MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc.(Hons.) Agriculture/B.Sc.(Hons.) Forestry/ B.Sc. (Hons.) A.B.M.

Semester	: I (New)	Term	: I	Academic Year	: 2018-19
Course No.	: MATH 111				
Credits	: 2(1+1)	Title	: Elementary Mathematics		
Day & Date	: Tuesday, 18.12.2018	Time	: 14.00 to 16.00	Total Marks	: 40

Note : 1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Define matrix. Write any six types of matrices with example.

Q.2 Evaluate $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix}$

Q.3 a) State the formula for angle between two intersecting lines.
b) State the condition of concurrency of lines in a plane.

Q.4 Define circle. State the equations of circle in the form of a) centre radius b) diameter and c) general equation.

Q.5 Define function. State any three different ways of representing a function with illustration.

Q.6 State any four standard forms of limits of algebraic functions.

Q.7 State the derivatives of any four standard functions.

Q.8 Write the rules for evaluating integrals of functions.

Q.9 State and explain Simpson's $1/3^{rd}$ rule for finding the area of the curvilinear region in a plane.

Q.10 State the formula for finding the area under curve with necessary diagram.

SECTION "B"

Q.11 Fill in the blanks.

1) If the order of matrix A = order of matrix B and if the corresponding elements of A and B are same, then the two matrices A and B are said to be _____.
2) If elements of a row (or column) are multiplied with cofactor of any other row (or column), then sum is _____.
3) If m_1 and m_2 are the slopes of two intersecting straight lines and θ is the acute angle between them, then $\tan\theta$ = _____.
4) Diameter form of equation of circle is _____.

Q.12 State True or False.

1) $\int \sin x \, dx = -\cos x$
2) If two rows (or columns) of a determinant are equal, then its value is double.
3) $\begin{bmatrix} a & b \\ c & d \\ e & f \end{bmatrix}^2$ is a square matrix.
4) If the two straight lines are perpendicular then the product of their slopes is 1.

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