PERIODIC TEST -1

NAME: SUBJECT: MATHEMATICS

CLASS: XII MARKS: 20

*GENERAL INSTRUCTIONS:

1. The question paper comprises of five section A, B, C, D, and E. You have to attempt all the section
2. Question numbers 1 to 3 in sections A. Q.1 to 3 are one marks questions
3. Question numbers 4 in section – b are two marks questions.
4. Questions number 5 and 6 in section C are three marks questions.
5. Question number 7 in section D are five marks questions
6. Questions number 8 are cased based question in section E are 4 marks question.

SECTION: A

Q.1) If a relation R on the set {1, 2, 3, 4} is defined by R= {(1, 2), (3, 4)}. Then R is

a. Asymmetric b. transitive c. symmetric d. reflexive

Q.2) Domain of $\cos^{-1}[x]$ is

a. 1,1 b. -1,2 c. -1,1 d. -2,1

Q.3) Find the principal value of $\cos^{-1}(-1/2)$

SECTION: B

Q.4) Find the value of $\sin[2\cot^{-1}(-5/12)]$

SECTION: C

Q.5) Find the value of $\tan^{-1}(1) + \cos^{-1}(-1/2) + \sin^{-1}(-1/2)$

Q.6) If $A = \begin{bmatrix} 0 & -1 & 2 \\ 4 & 3 & -4 \end{bmatrix}$ then verify that: (A')' = A

SECTION: D

Q.7) If $A = \begin{bmatrix} 2 & 3 \\ 1 & -4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -2 \\ -1 & 3 \end{bmatrix}$ then verify that $(AB)^{-1} = B^{-1}A^{-1}$

SECTION: E

Q.8) Read the text carefully and answer the questions: Three shopkeepers A, B and C go to store to buy stationary. A purchase 12 dozen notebooks, 5 dozen pens and 6 dozen pencils. B purchases 10 dozen notebooks, 6 dozen pens and 7 dozen pencils. C purchases 11 dozen notebooks, 13 dozen pens and 8 dozen pencils. A notebook costs 40, a pen costs 12 and a pencil costs 3.

1. How are the number of items purchased by shopkeepers A, B and C represented in matrix from?
2. If X represents a matrix, and Y represents the matrix formed by the cost of each item, what does the product X Y equal?
3. If $A^2 = A$, then what is the value of $(A + I)^3 - 7A$?
4. If A and B are 3 X 3 matrices such that $A^2 - B^2 = (A-B)(A+B)$, then show that AB = BA