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Roll No .....

PY-101(A) (GS)

B.Pharmacy I Semester Examination, June 2020

Grading System (GS)

Remedial Mathematics

Time : Three Hours

Maximum Marks : 70

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

1. Prove that $\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$

2. Find $x + y$ and $x - y$ if $x = \begin{bmatrix} 5 & 2 \\ 0 & 9 \end{bmatrix}$ and $y = \begin{bmatrix} 3 & 6 \\ 0 & -1 \end{bmatrix}$.

3. a) Prove that $\frac{\sin A + \sin 3A}{\cos A + \cos 3A} = \tan 2A$
   b) Find the volume of a right circular cone of a radius 3cm and height 7cm and also find the surface area of the whole cone.

4. Differentiate the following functions with respect to x:
   a) $\sin xe^x$
   b) $\frac{e^x + \log_e x}{1 + x^2}$

5. Evaluate the followings:
   a) $\int 2\sin x \cos x dx$
   b) $\int xe^x dx$

6. Find equation of a line which passes through (1, 1) and makes angle 45° with the positive x-axis.

OR

   a) Solve $8x + 5y = 9$, $3x + 2y = 4$
   b) Find the inverse of a matrix

$$A = \begin{bmatrix} 1 & 2 & 1 \\ -1 & 0 & 2 \\ 2 & 4 & 1 \end{bmatrix}$$

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7. Differentiate the following function with respect to x.

   i) $\dfrac{e^x}{1+\sin x}$

   ii) $\sin x \log x$

OR

   a) Solve the following equations by matrix method.

   $4x - 3y = 11$

   $3x + 7y = -1$

   b) Find the quadratic equation whose roots are –1 and 2.

8. If $A = \begin{bmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ 4 & 5 \\ 5 & 1 \end{bmatrix}$. Find AB and BA and show that $AB \neq BA$

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