

1. Choose the correct answer for each from the given options:
i) $\quad \sum n=$ :

$$
* \quad \begin{array}{|ccc}
\frac{n n+1}{2} & * \quad \frac{n+1}{2} & * \quad \frac{n^{2} n+1^{2}}{2}
\end{array} * \frac{n n+2}{2}
$$

ii) If $\cos \theta$ is positive and $\sin \theta$ is negative, then $\rho \theta$ lies in this quadrant:

* $1^{\text {st }} \quad * \quad 2^{\text {nd }} \quad * \quad 3^{\text {rd }} \quad * \quad 4^{\text {th }}$
iii) The matrix $\left[\begin{array}{ccc}2 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & 2\end{array}\right]$ is a:
* Scalar matrix $\quad * \quad$ Null matrix $\quad * \quad$ Diagonal matrix $\quad * \quad$ Row matrix
iv) The multiplicative inverse of $c, d$ is:

$$
\begin{array}{llll}
* & \left(\frac{c}{c^{2}+d^{2}}, \frac{-d}{c^{2}+d^{2}}\right) & & \left(\frac{-c}{c^{2}+d^{2}}, \frac{d}{c^{2}+d^{2}}\right) \\
* & \left(\frac{c}{c^{2}-d^{2}}, \frac{-d}{c^{2}-d^{2}}\right) & * & \left(\frac{-c}{c^{2}-d^{2}}, \frac{d}{c^{2}-d^{2}}\right)
\end{array}
$$

v) The equation having the roots $\omega$ and $\omega^{2}$ is:

$$
* \quad x^{2}+x+1=0 \quad * \quad x^{2}-x+1=0 \quad * \quad x^{2}+x-1=0 \quad * \quad x^{2}-x-1=0
$$

vi) $\binom{7}{2,2}$ is equal to:

* $315 \quad$ * $630 \quad$ * 1260 * 2520
vii) The nth term of the sequence $2,4,6,8, \ldots \ldots \ldots$. is:
* $\quad 2^{n}$
$2 n$
$\frac{1}{2^{n}}$
* $\frac{1}{2 n}$
viii) If $z=x+i y$, then the real part of $z+\bar{z}$ is:
* $2 x \quad$ * $2 i x \quad$ * $2 y \quad$ 2 $\quad 2 i y$
ix) The period of $\tan \theta$ is:

$$
\begin{array}{lllllll}
* & \frac{3 \pi}{2} & * & \frac{\pi}{2} & * & \pi & *
\end{array}
$$

x) If $\left[\begin{array}{cc}3 & 5 \\ 9 & -\lambda\end{array}\right]$ is a singular matrix, then $\lambda$ will be:

| $*$ | 15 | $*$ | 27 | $*$ | -15 | $*$ | -27 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |



Write this Code No. in the Answerscript.
xi) If Discriminant of a quadratic equation $a x^{2}+b x+c=0, a \neq 0$, is zero, then the roots of the equation are:

* Irrational and equal $\quad * \quad$ Real and equal
* Complex and unequal * Rational and unequal
xii) If $A=0,1, B=2,1$ and $C=2,3$, then $A \times B \cap C=$ :
* $\phi \quad * \quad 1,3,0,1 \quad * \quad 0,2,1,2$ * $2,3,1,1$
xiii) The probability of getting the tail in a single toss of a coin is:
* $\frac{1}{3} \quad * \quad$| $\frac{1}{2}$ |
| :---: |
* $\frac{2}{3}$
2
xiv) Simplified form of $\frac{n+1!}{n-1!}$ is:
* $\frac{n-1}{n+1} \quad * \quad * \quad n-1 \quad n n+1 \quad \frac{n+1}{n-1}$
xv) The middle term in the expansion of $\left(x-\frac{2 y}{3}\right)^{10}$ is:
xvi) $\quad 1-\omega-\omega^{2}=$ :
$\begin{array}{llllllll}* & -1 & * & 2 & * & 4 & & 16\end{array}$
xvii) If the measurements of the sides of a triangle ABC are 3 units 4 units and 5 units, then $2 \mathrm{~s}=$ :
* 6 unit $\quad * \quad 8$ units
12 units
16 units
xviii) If ' $A$ ' is a non-singular matrix, then $A^{-1}=$ :
* $\frac{\operatorname{Adj} A}{A} \quad * \quad \frac{\operatorname{Adj} A}{|A|} \quad * \quad \frac{|\operatorname{Adj} A|}{|A|} \quad * \quad \frac{|A|}{\operatorname{Adj} A}$
xix) The sum of the roots of $x^{2}-15 x+6=0$ is:
* $-15 \quad * \quad 15 \quad 3 \quad 3 \quad \frac{15}{2}$
xx) $\frac{1}{\sqrt{1+\cot ^{2} \theta}}$ :
* $\operatorname{cosec} \theta \quad * \quad \sin \theta \quad \operatorname{cosec}^{2} \theta \quad * \quad \sin ^{2} \theta$

