

BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2016 (ANNUAL)

Date: 19.05.2016

9:30 a.m. to 9:50 a.m.

MATHEMATICS PAPER – I

(Science Pre-Engineering & Science General Groups)

Max. Marks: 20

Time: 20 minutes

The correct answers are
highlighted in red colour.

SECTION 'A'

(MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.)

Code No: MT-17

Write this Code No. in the Answerscript.

NOTE:

- This section consists of 20 part questions and all are to be answered. Each question carries one mark.
- Do not copy the part questions in your answerbook. Write only the answer in full against the proper number of the question and its part.
- The code of your question paper is to be written in bold letters in the beginning of the answerscript.
- The use of calculator is allowed. All notations are used in their usual meanings.

1. Choose the correct answer for each from the given options:

- The equation having the roots ω and ω^2 is:
 * $x^2 + x + 1 = 0$ * $x^2 - x + 1 = 0$ * $x^2 + x - 1 = 0$ * $x^2 - x - 1 = 0$
- $\begin{pmatrix} 7 \\ 2, 2 \end{pmatrix}$ is equal to:
 * 315 * 630 * **1260** * 2520
- The nth term of the sequence 2, 4, 6, 8, is:
 * 2^n * **$2n$** * $\frac{1}{2^n}$ * $\frac{1}{2n}$
- If $z = x + iy$, then the real part of $z + \bar{z}$ is:
 * **$2x$** * $2ix$ * $2y$ * $2iy$
- The period of $\tan \theta$ is:
 * $\frac{3\pi}{2}$ * $\frac{\pi}{2}$ * **π** * 2π
- If $\begin{bmatrix} 3 & 5 \\ 9 & -\lambda \end{bmatrix}$ is a singular matrix, then λ will be:
 * **15** * 27 * -15 * -27
- If Discriminant of a quadratic equation $ax^2 + bx + c = 0$, $a \neq 0$, is zero, then the roots of the equation are:
 * Irrational and equal * **Real and equal**
 * Complex and unequal * Rational and unequal
- If $A = \{0, 1\}$, $B = \{2, 1\}$ and $C = \{2, 3\}$, then $A \times (B \cap C) =$:
 * ϕ * $\{(1, 3), (0, 1)\}$ * **$\{(0, 2), (1, 2)\}$** * $\{(2, 3), (1, 1)\}$
- The probability of getting the tail in a single toss of a coin is:
 * $\frac{1}{3}$ * **$\frac{1}{2}$** * $\frac{2}{3}$ * 2
- Simplified form of $\frac{(n+1)!}{(n-1)!}$ is:
 * $\frac{n-1}{n+1}$ * $n(n-1)$ * **$n(n+1)$** * $\frac{n+1}{n-1}$

Continued on the next page.....

Code No:MT-17

Write this Code No. in the Answerscript.

- xi) The middle term in the expansion of $\left(x-\frac{2y}{3}\right)^{10}$ is:
* 3^{rd} * 4^{th} * 5^{th} *

6th
- xii) $\left(1-\omega-\omega^2\right)^4=:$
* -1 * 2 * 4 *

16
- xiii) If the measurements of the sides of a triangle ABC are 3 units 4 units and 5 units, then $2s=:$
* 6 unit * 8 units *

12 units

 * 16 units
- xiv) If ‘A’ is a non-singular matrix, then $A^{-1}=:$
* $\frac{Adj\ A}{A}$ *

$\frac{Adj\ A}{|A|}$

 * $\frac{|Adj\ A|}{|A|}$ * $\frac{|A|}{Adj\ A}$
- xv) The sum of the roots of $x^2-15x+6=0$ is:
* -15 *

15

 * 3 * $\frac{15}{2}$
- xvi) $\frac{1}{\sqrt{1+\cot^2\theta}}:$
* $\operatorname{cosec}\theta$ *

$\sin\theta$

 * $\operatorname{cosec}^2\theta$ * $\sin^2\theta$
- xvii) $\sum n=:$
*

$\frac{n(n+1)}{2}$

 * $\frac{n+1}{2}$ * $\frac{n^2(n+1)^2}{2}$ * $\frac{n(n+2)}{2}$
- xviii) If $\cos\theta$ is positive and $\sin\theta$ is negative, then $\rho(\theta)$ lies in this quadrant:
* 1st * 2nd * 3rd *

4th
- xix) The matrix $\begin{bmatrix}2 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & 2\end{bmatrix}$ is a:
* Scalar matrix * Null matrix *

Diagonal matrix

 * Row matrix
- xx) The multiplicative inverse of (c,d) is:
*

$\left(\frac{c}{c^2+d^2},\frac{-d}{c^2+d^2}\right)$

 * $\left(\frac{-c}{c^2+d^2},\frac{d}{c^2+d^2}\right)$
* $\left(\frac{c}{c^2-d^2},\frac{-d}{c^2-d^2}\right)$ * $\left(\frac{-c}{c^2-d^2},\frac{d}{c^2-d^2}\right)$