

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER-C to D Bridge Course EXAMINATION –
Winter- 2019

Subject Code: C300001
Subject Name: Basic Mathematics
Time: 02:30 PM TO 04:00 PM

Date: 01-01-2020

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

No. Question Text and Option. પ્રશ્ન અને વિકલ્પો.

- | | | |
|----|--|--------------|
| 1. | $\log_2 8 = \underline{\hspace{1cm}}$.
A. 2
C. 3 | B. 8
D. 4 |
| ૧. | $\log_2 8 = \underline{\hspace{1cm}}$.
A. 2
C. 3 | B. 8
D. 4 |
| 2. | If $\log_x 125 = 3$ then $x = \underline{\hspace{1cm}}$.
A. 2
C. 3 | B. 5
D. 0 |
| ૨. | જો $\log_x 125 = 3$ હોય તો, $x = \underline{\hspace{1cm}}$.
A. 2
C. 3 | B. 5
D. 0 |
| 3. | If $\log_x 3 = 1$ then $x = \underline{\hspace{1cm}}$.
A. 1
C. 3 | B. 2
D. 0 |
| ૩. | જો $\log_x 3 = 1$ હોય તો, $x = \underline{\hspace{1cm}}$.
A. 1
C. 3 | B. 2
D. 0 |
| 4. | $\log_2 16 - \log_2 4 = \underline{\hspace{1cm}}$.
A. 1
C. 12 | B. 2
D. 4 |
| ૪. | $\log_2 16 - \log_2 4 = \underline{\hspace{1cm}}$.
A. 1
C. 12 | B. 2
D. 4 |
| 5. | $\log_2 3 * \log_3 2 = \underline{\hspace{1cm}}$.
A. 1
C. 6 | B. 2
D. 5 |
| ૫. | $\log_2 3 * \log_3 2 = \underline{\hspace{1cm}}$.
A. 1
C. 6 | B. 2
D. 5 |
| 6. | $\log_4 \left(\frac{1}{64}\right) = \underline{\hspace{1cm}}$. | |

- A. 1
C. $\frac{1}{3}$
 $\log_4\left(\frac{1}{64}\right) = \underline{\hspace{2cm}}.$
6. A. 1
C. $\frac{1}{3}$
If $\log_3(\log_2 x) = 1$ then, $x = \underline{\hspace{2cm}}.$
7. A. 8
C. 6
જો $\log_3(\log_2 x) = 1$ હોય તો, $x = \underline{\hspace{2cm}}.$
8. A. $\log_e a + \log_e b = \underline{\hspace{2cm}}.$
B. $\log_b a$
D. $\log_e(a+b)$
9. A. $\log_e a \log_e b$
C. $\log_e(ab)$
B. $\log_b a$
D. $\log_e(a+b)$
10. A. $\log_e a + \log_e b = \underline{\hspace{2cm}}.$
B. 0
D. 1
11. A. 3
C. 6
B. 0
D. 1
12. A. 3
C. 6
B. 0
D. 1
13. A. 0
C. $\log_e(abc)$
B. 1
D. $2\log_e(abc)$
14. A. $\log_e\left(\frac{a^2}{bc}\right) - \log_e\left(\frac{ac}{b^2}\right) + \log_e\left(\frac{c^2}{ab}\right) = \underline{\hspace{2cm}}.$
B. 1
D. $2\log_e(abc)$
15. A. 0
C. $\log_e(abc)$
B. 1
D. $2\log_e(abc)$
16. A. 2
C. $\frac{1}{2}$
If $\begin{vmatrix} x & 1 \\ 2 & 4 \end{vmatrix} = 0$ then, $x = \underline{\hspace{2cm}}.$
17. A. 2
C. $\frac{1}{2}$
જો $\begin{vmatrix} x & 1 \\ 2 & 4 \end{vmatrix} = 0$ હોય તો, $x = \underline{\hspace{2cm}}.$
18. A. 3
C. 4
Value of $\begin{vmatrix} \log_{12} 4 & -1 \\ \log_{12} 3 & 1 \end{vmatrix}$ is = $\underline{\hspace{2cm}}.$
19. A. 3
C. 4
નિશ્ચયિત $\begin{vmatrix} \log_{12} 4 & -1 \\ \log_{12} 3 & 1 \end{vmatrix}$ નો કિંમત = $\underline{\hspace{2cm}}.$
20. A. 3
C. 4
B. 7
D. 1
21. A. 2
C. $\frac{1}{2}$
Value of $\begin{vmatrix} \operatorname{cosec} \theta & \cot \theta \\ \cot \theta & \operatorname{cosec} \theta \end{vmatrix}$ is = $\underline{\hspace{2cm}}.$
22. A. 2
C. $\frac{1}{2}$
B. 0

13. C. 1 D. -1
 નિશ્ચાયક $\begin{vmatrix} \operatorname{cosec} \theta & \cot \theta \\ \cot \theta & \operatorname{cosec} \theta \end{vmatrix}$ ની કિંમત = _____.
14. A. 2 B. 0
 C. 1 D. -1
 Value of $\begin{vmatrix} 1 & 2 & 0 \\ 4 & 5 & 0 \\ 7 & 8 & 0 \end{vmatrix}$ is = _____.
15. A. 21 B. 0
 C. 13 D. -1
 નિશ્ચાયક $\begin{vmatrix} 1 & 2 & 0 \\ 4 & 5 & 0 \\ 7 & 8 & 0 \end{vmatrix}$ ની કિંમત = _____.
16. A. 1×3 B. 2×3
 C. 3×2 D. 1×2
 શ્રેણિક $\begin{bmatrix} 2 & 4 & -2 \\ 3 & 0 & -1 \end{bmatrix}$ ની કક્ષા = _____.
17. A. 1×3 B. 2×3
 C. 3×2 D. 1×2
 Order of $\begin{bmatrix} 2 & 4 & -2 \\ 3 & 0 & -1 \end{bmatrix}$ is = _____.
18. A. 1×4 B. 2×2
 C. 4×1 D. 4×4
 શ્રેણિક $\begin{bmatrix} 0 & 0 & 0 & 0 \end{bmatrix}$ ની કક્ષા = _____.
19. A. 1×4 B. 2×2
 C. 4×1 D. 4×4
 Order of $\begin{bmatrix} 0 & 0 & 0 & 0 \end{bmatrix}$ is = _____.
20. A. Zero B. Unit
 C. Row D. Column
 શ્રેણિક $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ is a _____ matrix.
21. A. શૂન્ય B. એકમ
 C. હાર D. સ્તંભ
 શ્રેણિક $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ એ _____ શ્રેણિક છે.
22. A. $-A$ B. A^T
 C. I D. $-A^T$
 If A is symmetric matrix then $A =$ _____.
23. A. $-A$ B. A^T
 C. I D. $-A^T$
 જો શ્રેણિક A સંમીત શ્રેણિક હોય તો, $A =$ _____.
24. A. $\begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$ B. $\begin{bmatrix} 2 & 3 \\ 0 & 3 \end{bmatrix}$
 C. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ D. $\begin{bmatrix} 2 & 3 \\ 0 & 2 \end{bmatrix}$
 If $A = \begin{bmatrix} 1 & 3 \\ 0 & -2 \end{bmatrix}$, and $B = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then, $A + B =$ _____.
25. A. $\begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$ B. $\begin{bmatrix} 2 & 3 \\ 0 & 3 \end{bmatrix}$
 જો $A = \begin{bmatrix} 1 & 3 \\ 0 & -2 \end{bmatrix}$, અને $B = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, હોય તો, $A + B =$ _____.

C. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

D. $\begin{bmatrix} 2 & 3 \\ 0 & 2 \end{bmatrix}$

If $A = \begin{bmatrix} 1 & 3 \\ 0 & -2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -2 \\ 0 & 2 \end{bmatrix}$ then, $2A - 3B =$ _____.

20. A. $\begin{bmatrix} 2 & 3 \\ 0 & 3 \end{bmatrix}$

B. $\begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$

C. $\begin{bmatrix} -1 & 12 \\ 0 & -10 \end{bmatrix}$

D. $\begin{bmatrix} -1 & 12 \\ 0 & 10 \end{bmatrix}$

જો $A = \begin{bmatrix} 1 & 3 \\ 0 & -2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -2 \\ 0 & 2 \end{bmatrix}$ હોય તો, $2A - 3B =$ _____.

૨૦. A. $\begin{bmatrix} 2 & 3 \\ 0 & 3 \end{bmatrix}$

B. $\begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$

C. $\begin{bmatrix} -1 & 12 \\ 0 & -10 \end{bmatrix}$

D. $\begin{bmatrix} -1 & 12 \\ 0 & 10 \end{bmatrix}$

If $A = \begin{bmatrix} 0 & -3 \\ 2 & -1 \\ 3 & -2 \end{bmatrix}$ then, $A^T =$ _____.

21. A. $\begin{bmatrix} 0 & -3 \\ 2 & -1 \\ 3 & -2 \end{bmatrix}$

B. $\begin{bmatrix} 0 & 3 \\ -2 & 1 \\ -3 & 2 \end{bmatrix}$

C. $\begin{bmatrix} 0 & 2 & 3 \\ -3 & -1 & -2 \end{bmatrix}$

D. $\begin{bmatrix} 0 & 2 & -3 \\ -3 & -1 & -2 \end{bmatrix}$

જો $A = \begin{bmatrix} 0 & -3 \\ 2 & -1 \\ 3 & -2 \end{bmatrix}$ હોય તો, $A^T =$ _____.

૨૧. A. $\begin{bmatrix} 0 & -3 \\ 2 & -1 \\ 3 & -2 \end{bmatrix}$

B. $\begin{bmatrix} 0 & 3 \\ -2 & 1 \\ -3 & 2 \end{bmatrix}$

C. $\begin{bmatrix} 0 & 2 & 3 \\ -3 & -1 & -2 \end{bmatrix}$

D. $\begin{bmatrix} 0 & 2 & -3 \\ -3 & -1 & -2 \end{bmatrix}$

If $A_{3 \times 2}$ and $B_{2 \times 2}$ then, numbers of elements in $A \times B$ is = _____.

22. A. 0

B. 5

C. 4

D. 6

જો $A_{3 \times 2}$ અને $B_{2 \times 2}$ હોય તો, $A \times B$ ની ઘટકોની સંખ્યા = _____.

૨૨. A. 0

B. 5

C. 4

D. 6

If $A_{3 \times 3}$ and $B_{3 \times 1}$ then, order of the matrix $A \times B$ is = _____.

23. A. 1×3

B. 2×3

C. 3×1

D. 1×2

જો $A_{3 \times 3}$ અને $B_{3 \times 1}$ હોય તો, શ્રેણિક $A \times B$ ની કક્ષા = _____.

૨૩. A. 1×3

B. 2×3

C. 3×1

D. 1×2

If A is singular matrix then, _____.

24. A. $A = A^T$

B. $|A| = 0$

C. $A = -A^T$

D. $A = I$

જો A અસામાન્ય શ્રેણિક હોય તો, _____.

૨૪. A. $A = A^T$

B. $|A| = 0$

C. $A = -A^T$

D. $A = I$

25. If $A = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$, then $A^4 =$ _____.

- A. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$ B. $\begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$
 C. $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$ D. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
 જો $A = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$, હોય તો, $A^4 = \underline{\hspace{2cm}}$.
 ૨૫. A. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$ B. $\begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$
 C. $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$ D. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
 26. If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ then, $\text{adj}(A) = \underline{\hspace{2cm}}$.
 A. $ad - bc$ B. $a - b$
 C. $bc - ad$ D. 0
 જો $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ હોય તો, $\text{adj}(A) = \underline{\hspace{2cm}}$.
 ૨૬. A. $ad - bc$ B. $a - b$
 C. $bc - ad$ D. 0
 If for square matrix A , $A^2 - A - I = 0$ then $A^{-1} = \underline{\hspace{2cm}}$.
 27. A. $A - I$ B. $A + I$
 C. $I - A$ D. I
 ચોરસ શ્રેણિક A માટે, જો $A^2 - A - I = 0$ હોય તો, $A^{-1} = \underline{\hspace{2cm}}$.
 ૨૭. A. $A - I$ B. $A + I$
 C. $I - A$ D. I
 Solution of the system of equation $2x + 3y = 5$ and $2x - 3y = -1$ is $= \underline{\hspace{2cm}}$.
 28. A. $(1, -2)$ B. $(1, 2)$
 C. $(1, -1)$ D. $(1, 1)$
 સમીકરણ સંહિત $2x + 3y = 5$ અને $2x - 3y = -1$ નો ઉકેલ $= \underline{\hspace{2cm}}$.
 ૨૮. A. $(1, -2)$ B. $(1, 2)$
 C. $(1, -1)$ D. $(1, 1)$
 $\frac{2\pi}{3} = \underline{\hspace{2cm}}$ degree.
 29. A. 210 B. 120
 C. 360 D. 240
 $\frac{2\pi}{3} = \underline{\hspace{2cm}}$ અંશ.
 ૨૯. A. 210 B. 120
 C. 360 D. 240
 $45^\circ = \underline{\hspace{2cm}}$ radian.
 30. A. $\frac{\pi}{3}$ B. $\frac{\pi}{2}$
 C. $\frac{\pi}{6}$ D. $\frac{\pi}{4}$
 $45^\circ = \underline{\hspace{2cm}}$ રેડિયન.
 ૩૦. A. $\frac{\pi}{3}$ B. $\frac{\pi}{2}$
 C. $\frac{\pi}{6}$ D. $\frac{\pi}{4}$
 $\cos\left(\frac{\pi}{2}\right) \cdot \sin\left(\frac{\pi}{3}\right) \cdot \cos\left(\frac{\pi}{4}\right) = \underline{\hspace{2cm}}$.
 31. A. 2 B. 0
 C. 1 D. -1
 $\cos\left(\frac{\pi}{2}\right) \cdot \sin\left(\frac{\pi}{3}\right) \cdot \cos\left(\frac{\pi}{4}\right) = \underline{\hspace{2cm}}$.
 ૩૧. A. 2 B. 0
 C. 1 D. -1

- $\cos\left(\frac{3\pi}{2} - \theta\right) = \underline{\hspace{2cm}}.$
32. A. $\cos \theta$ B. $-\cos \theta$
C. $\sin \theta$ D. $-\sin \theta$
- $\cos\left(\frac{3\pi}{2} - \theta\right) = \underline{\hspace{2cm}}.$
32. A. $\cos \theta$ B. $-\cos \theta$
C. $\sin \theta$ D. $-\sin \theta$
- If $\pi < \theta < \frac{3\pi}{2}$ then, the trigonometric ratio which is positive is $= \underline{\hspace{2cm}}.$
33. A. $\cos \theta$ B. $\tan \theta$
C. $\sin \theta$ D. All
- જો $\pi < \theta < \frac{3\pi}{2}$ હોય તો, ત્રિકોણમિતિય ગુણોત્તર $\underline{\hspace{2cm}}$ ધન છે.
33. A. $\cos \theta$ B. $\tan \theta$
C. $\sin \theta$ D. All
- $\sin^2 21^\circ + \sin^2 69^\circ = \underline{\hspace{2cm}}.$
34. A. 2 B. 0
C. 1 D. -1
- $\sin^2 21^\circ + \sin^2 69^\circ = \underline{\hspace{2cm}}.$
34. A. 2 B. 0
C. -1 D. 1
- $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right) = \underline{\hspace{2cm}}.$
35. A. $-\frac{\pi}{4}$ B. $\frac{\pi}{2}$
C. $\frac{\pi}{6}$ D. $\frac{\pi}{4}$
- $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right) = \underline{\hspace{2cm}}.$
35. A. $-\frac{\pi}{4}$ B. $\frac{\pi}{2}$
C. $\frac{\pi}{6}$ D. $\frac{\pi}{4}$
- $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right) = \underline{\hspace{2cm}}.$
35. A. $-\frac{\pi}{4}$ B. $\frac{\pi}{2}$
C. $\frac{\pi}{6}$ D. $\frac{\pi}{4}$
- If $\cos \theta = \frac{4}{5}$ then, $\sin \theta = \underline{\hspace{2cm}}.$
36. A. $\frac{4}{5}$ B. $\frac{3}{5}$
C. $\frac{5}{4}$ D. $\frac{5}{3}$
- જો $\cos \theta = \frac{4}{5}$ હોય તો, $\sin \theta = \underline{\hspace{2cm}}.$
36. A. $\frac{4}{5}$ B. $\frac{3}{5}$
C. $\frac{5}{4}$ D. $\frac{5}{3}$
- $\sin \alpha \cos \beta + \cos \alpha \sin \beta = \underline{\hspace{2cm}}.$
37. A. $\sin(\alpha - \beta)$ B. $\cos(\alpha - \beta)$
C. $\cos(\alpha + \beta)$ D. $\sin(\alpha + \beta)$
- $\sin \alpha \cos \beta + \cos \alpha \sin \beta = \underline{\hspace{2cm}}.$
37. A. $\sin(\alpha - \beta)$ B. $\cos(\alpha - \beta)$
C. $\cos(\alpha + \beta)$ D. $\sin(\alpha + \beta)$
- $1 - 2\sin^2 \theta = \underline{\hspace{2cm}}.$
38. A. $\sin 2\theta$ B. $\cos 2\theta$
C. $\tan 2\theta$ D. $2\sin \theta$
- $1 - 2\sin^2 \theta = \underline{\hspace{2cm}}.$
38. A. $\sin 2\theta$ B. $\cos 2\theta$
C. $\tan 2\theta$ D. $2\sin \theta$
- If $A + B = \frac{\pi}{4}$ then, $\tan(A + B) = \underline{\hspace{2cm}}.$
39. A. -1 B. 0
C. 1 D. ∞
- જો $A + B = \frac{\pi}{4}$ હોય તો, $\tan(A + B) = \underline{\hspace{2cm}}.$
39. A. -1 B. 0
C. 1 D. ∞
- $\tan(A + B) = \underline{\hspace{2cm}}.$
39. A. -1 B. 0
C. 1 D. ∞

- $\tan(A - B) = \underline{\hspace{2cm}}$.
40. A. $\frac{\tan A - \tan B}{1 - \tan A \tan B}$ B. $\frac{\tan A - \tan B}{1 + \tan A \tan B}$
 C. $\frac{\tan A + \tan B}{1 + \tan A \tan B}$ D. $\frac{\tan A + \tan B}{1 - \tan A \tan B}$
 $\tan(A - B) = \underline{\hspace{2cm}}$.
୪୦. A. $\frac{\tan A - \tan B}{1 - \tan A \tan B}$ B. $\frac{\tan A - \tan B}{1 + \tan A \tan B}$
 C. $\frac{\tan A + \tan B}{1 + \tan A \tan B}$ D. $\frac{\tan A + \tan B}{1 - \tan A \tan B}$
 $\tan^{-1}\left(\frac{2}{11}\right) + \tan^{-1}\left(\frac{7}{24}\right) = \underline{\hspace{2cm}}$.
41. A. $\tan^{-1}\left(\frac{7}{24}\right)$ B. $\tan^{-1}\left(\frac{11}{24}\right)$
 C. $\tan^{-1}\left(\frac{1}{2}\right)$ D. $\tan^{-1}\left(\frac{24}{11}\right)$
 $\tan^{-1}\left(\frac{2}{11}\right) + \tan^{-1}\left(\frac{7}{24}\right) = \underline{\hspace{2cm}}$.
୪୧. A. $\tan^{-1}\left(\frac{7}{24}\right)$ B. $\tan^{-1}\left(\frac{11}{24}\right)$
 C. $\tan^{-1}\left(\frac{1}{2}\right)$ D. $\tan^{-1}\left(\frac{24}{11}\right)$
 The principal period of $\sin 2x = \underline{\hspace{2cm}}$.
42. A. π B. 3π
 C. 2π D. 2
 $\sin 2x$ ର ମୁଖ୍ୟ ଆବର୍ତ୍ତମାନ = $\underline{\hspace{2cm}}$.
୪୨. A. π B. 3π
 C. 2π D. 2
 $2\sin\left(\frac{5\pi}{12}\right)\cos\left(\frac{7\pi}{12}\right) = \underline{\hspace{2cm}}$.
43. A. 1 B. 0
 C. $\frac{1}{2}$ D. $\frac{-1}{2}$
 $2\sin\left(\frac{5\pi}{12}\right)\cos\left(\frac{7\pi}{12}\right) = \underline{\hspace{2cm}}$.
୪୩. A. 1 B. 0
 C. $\frac{1}{2}$ D. $\frac{-1}{2}$
 $\cos\left(\pi + \cos^{-1}\frac{3}{5}\right) = \underline{\hspace{2cm}}$.
44. A. $\frac{3}{5}$ B. $\frac{-3}{5}$
 C. $\frac{1}{2}$ D. $\frac{-1}{2}$
 $\cos\left(\pi + \cos^{-1}\frac{3}{5}\right) = \underline{\hspace{2cm}}$.
୪୪. A. $\frac{3}{5}$ B. $\frac{-3}{5}$
 C. $\frac{1}{2}$ D. $\frac{-1}{2}$
 The principal period of $\tan x = \underline{\hspace{2cm}}$.
45. A. π B. 3π
 C. 2π D. 2
 $\tan x$ ର ମୁଖ୍ୟ ଆବର୍ତ୍ତମାନ = $\underline{\hspace{2cm}}$.
୪୫. A. π B. 3π
 C. 2π D. 2
 $\cot(225^\circ) = \underline{\hspace{2cm}}$.
46. A. 1 B. 0
 C. -1 D. $\frac{-1}{2}$
 $\cot(225^\circ) = \underline{\hspace{2cm}}$.
୪୬. A. 1 B. 0
 C. -1 D. $\frac{-1}{2}$
 $|2i - 4j + 4k| = \underline{\hspace{2cm}}$.
47. A. 1 B. 2
 C. 6 D. 10
 $|2i - 4j + 4k| = \underline{\hspace{2cm}}$.
୪୭. A. 1 B. 2

C. 6 D. 10

If $\bar{x} = (3, 2, 1)$ and $y = (-1, 3, 2)$ then $\bar{x} - \bar{y} =$ _____.

48. A. (2, 5, 3) B. (2, -1, -1)
C. (4, 5, 3) D. (4, -1, 3)

જો $\bar{x} = (3, 2, 1)$ અને $y = (-1, 3, 2)$ હોય તો, $\bar{x} - \bar{y} =$ _____.

૪૮. A. (2, 5, 3) B. (2, -1, -1)
C. (4, 5, 3) D. (4, -1, 3)

Unit vector in the direction of $\bar{a} = (0, -1, 0)$ is = _____.

49. A. (0, -1, 0) B. (0, 1, 0)
C. (1, 1, 1) D. (1, 0, 0)

સદિશ $\bar{a} = (0, -1, 0)$ ની દિશામાં એકમ સદિશ = _____.

૪૯. A. (0, -1, 0) B. (0, 1, 0)
C. (1, 1, 1) D. (1, 0, 0)

If $\bar{x} = (1, 0, 0)$ and $\bar{y} = (0, 0, 1)$ then $\bar{x} \cdot \bar{y} =$ _____.

50. A. 1 B. 2
C. 0 D. -1

જો $\bar{x} = (1, 0, 0)$ અને $\bar{y} = (0, 0, 1)$ હોય તો, $\bar{x} \cdot \bar{y} =$ _____.

૫૦. A. 1 B. 2
C. 0 D. -1

$i \times j =$ _____.

51. A. $i \cdot j$ B. $j \times i$
C. k D. $-k$

$i \times j =$ _____.

૫૧. A. $i \cdot j$ B. $j \times i$
C. k D. $-k$

If $\bar{x} = \bar{i} + 3\bar{j} - 2\bar{k}$ and $\bar{y} = 4\bar{i} - 2\bar{j} - \bar{k}$ then angle between $\bar{x}$ and $\bar{y}$ is = _____.

52. A. π B. 0
C. $\frac{\pi}{2}$ D. $\frac{\pi}{3}$

જો $\bar{x} = \bar{i} + 3\bar{j} - 2\bar{k}$ અને $\bar{y} = 4\bar{i} - 2\bar{j} - \bar{k}$ હોય તો, $\bar{x}$ અને $\bar{y}$ વચ્ચેનો ખૂણો = _____.

૫૨. A. π B. 0
C. $\frac{\pi}{2}$ D. $\frac{\pi}{3}$

If vector $\bar{x} = 2\bar{i} + 3\bar{j} - \bar{k}$ and $\bar{y} = a\bar{i} - \bar{j} + 3\bar{k}$ are perpendicular to each other then $a =$ _____.

53. A. 3 B. 2
C. 0 D. -1

જો સદિશ $\bar{x} = 2\bar{i} + 3\bar{j} - \bar{k}$ અને સદિશ $\bar{y} = a\bar{i} - \bar{j} + 3\bar{k}$ પરસ્પર લંબ હોય તો, $a =$ _____.

૫૩. A. 3 B. 2
C. 0 D. -1

If $\bar{x} \times \bar{y} = \bar{i} - 2\bar{j} - 2\bar{k}$ then $\bar{y} \times \bar{x} =$ _____.

54. A. $\bar{i} - 2\bar{j} - 2\bar{k}$ B. $-\bar{i} + 2\bar{j} - 2\bar{k}$
C. $\bar{i} + 2\bar{j} + 2\bar{k}$ D. $-\bar{i} + 2\bar{j} + 2\bar{k}$

જો $\bar{x} \times \bar{y} = \bar{i} - 2\bar{j} - 2\bar{k}$ હોય તો, $\bar{y} \times \bar{x} =$ _____.

૫૪. A. $\bar{i} - 2\bar{j} - 2\bar{k}$ B. $-\bar{i} + 2\bar{j} - 2\bar{k}$
C. $\bar{i} + 2\bar{j} + 2\bar{k}$ D. $-\bar{i} + 2\bar{j} + 2\bar{k}$

55. If the vector $\bar{x} = \bar{i} + \bar{j} - 2\bar{k}$ and $\bar{y} = \bar{i} - 2\bar{j} + \bar{k}$ represents two adjacent sides of

parallelogram, then the area of the parallelogram = ____.

- A. 0 B. $\sqrt{50}$
C. 7 D. $\sqrt{27}$

જો સદિશો $\vec{x} = \vec{i} + \vec{j} - 2\vec{k}$ અને $\vec{y} = \vec{i} - 2\vec{j} + \vec{k}$ સમાંતરબાજુ ચતુષ્કોણની પાસેપાસેની બાજુઓ દર્શાવે તો, સમાંતરબાજુ ચતુષ્કોણનું ક્ષેત્રફળ = ____.

૫૫. A. 0 B. $\sqrt{50}$
C. 7 D. $\sqrt{27}$

If $\vec{x} = (1, 0, 0)$ and $\vec{y} = (0, 0, 1)$ then vector perpendicular to $\vec{x}$ and $\vec{y}$ both is = ____.

56. A. $(0, -1, 0)$ B. $(0, 1, 0)$
C. $(1, 0, 1)$ D. $(1, 0, 0)$

જો $\vec{x} = (1, 0, 0)$ અને $\vec{y} = (0, 0, 1)$ હોય તો, $\vec{x}$ અને $\vec{y}$ ને પરસ્પર લંબ સદિશ = ____.

૫૬. A. $(0, -1, 0)$ B. $(0, 1, 0)$
C. $(1, 0, 1)$ D. $(1, 0, 0)$

If $\vec{x} = (2, 1, 1)$ and $\vec{y} = (1, -1, 2)$ then, Direction cosines of $\vec{x} - 2\vec{y}$ = ____.

57. A. $\frac{1}{\sqrt{18}}(0, -1, -3)$ B. $\frac{1}{\sqrt{18}}(0, 3, -3)$
C. $\frac{1}{\sqrt{18}}(0, -3, 3)$ D. $\frac{1}{\sqrt{27}}(3, -3, 3)$

જો $\vec{x} = (2, 1, 1)$ અને $\vec{y} = (1, -1, 2)$ હોય તો, $\vec{x} - 2\vec{y}$ ની દિશા-કોસાઈન = ____.

૫૭. A. $\frac{1}{\sqrt{18}}(0, -1, -3)$ B. $\frac{1}{\sqrt{18}}(0, 3, -3)$
C. $\frac{1}{\sqrt{18}}(0, -3, 3)$ D. $\frac{1}{\sqrt{27}}(3, -3, 3)$

Force $\vec{F} = (5, 1, 0)$ acts on a particle and the particle moves from $(2, 1, -3)$ to $(4, -3, 7)$ then, total work done = ____.

58. A. 3 B. 24
C. 0 D. 6

બળ $\vec{F} = (5, 1, 0)$ ની અસર હેઠળ કણ $(2, 1, -3)$ થી $(4, -3, 7)$ સુધી સ્થાનાંતર કરે છે તો, કુલ થયેલ કાર્ય = ____.

૫૮. A. 3 B. 24
C. 0 D. 6

A particle moves from the point $2\vec{i} - \vec{j} - 3\vec{k}$ to the point $4\vec{i} - 3\vec{j} + 7\vec{k}$ under the effect of forces $3\vec{i} + 2\vec{j} + 3\vec{k}$ and $2\vec{i} + \vec{j} - 3\vec{k}$ then, total work done = ____.

59. A. 4 B. 2
C. 14 D. 6

એક કણ પર $3\vec{i} + 2\vec{j} + 3\vec{k}$ અને $2\vec{i} + \vec{j} - 3\vec{k}$ બળો લાગતા, તે બિંદુ $2\vec{i} - \vec{j} - 3\vec{k}$ થી બિંદુ $4\vec{i} - 3\vec{j} + 7\vec{k}$ તરફ સ્થાનાંતર કરે તો, કુલ થયેલ કાર્ય = ____.

૫૯. A. 4 B. 2
C. 14 D. 6

The area of the equilateral triangle, whose sides are a cm is = ____.

60. A. $4a^2$ B. a^2
C. $\frac{4a^2}{\sqrt{3}}$ D. $\frac{\sqrt{3}a^2}{4}$

જેની બાજુનું માપ a cm હોય, તેવા સમબાજુ ત્રિકોણનું ક્ષેત્રફળ = ____.

૬૦. A. $4a^2$ B. a^2
C. $\frac{4a^2}{\sqrt{3}}$ D. $\frac{\sqrt{3}a^2}{4}$

The area of the circle with radius 7 cm is = ____ cm^2 .

61. A. 14 B. 154
C. 49 D. 164

7 cm ત્રિજયાવાળા વર્તુળનું ક્ષેત્રફળ = ____ cm^2 .

૬૧. A. 14 B. 154
C. 49 D. 164

Curved surface area of the cylinder with radius 1 cm and height 7 cm is = ____ cm^2 .

62. A. 14 B. 22
C. 44 D. 154

1 cm ત્રિજ્યા અને 7 cm ઊંચાઈવાળા નળાકારની વક્રસપાટીનું ક્ષેત્રફળ = ____ cm^2 .

૬૨. A. 14 B. 22
C. 44 D. 154

Surface area of the cuboids is = ____.

63. A. $l + b + h$ B. $lh + bl + hb$
C. $2(lh + bl + hb)$ D. lbh

લંબઘનનું પૃષ્ઠફળ = ____.

૬૩. A. $l + b + h$ B. $lh + bl + hb$
C. $2(lh + bl + hb)$ D. lbh

If perimeter of the square is 12 cm then the area of the square is = ____ cm^2 .

64. A. 3 B. 12
C. 9 D. 24

જો ચોરસની પરીમીત્રી 12 cm હોય તો, ચોરસનું ક્ષેત્રફળ = ____ cm^2 .

૬૪. A. 3 B. 12
C. 9 D. 24

Volume of the cone with radius 3 cm and height 7 cm is = ____ cm^3 .

65. A. 66 B. 22
C. 44 D. 154

3 cm ત્રિજ્યા અને 7 cm ઊંચાઈવાળા શંકુનું ઘનફળ = ____ cm^3 .

૬૫. A. 66 B. 22
C. 44 D. 154

Volume of the sphere whose radius is r = ____.

66. A. πr^3 B. $\frac{2}{3}\pi r^3$
C. $\frac{4}{3}\pi r^3$ D. $\frac{2}{3}\pi r^2$

r ત્રિજ્યાવાળા ગોલકનું ઘનફળ = ____.

૬૬. A. πr^3 B. $\frac{2}{3}\pi r^3$
C. $\frac{4}{3}\pi r^3$ D. $\frac{2}{3}\pi r^2$

Curved surface area of the hemisphere is = ____.

67. A. $2\pi r^2$ B. $3\pi r^2$
C. $4\pi r^3$ D. $4\pi r^2$

અર્ધગોલકની વક્રસપાટીનું ક્ષેત્રફળ = ____.

૬૭. A. $2\pi r^2$ B. $3\pi r^2$
C. $4\pi r^3$ D. $4\pi r^2$

$1 m^3$ = ____ litre.

68. A. 1 B. 1000
C. 100 D. 10

$1 m^3$ = ____ લિટર.

૬૮. A. 1 B. 1000
C. 100 D. 10

Area of the triangle whose sides are 3 cm, 4 cm and 5 cm is = ____ cm^2 .

69. A. 1 B. 12
C. 6 D. 16

જેની બાજુઓ ના માપ 3 cm, 4 cm અને 5 cm હોય તેવા ત્રિકોણનું ક્ષેત્રફળ = ____ cm^2 .

૬૯. A. 1 B. 12
C. 6 D. 16

70. A tank of length 1m, breadth 2m and height 5m can store _____ litre water.

- A. 10 B. 11

30. C. 8 D. 16
1m લંબાઈ, 2m પહોળી અને 5m ઊંચી ટાંકીમાં _____ લિટર પાણી સમાય.
A. 10 B. 11
C. 8 D. 16
