Assam Board Class 12 Mathematics Question Paper(Memory Based)

| Time Allowed :2 Hour | Maximum Marks :30 | Total Questions :16 |

General Instructions

Read the following instructions very carefully and strictly follow them:

- Answers to this Paper must be written on the paper provided separately.

- You will not be allowed to write during the first 15 minutes

- This time is to be spent in reading the question paper.

- The time given at the head of this Paper is the time allowed for writing the answers,

- The paper has four Sections.

- Section A is compulsory - All questions in Section A must be answered.

- You must attempt one question from each of the Sections B, C and D and one other question from any Section of your choice.

---

1. If A is a skew-symmetric matrix of odd order, write the value of $|A|$.

---

2. Find the principal value of $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right) +^{-1}\left(-\frac{2}{\sqrt{3}}\right).$

---

3. Find the value of x if $\begin{bmatrix} -5 & 6 \\ 2 & 3 \end{bmatrix}^{T} = \begin{bmatrix} 9y & 6z \\ 2x & 3 \end{bmatrix}.$

---

4. Show that the relation R in the set of natural numbers $N \times N$ defined by $(a, b)\, R\, (c, d)$ if $a + d = b + c$ is an equivalence relation.

---

5. Using determinants, find the value of λ if the points $(1, -5)$, $(-4, 5)$, and $(\lambda, 7)$ are collinear.

---

6. Find the shortest distance between the skew lines whose vector equations are given.

7. Evaluate the integral $\displaystyle\int \frac{x^2}{(x^2+1)(x^2+4)}\,dx$ using partial fractions.

8. If $|\vec{a}| = \sqrt{26}$, $|\vec{b}| = 7$, and $|\vec{a} \times \vec{b}| = 35$, find the angle between $\vec{a}$ and $\vec{b}$.