For Failure, Improvement of Grade & Additional Subject Candidates Only

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-09

Write this Code No. in the Answerscript.

NOTE:

i) This section consists of 20 part questions and all are to be answered. Each question carries one mark.
ii) 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.
iii) The code of your question paper is to be written in bold letters in the beginning of the answerscript.
iv) 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:

i) 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

ii) If 'A' is a non-singular matrix, then A^{-1} =:

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

iii) The sum of the roots of $x^2 - 15x + 6 = 0$ is:

* -15 * 15 * 3 * $\frac{15}{2}$

iv) $\frac{1}{\sqrt{1+\cot^2\theta}}$:

* $\text{cosec}\,\theta$ * $\sin\theta$ * $\text{cosec}^2\theta$ * $\sin^2\theta$

v) $\sum n =$:

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

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

* 1st * 2nd * 3rd * **4th**

vii) 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

viii) The multiplicative inverse of c, d is:

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

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

ix) The equation having the roots ω and ω^2 is:

* $x^2 + x + 1 = 0$ * $x^2 - x + 1 = 0$ * $x^2 + x - 1 = 0$ * $x^2 - x - 1 = 0$

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

* 315 * 630 * **1260** * 2520

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xi) The nth term of the sequence 2,4,6,8,…….. is:

* 2^n * $\boxed{2n}$ * $\frac{1}{2^n}$ * $\frac{1}{2n}$

xii) If $z = x + iy$, then the real part of $z + \bar{z}$ is:

* $\boxed{2x}$ * $2ix$ * $2y$ * $2iy$

xiii) The period of $\tan\theta$ is:

* $\frac{3\pi}{2}$ * $\frac{\pi}{2}$ * $\boxed{\pi}$ * 2π

xiv) If $\begin{bmatrix} 3 & 5 \\ 9 & -\lambda \end{bmatrix}$ is a singular matrix, then λ will be:

* $\boxed{15}$ * 27 * –15 * –27

xv) 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

xvi) If $A = \{0,1\}$, $B = \{2,1\}$ and $C = \{2,3\}$, then $A \times (B \cap C) =$:

* ϕ * $\{1,3\}, \{0,1\}$ * $\boxed{\{0,2\}, \{1,2\}}$ * $\{2,3\}, \{1,1\}$

xvii) The probability of getting the tail in a single toss of a coin is:

* $\frac{1}{3}$ * $\boxed{\frac{1}{2}}$ * $\frac{2}{3}$ * 2

xviii) Simplified form of $\frac{(n+1)!}{(n-1)!}$ is:

* $\frac{n-1}{n+1}$ * $n(n-1)$ * $\boxed{n(n+1)}$ * $\frac{n+1}{n-1}$

xix) The middle term in the expansion of $\left(x - \frac{2y}{3}\right)^{10}$ is:

* 3^{rd} * 4^{th} * 5^{th} * $\boxed{6^{th}}$

xx) $(1 - \omega - \omega^2)^4 =$:

* –1 * 2 * 4 * $\boxed{16}$

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