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**	: 2017-18
Course No.	: MATH 111	**Title**	: Elementary Mathematics		
Credits	: 2(1+1)				
Day & Date	: Friday, 29.12.2017	**Time**	: 09.00 to 11.00	**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 If $A = \begin{pmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{pmatrix}$, show that $A^2 - 4A$ is a scalar Matrix.

Q.2 Evaluate

$$\begin{vmatrix} 2 & 6 & 2 \\ 5 & 9 & 4 \\ 8 & 12 & 7 \end{vmatrix}$$

Q.3 Find the acute angle between the lines $2x + y - 1 = 0$ and $3x + y + 4 = 0$

Q.4 Find the area of a field by Simpson's rule, if the ordinates are 2, 7, 9, 15, 21, 30, 12 meters and common distance is 33 meters.

Q.5 Find the equation of straight line passing through the two points P (1, 2) and Q (4, 3).

Q.6 Explain any four types of function with one example each.

Q.7 Explain the ordinates of the curve and common distance between the ordinates. State the Simpson's 1/3 rd rule.

Q.8 Find derivatives of the following w.r.t.x. (Any Two)

1) $x^2 \tan x$ 2) $\cos^3 x$ 3) $(\sin x) / (e^x)$

Q.9 Evaluate the following definite integrals. (Any Two)

1) $\int_2^5 \left(\frac{1}{x}\right) dx$ 2) $\int_1^3 x^2 \, dx$ 3) $\int_0^1 2^x \, dx$

Q.10 Evaluate the limit $-\lim_{x \to 3} \dfrac{x^2 - 7x + 12}{x^2 - 5x + 6}$

(P.T.O.)

agromind.in

Telegram - AgroMind