonal, then k =

Options :

1. ✖

4

2. ✖ 8

3. ✖ 12

4. ✔ 16

Question Number : 97 Question Id : 5069617512 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following matrix is not diagonalizable?

Options :

1. ✖ $\begin{pmatrix} 1 & 3 \\ 4 & 2 \end{pmatrix}$

2. ✔ $\begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix}$

3. ✖ $\begin{pmatrix} 1 & 5 \\ 0 & 4 \end{pmatrix}$

4. ✖ $\begin{pmatrix} 1 & 0 & 0 \\ 3 & 5 & 0 \\ 2 & 4 & 3 \end{pmatrix}$

Question Number : 98 Question Id : 5069617513 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $a = \begin{pmatrix} -2 \\ 1 \end{pmatrix}, b = \begin{pmatrix} -3 \\ 1 \end{pmatrix}$, then $\frac{a.b}{a.a} =$

Options :

1. 5 ✖

2. 7 ✖

3. 2 ✖

4. $\frac{7}{5}$ ✔

Question Number : 99 Question Id : 5069617514 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = \begin{pmatrix} 7 \\ 1 \end{pmatrix}, v = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$, then the distance between u and v is

Options :

1. $\sqrt{50}$ ✖

2. $\sqrt{13}$ ✖

$\sqrt{17}$

3. ✔

$\sqrt{63}$

4. ✖

Question Number : 100 Question Id : 5069617515 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is an eigen vector of $A=\begin{pmatrix}1 & 2 & 2\\ 3 & 1 & 1\\ 2 & 1 & 2\end{pmatrix}$?

Options :

$\begin{pmatrix}1\\0\\1\end{pmatrix}$

1. ✖

$\begin{pmatrix}1\\1\\1\end{pmatrix}$

2. ✔

$\begin{pmatrix}1\\1\\0\end{pmatrix}$

3. ✖

4. ✖

$\begin{pmatrix} 0 \\ 1 \\ 1 \end{pmatrix}$

Analytical Ability

Section Id :	506961147
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	33
Number of Questions to be attempted :	33
Section Marks :	50
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	506961168
Question Shuffling Allowed :	No

Question Id : 5069617516 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Question Numbers : (101 to 110)

Question Label : Comprehension

Data Sufficiency: A question is given followed by data in the form of two statements labeled as I and II. If the data given in I alone is sufficient to answer the question then choice (1) is the correct answer. If the data given in II alone is sufficient to answer the question, then choice (2) is the correct answer. If both I and II put together are sufficient to answer the question but neither of the statements alone is sufficient, then Choice (3) is the correct answer. If both I and II put together are not sufficient to answer the question and additional data is needed, then choice (4) is the correct answer.

Sub questions

Question Number : 101 Question Id : 5069617517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the two-digit number?

Statement I: The difference of digits of the number is 6.
Statement II: The sum of the digits is 10.

Options :

1

1. ✖

2

2. ✖

3

3. ✔

4

4. ✖

Question Number : 102 Question Id : 5069617518 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the average weight of 8 persons?

Statement I: The total weight of first 5 persons is equal to the total of the last 3 persons' weight.

Statement II: The average weight of first 5 persons is 60 kgs while the average weight of the last 3 persons' is 50 kgs.

Options :

1

1. ✖

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 103 Question Id : 5069617519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the area of the rectangle?

Statement I: The length of the rectangle is 2m more than its breadth.
Statement II: The perimeter of the rectangle is 32m.

Options :

1. ✖ 1

2. ✖ 2

3. ✔ 3

4. ✖ 4

Question Number : 104 Question Id : 5069617520 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In how many days 20 men can complete the work.

Statement I: 24 men complete the same work in 15 days.
Statement II: 36 women complete the same work in 20 days.

Options :

1. ✔ 1

2. ✖ 2

3. ✖ 3

4. ✖ 4

Question Number : 105 Question Id : 5069617521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Is the matrix A invertible?

Statement I: The order of the matrix A is 6.
Statement II: One of the eigenvalues of the matrix A is zero.

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4

4. ✖

Question Number : 106 Question Id : 5069617522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How is A related to B?

Statement I: B is the sister of C.

Statement II: A is the son of D.

Options :

1

1. ✖

2

2. ✖

3

3. ✖

4

4. ✔

Question Number : 107 Question Id : 5069617523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What are the two positive integers whose sum is 88?

Statement I: The GCD of the two numbers is 8.

Statement II : The difference of the two numbers is 8.

Options :

1

1. ✖

2

2. ✖

3

3. ✔

4

4. ✖

Question Number : 108 Question Id : 5069617524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the ratio of the total number of girls to the total number of boys in a school?

Statement I: 40% of the students are boys.

Statement II : The total number of students in the school is 500.

Options :

1

1. ✔

2

2. ✖

3

3. ✖

4

4. ✖

Question Number : 109 Question Id : 5069617525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A train crosses another train running in the opposite direction in 20 seconds. What is the speed of the train?

Statement I: The first train is of x m long.

Statement II : Both the trains are running at the same speed.

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

Question Number : 110 Question Id : 5069617526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the rate of interest on an amount of Rs.80000 deposited in a bank?

Statement I: The simple interest for 5 years is Rs.40000.

Statement II : The difference between the simple interest and compound interest is Rs.5000.

Options :

1. ✔ 1

2. ✖ 2

3. ✖ 3

4. ✖ 4

Sub-Section Number : 2
Sub-Section Id : 506961169
Question Shuffling Allowed : Yes

Question Number : 111 Question Id : 5069617527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

5:26::7:_____

Options :

1. ✔ 50

2. ✖ 25

3. ✖ 215

4. ✖ 4

Question Number : 112 Question Id : 5069617528 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

BT:11::DV:___

Options :

1. ✖ 12

2. ✔ 13

3. ✖ 11

4. ✖ 10

Question Number : 113 Question Id : 5069617529 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\begin{pmatrix} 2 & 1 \\ 3 & 4 \end{pmatrix} : 5 :: \_\_\_\_\_ : 10$$

Options :

1. ✖ $\begin{pmatrix} 5 & -2 \\ 1 & 1 \end{pmatrix}$

2. ✖ $\begin{pmatrix} 1 & 2 \\ 3 & 10 \end{pmatrix}$

3. ✖ $\begin{pmatrix} 1 & 5 \\ 2 & 12 \end{pmatrix}$

4. ✔ $\begin{pmatrix} 5 & 0 \\ 1 & 2 \end{pmatrix}$

Question Number : 114 Question Id : 5069617530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

FLAT:_____ :: GOAT:17

Options :

1. ✖ 14

2. ✖ 12

3. ✔ 13

4. ✖ 15

Question Number : 115 Question Id : 5069617531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the missing term in the following sequence

$$2, \frac{9}{4}, \_\_\_\_, \frac{625}{256}, \frac{7776}{3125}.$$

Options :

1. ✖ $\frac{64}{25}$

2. ✔

$\frac{64}{27}$

3. $\frac{81}{211}$ ✖

4. $\frac{81}{125}$ ✖

Question Number : 116 Question Id : 5069617532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the odd one out in the following sequence.

$\frac{5}{3}, \frac{11}{4}, \frac{21}{5}, \frac{29}{6}, \frac{41}{7}, \frac{55}{8}$.

Options :

1. $\frac{55}{8}$ ✖

2. $\frac{41}{7}$ ✖

3. $\frac{29}{6}$ ✖

4. ✔

$\frac{21}{5}$

Question Number : 117 Question Id : 5069617533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the odd one out in the following sequence.

24, 60, 120, 210, 256, 504

Options :

1. 120 ✖

2. 256 ✔

3. 210 ✖

4. 60 ✖

Question Number : 118 Question Id : 5069617534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the odd one out

Options :

1. 343 ✖

2. 1331 ✖

2197

3. ✖

729

4. ✔

Question Number : 119 Question Id : 5069617535 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the odd one out.

$(26.4.5),(37.5.6),(50.6.7),(66.7.8)$

Options :

$(26.4.5)$

1. ✖

$(37.5.6)$

2. ✖

$(66.7.8)$

3. ✔

$(50.6.7)$

4. ✖

Question Number : 120 Question Id : 5069617536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the missing number in the following sequence.

12, 22, _____, 51, 70, 92.

Options :

1. ✖ 25

2. ✖ 55

3. ✔ 35

4. ✖ 65

Sub-Section Number : 3

Sub-Section Id : 506961170

Question Shuffling Allowed : No

Question Id : 5069617537 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Question Numbers : (121 to 125)

Question Label : Comprehension

The following table highlights the information about the number of candidates interviewed by four firms on different days. Based on this, answer the questions from 121 to125.

Number of candidates interviewed by 4 firms A, B, C, D on different days

Day	A	B	C	D
Monday	15	17	20	10
Tuesday	20	12	15	15
Wednesday	12	20	10	19
Thursday	9	10	12	20
Friday	10	11	18	22
Saturday	12	14	14	24
Sunday	10	15	20	30

Sub questions

Question Number : 121 Question Id : 5069617538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many candidates interviewed by firm B on all days?

Options :

1. ✔ 99

2. ✖ 102

3. ✖ 98

4. ✖ 105

Question Number : 122 Question Id : 5069617539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which firm, the number of candidates interviewed increased consistently from Monday to Sunday?

Options :

1. ✖ A

2. ✖ B

3. ✖ C

4. ✔ D

Question Number : 123 Question Id : 5069617540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of candidates interviewed by firm A on Saturday and Sunday together is what percent of the total number of candidates interviewed by all other firms on the same days

Options :

1. ✖ 17.92

2. ✖ 19.30

3. ✔ 18.80

4. ✖ 16.79

Question Number : 124 Question Id : 5069617541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the ratio between the number of candidates interviewed by firm C on Wednesday and that of candidates interviewed by firm A on Tuesday?

Options :

1. ✔ 1:2

2. ✖ 6:5

3. ✖ 2:3

4. ✖ 1:3

Question Number : 125 Question Id : 5069617542 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of candidates interviewed by all the firms on Thursday?

Options :

1. 50 ✖

2. 51 ✔

3. 61 ✖

4. 48 ✖

Sub-Section Number :	4
Sub-Section Id :	506961171
Question Shuffling Allowed :	No

Question Id : 5069617543 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Question Numbers : (126 to 130)

Question Label : Comprehension

Read the following and answer the questions from 126 to 130.

In a class of 80 students each student plays at least one of the games: cricket, volleyball and football. 44 of them play cricket, 48 play volleyball and 50 play football. 20 play cricket and volleyball, 24 play cricket and football and 26 play volleyball and football.

Sub questions

Question Number : 126 Question Id : 5069617544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of students who play all the three games?

Options :

1. ✖ 10

2. ✔ 8

3. ✖ 9

4. ✖ 6

Question Number : 127 Question Id : 5069617545 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of students who play exactly one game?

Options :

1. ✖ 30

2. ✖ 28

3. ✔ 26

4. ✖ 14

Question Number : 128 Question Id : 5069617546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of students who play exactly two games?

Options :

1. ✖ 54

2. ✖ 38

3. ✔ 46

4. ✖ 34

Question Number : 129 Question Id : 5069617547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of students who play more than one game?

Options :

1. ✖ 46

2. ✔ 54

3. ✖ 42

4. ✖ 50

Question Number : 130 Question Id : 5069617548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of students who play cricket or football but not volleyball?

Options :

1. ✔ 32

2. ✖ 20

3. ✖ 24

4. ✖ 16

Sub-Section Number : 5
Sub-Section Id : 506961172
Question Shuffling Allowed : Yes

Question Number : 131 Question Id : 5069617549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In a certain code, if RIVER is coded as 72 and LAKE is coded as 29 then the code of KRISHNA is

Options :

1. ✖ 82

2. ✖ 84

3. ✖ 79

4. ✔ 80

Question Number : 132 Question Id : 5069617550 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a certain code, if DEFENCE is coded as NCEEDEF and CIRCUIT is coded as UITCCIR, then the code of CALIBRE is

Options :

1. ILEBRAC ✖

2. BREICAL ✔

3. BRACILE ✖

4. ACILBRE ✖

Question Number : 133 Question Id : 5069617551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If LIVE is coded as PEZA, then the code for ROPE is

Options :

1. VTKA ✖

2. KVTA ✖

3. VITA ✔

KTVA

4. ✖

Question Number : 134 Question Id : 5069617552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If BEAT is coded as IJDV, then the code for CURE is

Options :

JZUG

1. ✔

AGJU

2. ✖

AJUG

3. ✖

UJAG

4. ✖

Question Number : 135 Question Id : 5069617553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a certain code, BOARD is coded as 80, then the code of GRAPH is

Options :

95

1. ✖

80

2. ✖

100

3. ✔

4. ✖ 105

Question Number : 136 Question Id : 5069617554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In a certain code, RATE is coded as SBUF, then the code of ROCK is

Options :

1. ✖ SLPD

2. ✖ SLDP

3. ✔ SPDL

4. ✖ SDLP

Question Number : 137 Question Id : 5069617555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In a certain code, MASTER is coded as SFUTBN, then the code of BANKER is

Options :

1. ✖ FSLOBC

2. ✖ SFLBOC

3. ✖ SFLOCB

4. ✔ SFLOBC

Question Number : 138 Question Id : 5069617556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a certain code, GANDHI is coded as NAGIHD, DOCTOR is coded as CODROT, then the NUMBER is coded as

Options :

1. ✖ UNBMRE

2. ✖ UMNBER

3. ✔ MUNREB

4. ✖ REBMUN

Question Number : 139 Question Id : 5069617557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a certain code FOUR is coded as CILF, then which of the following is coded as MIJH?

Options :

1. ✖ MORE

2. ✖ GOAT

FORT

3. ✖

POST

4. ✔

Question Number : 140 Question Id : 5069617558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a certain code, if WATER is coded as CYFUH, then the code of DRINK is

Options :

VHQLO

1. ✔

VHQOL

2. ✖

OLQVH

3. ✖

LOVQH

4. ✖

Sub-Section Number :	6
Sub-Section Id :	506961173
Question Shuffling Allowed :	Yes

Question Number : 141 Question Id : 5069617559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What day of the week was 15 August 1949?

Options :

Sunday

1. ✖

Monday

2. ✔

Wednesday

3. ✖

Friday

4. ✖

Question Number : 142 Question Id : 5069617560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the next leap year after 2096?

Options :

2108

1. ✖

2100

2. ✖

2098

3. ✖

2104

4. ✔

Question Number : 143 Question Id : 5069617561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the angle between hour hand and minute hand at 7.30 am?

Options :

1. ✖ 50°

2. ✖ 47°

3. ✔ 45°

4. ✖ 48°

Question Number : 144 Question Id : 5069617562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a clock strikes 12 in 36 seconds, in how many seconds it will strike 9?

Options :

1. ✔ 27

2. ✖ 24

3. ✖ 18

4. ✖ 15

Question Number : 145 Question Id : 5069617563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Pointing to a lady, Ramu said, "she is my wife's son's father's sister". How is that lady related to Ramu?

Options :

1. ✖ Mother

2. ✔ Sister

3. ✖ Wife

4. ✖ Daughter

Question Number : 146 Question Id : 5069617564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Six persons A, B, C, D, E, F are sitting around a circular table facing centre but not in the same order. A sits opposite to B and immediate right of C. E is not a neighbour of A or F. B sits second to the right of D and immediate left of F. D sits between E and A. Who sits to the immediate left of B?

Options :

1. ✖ D

2. ✖ C

3. ✖ F

4. ✔

E

Question Number : 147 Question Id : 5069617565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A bus started from Hyderabad at 5.30 am. It takes 6 hours to reach Srisailam. If the bus is delayed by 1 hour 30 minutes, then the time at which the bus reaches Srisailam is

Options :

1. 11.30 pm ✖

2. 1.30 pm ✖

3. 1 pm ✔

4. 2 pm ✖

Question Number : 148 Question Id : 5069617566 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A train leaves for Delhi every 4 hours from Secunderabad station. An announcement was made at the station that the train for Delhi left 30 minutes ago, and the next train will leave at 10 pm. At what time was the announcement made?

Options :

1. 6 pm ✖

2. ✔ 6.30 pm

3. ✖ 7 pm

4. ✖ 5.30 pm

Question Number : 149 Question Id : 5069617567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $a\Delta b = \frac{a^2-b^2}{a^2+b^2}, a, b \in \mathbb{R}$,then $(1\Delta 2)\Delta(2\Delta 1) =$

Options :

1. ✖ $\frac{6}{5}$

2. ✖ $-\frac{6}{5}$

3. ✔ 0

4. ✖ $\frac{50}{9}$

Question Number : 150 Question Id : 5069617568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If ‘A’ denotes addition, ‘D’ denotes division, ‘M’ denotes multiplication and ‘S’ denotes subtraction, then 27A14S8M25D5 =

Options :

1. ✖ -1

2. ✖ 3

3. ✖ 4

4. ✔ 1

Communicative English

Section Id :	506961148
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	42
Number of Questions to be attempted :	42
Section Marks :	50
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	506961174
Question Shuffling Allowed :	Yes

Question Number : 151 Question Id : 5069617569 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the synonym of the underlined word in the sentence from the alternatives given:

I'm excited to go on vacation next week.

Options :

1. ✖ anxious

2. ✖ curious

3. ✖ depressed

4. ✔ thrilled

Question Number : 152 Question Id : 5069617570 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the synonym of the underlined word in the sentence from the alternatives given:

She finished the project on time thanks to her diligent work culture.

Options :

1. ✖ haphazard

2. ✖ continuous

3. ✔ hardworking

4. ✖ lazy

Question Number : 153 Question Id : 5069617571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the antonym of the word underlined in the following sentence from the alternatives given below:

The student's apathy towards studies resulted in poor grades.

Options :

1. ✔ enthusiasm

2. ✖ glee

3. ✖ indifference

4. ✖ knowledge

Question Number : 154 Question Id : 5069617572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the antonym of the word underlined in the following sentence from the alternatives given below:

The invigilator caught a fleeting glimpse of the student opening the book.

Options :

1. ✖

flitting

momentary

2. ✖

lasting

3. ✔

Brief

4. ✖

Question Number : 155 Question Id : 5069617573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the accurate spelling of the word from the choices given below:

Options :

accomodate

1. ✖

accommodete

2. ✖

acomodate

3. ✖

accommodate

4. ✔

Question Number : 156 Question Id : 5069617574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the accurate spelling of the word from the choices given below:

Options :

1. ✖ embarass

2. ✔ embarrass

3. ✖ embrase

4. ✖ embarras

Question Number : 157 Question Id : 5069617575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Choose the correct option of a one-word substitute for the description given below:

A Person who is new to a job or an organization.

Options :

1. ✖ specialist

2. ✖ veteran

3. ✔ novice

sophomore

4. ✖

Question Number : 158 Question Id : 5069617576 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct option of a one-word substitute for the description given below:

A person who speaks two languages.

Options :

duolingual

1. ✖

polyglot

2. ✖

dilingual

3. ✖

bilingual

4. ✔

Question Number : 159 Question Id : 5069617577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct option of a one-word substitute for the description given below:

A person who has an unselfish concern for the welfare of others.

Options :

alchemist

1. ✖

altruist

2. ✔

almighty

3. ✖

aristocrat

4. ✖

Question Number : 160 Question Id : 5069617578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the appropriate word from the options given below to fill in the blank to make a meaningful sentence:

Please _____ for the national anthem.

Options :

raise

1. ✖

rise

2. ✔

rouse

3. ✖

arise

4. ✖

Question Number : 161 Question Id : 5069617579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the appropriate word from the options given below to fill in the blank to make a meaningful sentence:

The _____ of the restaurant is very stylish.

Options :

decorum

1. ✖

decoy

2. ✖

decency

3. ✖

decor

4. ✔

Question Number : 162 Question Id : 5069617580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the appropriate word from the options given below to fill in the blank to make a meaningful sentence:

The red dress _____ her complexion.

Options :

compliments

1. ✔

complaints

2. ✖

3. ✖

complements

completes

4. ✖

Question Number : 163 Question Id : 5069617581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose from the options given below the correct meaning of the idiom 'to let the cat out of the bag':

Options :

to reveal a secret

1. ✔

to buy a new puppy

2. ✖

to be dishonest

3. ✖

to release a cat from a cattery

4. ✖

Question Number : 164 Question Id : 5069617582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose from the options given below the correct meaning of the idiom 'to burn the midnight oil':

Options :

to go to bed early

1. ✖

to wake up early

2. ✖

to work late into the night

3. ✔

to wake up late after the oil is burnt

4. ✖

Question Number : 165 Question Id : 5069617583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose from the options given below the correct meaning of the idiom 'to break a leg':

Options :

to admit to hospital

1. ✖

to quit a competition

2. ✖

to use a crutch

3. ✖

to wish someone good luck

4. ✔

Question Number : 166 Question Id : 5069617584 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the appropriate phrasal verb from the options given below to make a meaningful sentence:

My car 'broke down' on the highway.

Options :

collapsed on the street

1. ✖

had an accident

2. ✖

stopped functioning properly

3. ✔

broke into several parts

4. ✖

Question Number : 167 Question Id : 5069617585 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the appropriate phrasal verb from the options given below to make a meaningful sentence:

My father is brilliant. He 'stands out' in any crowd.

Options :

blends with the surroundings

1. ✖

makes friends easily

2. ✖

attracts attention

3. ✔

arrogant and unfriendly

4. ✖

Question Number : 168 Question Id : 5069617586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the appropriate phrasal verb from the options given below to make a meaningful sentence:

The minister promised to 'look into' the rising costs.

Options :

disagree with

1. ✖

investigate

2. ✔

decrease

3. ✖

withdraw

4. ✖

Question Number : 169 Question Id : 5069617587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of appropriate articles from the options given below:

I saw _____ movie last night. It was really ___ good one.

Options :

1. a, a ✔

2. a, an ✖

3. an, a ✖

4. an, an ✖

Question Number : 170 Question Id : 5069617588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of appropriate articles from the options given below:

When you become _____ architect, you will be expected to design _____ beautiful buildings.

Options :

1. the, the ✖

2. the, no article ✖

3. an, the ✖

4. an, no article ✔

Question Number : 171 Question Id : 5069617589 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Identify the pair of appropriate articles from the options given below:

I saw _____ dog in _____college office today.

Options :

a, an

1. ✖

a, the

2. ✔

the, an

3. ✖

no article, no article

4. ✖

Question Number : 172 Question Id : 5069617590 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Identify the pair of appropriate prepositions from the options given below:

My cousin is addicted _____ playing video games _____ all hours of the day.

Options :

with, during

1. ✖

with, at

2. ✖

3. ✔

to, at

to, in

4. ✖

Question Number : 173 Question Id : 5069617591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of appropriate prepositions from the options given below:

She is excited _____ the opportunity _____ travel to a foreign country.

Options :

with, for

1. ✖

for, with

2. ✖

about, to

3. ✔

at, with

4. ✖

Question Number : 174 Question Id : 5069617592 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of appropriate prepositions from the options given below:

Our college is known _____ its commitment _____ environmental sustainability.

Options :

1. for, to ✔

2. about, about ✖

3. for, for ✖

4. to, for ✖

Question Number : 175 Question Id : 5069617593 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following sentences has the grammatically correct tag question?

Options :

1. She isn't coming to college today, isn't she? ✖

2. He hasn't come to college today, does he? ✖

3. ✖

They don't like to come to college today, are they?

She doesn't like to come to college today, does she?

4. ✔

Question Number : 176 Question Id : 5069617594 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blanks with the appropriate question tag from the options given below:

You know the answer to this question, _____?

Options :

Do you?

1. ✖

Don't you?

2. ✔

Aren't you?

3. ✖

Didn't you?

4. ✖

Question Number : 177 Question Id : 5069617595 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Change the appropriate voice for the following sentence:

He was reading the book.

Options :

The book is reading by he.

1. ✖

The book was being read by him.

2. ✔

The book were being read by him.

3. ✖

Book was being reading by him.

4. ✖

Question Number : 178 Question Id : 5069617596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following options is the correct passive voice form of the sentence?

Gardening interests my mother.

Options :

Gardening is interesting by my mother.

1. ✖

My mother is interested in gardening.

2. ✔

My mother is interested gardening.

3. ✖

My mother interests gardening.

4. ✖

Question Number : 179 Question Id : 5069617597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the right passive voice form of the given sentence:

Who drew the picture on the wall?

Options :

1. ✖ By whom is the picture drawn on the wall?

2. ✖ By whom has the picture been drawn on the wall?

3. ✖ By whom the picture was drawn on the wall?

4. ✔ By whom was the picture drawn on the wall?

Question Number : 180 Question Id : 5069617598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the correct form of the verb:

He _____ there for three hours.

Options :

1. ✖ was sitting

2. ✖ is sitting

has been sitting

3. ✔

have been sitting.

4. ✖

Question Number : 181 Question Id : 5069617599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the correct form of the verb:

Some primitive societies _____ that the sun and the moon are heavenly beings

Options :

believe

1. ✔

are believing

2. ✖

will be believing

3. ✖

have been believing

4. ✖

Question Number : 182 Question Id : 5069617600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the correct form of the verb:

I _____ understand.

Options :

1. did ✔

2. does ✖

3. had ✖

4. has ✖

Question Number : 183 Question Id : 5069617601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the correct answer:

Bread and butter ____ the staple food of most Europeans.

Options :

1. are ✖

2. were ✖

3. have been ✖

4. is ✔

Question Number : 184 Question Id : 5069617602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the correct answer:

Every one of the boys _____happy to see their favourite teacher after a long time.

Options :

1. ✖ are

2. ✔ is

3. ✖ were

4. ✖ have been

Question Number : 185 Question Id : 5069617603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Fill in the blank with the correct answer:

The teacher along with the students _____ to picnic.

Options :

1. ✖ have gone

2. ✔ has gone

3. ✖ were going

4. ✖ go

Question Number : 186 Question Id : 5069617604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify a grammatically incorrect sentence from the options given below:

Options :

1. ✖ The scenery of Kashmir is beautiful.

2. ✖ The scenes of Kashmir are beautiful.

3. ✔ The sceneries of Kashmir are beautiful.

4. ✖ Kashmir is known for breathtaking scenery.

Question Number : 187 Question Id : 5069617605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the grammatically incorrect part of the sentence from the options given below:

"I wish(A)/ I was(B)/ there with (C)/ my brother in our university library(D)."

Options :

1. ✖ A

2. ✔ B

3. ✖ C

4. ✖ D

Question Number : 188 Question Id : 5069617606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct sentence from the options given below:

Options :

1. ✔ Rosie didn't go to office yesterday as she was not feeling well.

2. ✖ Rosie has not gone to office yesterday as she was not feeling well.

3. ✖ Rosie would not go to office yesterday as she was not feeling well.

4. ✖ Rosie does not go to office yesterday as she was not feeling well.

Question Number : 189 Question Id : 5069617607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct sentence from the options given below:

Options :

1. ✔ Scarcely had he gone out when it started raining.

2. ✖ Scarcely has he gone out then it started raining.

3. ✖ Scarcely he had gone out when it started raining.

Scarcely he went out when it started raining.

4. ✖

Question Number : 190 Question Id : 5069617608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct sentence from the options given below:

Options :

One should love its country.

1. ✖

One should love their country.

2. ✖

One should love her country.

3. ✖

One should love one's country.

4. ✔

Sub-Section Number :	2
Sub-Section Id :	506961175
Question Shuffling Allowed :	No

Question Id : 5069617609 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Question Numbers : (191 to 195)

Question Label : Comprehension

Read the passage below and choose the right answers to the questions that follow:

The Taj Mahal is a mausoleum located in Agra. It was commissioned by Mughal Emperor Shah Jahan in memory of his favourite wife, Mumtaz, who died during childbirth in 1631. The construction of the Taj Mahal began in 1632 and was completed in 1653. The building is made of white marble and is known for its intricate carvings and beautiful design. The mausoleum is surrounded by gardens and a reflecting pool, and it is considered one of the greatest works of Mughal architecture.

The Taj Mahal is also a symbol of love and is considered one of the most romantic buildings in the world. It has been designated a UNESCO World Heritage Site and attracts millions of tourists each year. Despite its popularity, there are concerns about the impact of tourism on the monument, including air pollution and damage caused by visitors.

Sub questions

Question Number : 191 Question Id : 5069617610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How long did the construction of the Taj Mahal take?

Options :

1. 1632 years ✖

2. 1653 years ✖

3. 21 years ✔

4. ✖

Hundreds of years

Question Number : 192 Question Id : 5069617611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What does the word 'intricate' mean in the sentence "The building is known for its intricate carvings"?

Options :

Complicated

1. ✔

Attractive

2. ✖

Impressive

3. ✖

Simple

4. ✖

Question Number : 193 Question Id : 5069617612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to the passage, what impact of the tourists on the Taj Mahal is a matter for concern?

Options :

The monument is damaged

1. ✔

Tourists bring foreign currency

2. ✖

Cultural interchange

3. ✖

Marble has become expensive

4. ✖

Question Number : 194 Question Id : 5069617613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In "The building is made of white marble", "made of" refers to

Options :

The material used to create the building

1. ✔

The tools used to create the building

2. ✖

The persons who created the building

3. ✖

The huge cost of the building

4. ✖

Question Number : 195 Question Id : 5069617614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

"One of the most romantic buildings in the world" in the passage indicates:

Options :

1. ✔ There are other romantic buildings in the world

2. ✖ There is only one romantic building in the world

3. ✖ There are other romantic buildings but not so romantic as the Taj Mahal

4. ✖ There are a few other romantic buildings within India

Sub-Section Number :	3
Sub-Section Id :	506961176
Question Shuffling Allowed :	No

Question Id : 5069617615 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Question Numbers : (196 to 200)

Question Label : Comprehension

Read the passage below and choose the right answers to the questions that follow:

Lithium is a crucial component in the production of electric vehicles and other energy storage systems, making it a highly sought-after resource in the modern world. India's abundant lithium reserves are primarily found in the igneous rocks of the Pegmatite Belt, which stretches across the southern states of Tamil Nadu and Kerala. The largest reserves are located in the Marlagalla-Allapatna region of Karnataka, estimated to contain over 14,000 tonnes of lithium. Other significant deposits have been identified in Andhra Pradesh, Jharkhand, Rajasthan, and Kashmir.

India's increasing focus on renewable energy and electric mobility has put the country's lithium resources in the spotlight. The Indian government has announced plans to develop a domestic lithium-ion battery industry, which would reduce the country's dependence on imports and support its transition to a greener economy.

The significance of India's lithium reserves cannot be overstated. With the increasing demand for electric vehicles and other energy storage technologies, lithium has become a valuable commodity in the global market. India's copious reserves of lithium provide a valuable opportunity for the country to develop a self-reliant, sustainable lithium-ion battery industry, which could have significant economic and environmental benefits.

Sub questions

Question Number : 196 Question Id : 5069617616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Why is lithium resource in great demand?

Options :

It is used in the production of energy storage systems

1. ✔

It is used in the production of food preservatives

2. ✖

It is a form of igneous rocks

3. ✖

Lithium can replace electric vehicles

4. ✖

Question Number : 197 Question Id : 5069617617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Where are India's lithium reserves primarily found?

Options :

in the sedimentary rocks of Tamil Nadu

1. ✖

in the alluvial soils of the Gangetic Plain

2. ✖

in the igneous rocks of the Pegmatite Belt

3. ✔

in the volcanic valleys of Kashmir

4. ✖

Question Number : 198 Question Id : 5069617618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What are the potential benefits of developing a domestic lithium-ion battery industry in India?

Options :

political and social benefits

1. ✖

environmental and economic benefits

2. ✔

cultural and historical benefits

3. ✖

economic and cultural benefits

4. ✖

Question Number : 199 Question Id : 5069617619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The phrase "putting in the spotlight" means

Options :

to draw undue attention

1. ✖

to distract someone's attention

2. ✖

to highlight the importance of something

3. ✔

to persuade someone to do something

4. ✖

Question Number : 200 Question Id : 5069617620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A synonym of the adjective “abundant” used in the passage is

Options :

1. significant ✖

2. sustainable ✖

3. self-reliant ✖

4. copious ✔