GRADE X
TIME: 40min. PERIODIC TEST – II MATHEMATICS
M.M:10

Instructions: Read the question paper carefully. Write neatly and legibly.
Do not over write. Pay special attention to spelling.
Read the answers before submitting the answer sheet.

Section A 4

I. Choose the correct answers to the questions from the given options:

(i) Find the compounded ratio of 2:3, 4:5 ans 6:7

a) 15:21 b) 16:35 c) 24:15 d) 18:28

(ii) Find the sub-triplicate ratio of 216:125

a) 8:5 b) 4:15 c) 6:5 d) 3:15

(iii) If p : q = 2 : 3 and q : r = 4 : 7, find p : q : r.

a) 8 : 12 : 21 b) 2 : 3 : 7 c) 6: 4 : 14 d) 8 : 4 : 28

(iv) Find the mean proportion of $\frac{1}{12}$ *and* $\frac{1}{75}$.

a) $\frac{1}{9}$ b) $\frac{1}{20}$ c) $\frac{1}{15}$ d) $\frac{1}{30}$

(v) If $\begin{bmatrix} x+3y & y \\ 7-x & 4 \end{bmatrix} = \begin{bmatrix} 4 & -1 \\ 0 & 4 \end{bmatrix}$, find the values of x and y.

a) 7, -1 b) 4, 3 c) 0,7 d) -1,0

(vi) Given $\begin{bmatrix} a & b \\ c & d \end{bmatrix} \times X = \begin{bmatrix} p \\ q \end{bmatrix}$. The order of matrix X is:

a) 2 x 2 b) 1 x 2 c) 2 x 1 d) 1 x 1

(vii) If A = $\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$,then A^2 =

a) $\begin{bmatrix} 8 & 5 \\ -5 & 3 \end{bmatrix}$ b) $\begin{bmatrix} 8 & -5 \\ 5 & 3 \end{bmatrix}$ c) $\begin{bmatrix} 8 & -5 \\ -5 & -3 \end{bmatrix}$ d) $\begin{bmatrix} 8 & -5 \\ -5 & 3 \end{bmatrix}$

(viii) Find 8I , where I is the unit matrix of order 2.

a) $\begin{bmatrix} 8 & 0 \\ 0 & 8 \end{bmatrix}$ b) $\begin{bmatrix} 0 & 8 \\ 8 & 0 \end{bmatrix}$ c) $\begin{bmatrix} 8 & 1 \\ 1 & 1 \end{bmatrix}$ d) $\begin{bmatrix} 0 & 8 \\ 1 & 0 \end{bmatrix}$

II. If $(x - 9) : (3x + 6)$ is the duplicate ratio of 4 : 9, find the value of x.

III. If $\frac{x}{a} = \frac{y}{b} = \frac{z}{c}$, prove that $\frac{x^3}{a^2} + \frac{y^3}{b^2} + \frac{z^3}{c^2} = \frac{(x+y+z)^3}{(a+b+c)^2}$.

IV. If $x = \frac{2ab}{a+b}$, find the value of $\frac{x+a}{x-a} + \frac{x+b}{x-b}$.

V. If $A = \begin{bmatrix} 0 & -1 \\ 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 \\ -1 & 1 \end{bmatrix}$, find the matrix X if

$X - 3B = 2A$.

VI. If $A = \begin{bmatrix} 3 & 7 \\ 2 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 2 \\ 5 & 3 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & -5 \\ -4 & 6 \end{bmatrix}$, find $AB - 5C$.