BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2016 (ANNUAL)

Date: 07.05.2016
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-01

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) π is a/an:
* Natural number * Integer * Rational number * **Irrational number**

ii) $(a,b)\square(c,d) =$
* $(ac+bd, ad+bc)$ * $(ac-bd, ad-bc)$
* $(ac-bd, ad+bc)$ * $(ac+bd, ad-bc)$

iii) If $z = 3+4i$ then $z+\bar{z} =$
* $8i$ * 6 * 0 * -1

iv) If $z = (a,b)$ is a complex number then $\bar{z} =$:
* $(a,-b)$ * $(-a,b)$ * (a,b) * $(-a,-b)$

v) If i is imaginary number then $i^7 =$:
* $-i$ * i * 1 * -1

vi) If ω is a complex cube roots of unity then ω^{17} =:
* 0 * 1 * ω * ω^2

vii) If the roots of the equation $px^2+qx+r=0$ are imaginary then q^2-4pr is:
* zero * **less than zero** * greater than zero * perfect square

viii) $\begin{bmatrix} 2 & 0 \\ 0 & -2 \end{bmatrix}$ is a/an:
* Rectangular Matrix * Scalar Matrix * **Diagonal Matrix** * Unit Matrix

ix) If a die and a coin are tossed simultaneously then the probability of getting two heads is:
* $\frac{1}{3}$ * $\frac{1}{2}$ * **0** * 1

x) The number of ways in which 7 girls can be seated around a round table is:
* 6 * **6!** * 7 * 7!

xi) If $4^{x+2} = 64$ then x is equal to:
* 2 * 0 * **1** * 3

xii) If the order of two matrices A and B is $m\times n$ and $n\times p$ respectively, then the order of matrix AB is:
* $p\times m$ * $n\times p$ * $p\times n$ * $m\times p$

Continued on the next page……

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Write this Code No. in the Answerscript.

xiii) If $\begin{bmatrix} 3 & a \\ 2 & 8 \end{bmatrix}$ is a singular matrix, then the value of 'a' is:

* 10 * **12** * –12 * $\frac{1}{12}$

xiv) The middle term in the expansion of $\left(x^2+\frac{1}{x}\right)^{2n}$ is:

* $(2n+1)^{th}$ term * **$(n+1)^{th}$ term** * $(2n+2)^{th}$ term * $(n+2)^{th}$ term

xv) $\frac{2\pi}{3}$ radians in degrees is equal to:

* 60^o * 90^o * 120^o * 150^o

xvi) If the sides of a triangle are 5, 6 and 7 units, then 2s is equal to:

* 6 units * 9 units * **18 units** * 27 units

xvii) $\tan^{-1}(\tan(-1)) =:$

* –1 * $\frac{\sqrt{3}}{2}$ * 1 * $\frac{1}{2}$

xviii) $\sum n^2 =:$

* $\frac{n(n-1)}{2}$ * $\frac{n(n+1)^2}{4}$ * $\frac{n(n+1)}{2}$ * $\frac{n(n+1)(2n+1)}{6}$

xix) $\sin\left(\frac{\pi}{2}-\theta\right) =:$

* $\cos\theta$ * $-\sin\theta$ * $\sin\theta$ * $-\cos\theta$

xx) $\begin{bmatrix} 1 & 2 & 5 \end{bmatrix}$ is:

* Diagonal matrix * Scalar matrix * Column matrix * **Row matrix**

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