Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

PY-101(A)

B.Pharm. I Semester

Examination, December 2016

Remedial Mathematics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Solve $5^{2x} - 5^{x+3} + 125 = 5^x$

   b) Solve $x^2 + y^2 = 185$
   $x + y = 19$

2. a) If $A = \begin{bmatrix} 3 & 8 & 11 \\ 6 & -3 & 8 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -6 & 15 \\ 3 & 8 & 17 \end{bmatrix}$, find 7 A + 5 B.

   b) Solve the linear equations $2x + 3y = 5$, $3x - 2y = 1$, with the help of determinants.

3. a) Find the mean for following distribution using step-deviation method :

Class	0-11	11-22	22-33	33-44	44-55	55-66
Frequency	9	17	28	26	15	8

   b) Calculate median for the following frequency distribution:

Age (in years)	11-15	16-20	21-25	26-30	31-35	36-40
No. of Persons	3	5	6	9	10	7

4. a) Show that :

$$\sec^2 30° + \operatorname{cosec}^2 45° + \cot^2 60° + \sin^2 90° = \frac{14}{3}$$

   b) Show that :

$$\tan 315° \cot(-405°) + \cot 495° \tan(-585°) = 2$$

5. a) Show that :

$$\sin(45° + A)\sin(45° - A) = \frac{1}{2}\cos 2A$$

   b) If $\sin A = \frac{4}{5}$, then find sin2A, cos2A and tan2A.

6. a) Find the distance between the points A (2, 5), B (–3, 7).
   b) Find the area of the triangles, whose vertices are (1, 6), (3, 0) and (–3, –7).

7. a) Differentiate the function :

$$f(x) = \left(x^2 - 4x + 5\right)\left(x^3 - 2\right), \text{ w. r. to } x.$$

   b) Find $\frac{dy}{dx}$, where $y = \sqrt{\frac{1 - \cos 2x}{1 + \cos 2x}}$.

8. a) Evaluate $\int \frac{1 + \tan x}{x + \log \sec x} dx$

   b) Evaluate $\int \frac{dx}{x^2 - 4x + 8}$

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