

**B. PHARM.
FIRST SEMESTER
REMEDIAL MATHEMATICS
BP106RMT [REPEAT]**

**SET
A**

(PART-A : Descriptive)

Time : 1 hr. 30 min.

Marks : 35

Very Short Answer Question

1×10=10

1. Resolve into partial fraction

5+5=10

a. $\frac{x^2 - 2x + 1}{(x-1)^2(x-2)}$

b. $\frac{9x-7}{(x+2)(x^2+1)}$

2. a. Prove that $\log 2 + 16 \log \frac{16}{15} + 12 \log \frac{25}{24} + 7 \log \frac{81}{80} = 1$

5+5=10

b. If $A = \begin{pmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{pmatrix}$, then prove that $A^2 - 4A = 5I$

PART-B : Descriptive

[Answer any five (5) questions]

1. Find the area of the triangle whose vertices are (1,2), (4,5) and (7,8) 5

2. Solve the differential equation 2.5+2.5
=5
 (i) $x dx + y dy = 0$ (ii) $y dx + x dy = 0$

3. Evaluate. $\lim_{x \rightarrow 0} \frac{\tan x - \sin x}{x^3}$ 5

4. Differentiate the following w.r.t to x. 2.5+2.5
=5
 (i) $\frac{d}{dx} (x^3 - 2\sqrt{x} + \frac{5}{x^2})$
 (ii) $\frac{d}{dx} (x + \tan x)(1 - 3e^x)$

5. If $f(x) = \begin{cases} x^2 + 2 & 0 < x \leq 2 \\ 3x & 2 \leq x < 3 \\ x^2 - 1 & x \geq 3 \end{cases}$ 5
 Find $f(1)$, $f(2)$, $f(2.5)$, $f(3)$, $f(4)$, $f(-1)$.

6. If $A = \begin{pmatrix} 1 & 2 & 3 \\ 0 & 5 & 1 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & 2 \\ 1 & 1 \\ 0 & 3 \end{pmatrix}$. Find AB and BA 5

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