

PARUL UNIVERSITY
FACULTY OF PHARMACY
B.Pharm.Winter 2018-19 Examination

Semester: 1
Subject Code:08101105
Subject Name:Elementary Remedial Mathematic

Date:15/12/2018
Time:02:00pm to 05:00pm
Total Marks: 75

Instructions:

1. Figures to the right indicate full marks.
2. Make suitable assumptions wherever necessary.

Q.1 Essay type Questions. (Any 2 out of 3) (10 marks each) (20)

1. When the product of the two matrices, A and B is possible? If $A = \begin{bmatrix} 1 & -2 & 3 \\ 4 & 1 & 0 \end{bmatrix}$,

$$B = \begin{bmatrix} 1 & 1 \\ 2 & 1 \\ 3 & 0 \end{bmatrix} \text{ which of } AB, BA \text{ is possible? Compute the possible products.}$$

2. Differentiate $\sin(x)$ and a^x using definition of derivative.
3. Simplify : $\int \frac{3x+2}{(x+1)(x+2)} dx$

Q.2 Short Essay type Questions. (Any 7 out of 9) (5 marks each) (35)

1. If $y = 2e^{3x} + 3e^{-2x}$ then prove that $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 6y = 0$
2. Evaluate: $\int \frac{2+3\sin x}{\cos^2 x} dx$
3. Find the equation of line whose slope is $-1/2$ and passing through the point which is intersection of lines $x + y = 5$ and $2x + y = 7$.
4. Define Order and Degree of Differential Equation. And find Order and Degree of Differential equation $\frac{d^3y}{dx^3} - \frac{dy}{dx} + 7y = 11$
5. Solve : $(1 + y^2)dx = (1 + x^2)dy$
6. Find centre and radius of circle $4x^2 + 4y^2 + 8x - 16y - 2 = 0$
7. Solve using Cramer's Rule: $x - y = 6, 2x + 7y = 1$
8. Solve : $\frac{dy}{dx} + 2y = e^x$
9. Evaluate : $\int x \log x dx$

Q.3 Answer in short. (2 marks each) (20)

1. Slope of line passing through $(-2, 3)$ and $(5, 6) = \underline{\hspace{2cm}}$
2. If measurement of angle $B = 90^\circ$, $AB = 4$, $AC = 6$ then $\cos\theta = \underline{\hspace{1cm}}$, $\sin\theta = \underline{\hspace{1cm}}$
3. $\tan^{-1}(1) + \sin^{-1}\left(\frac{1}{2}\right) = \underline{\hspace{2cm}}$
4. If $A = \begin{bmatrix} -1 & 5 \\ -9 & 7 \end{bmatrix}$ then $\text{adj}(A) = \underline{\hspace{2cm}}$
5. $\frac{d}{dx}\left(\frac{\log x}{x}\right) = \underline{\hspace{2cm}}$
6. Points $(2,3), (0,2), (-2,1)$ are Co-linear ?
7. $\frac{d}{dx}(2^x + x^2 - 2^9) = \underline{\hspace{2cm}}$
8. $\int_0^1 e^x = \underline{\hspace{2cm}}$
9. Solve : $\frac{1}{x} dx = \frac{1}{y} dy$
10. Write both intercept of line $2x - 3y + 7 = 0$.