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Roll No

MA-112-CBCS

B.Pharmacy, II Semester (Non-PCI Scheme)

Examination, June 2020

Choice Based Credit System (CBCS)

Mathematics

Time : Three Hours

Maximum Marks: 60

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

1. a) Solve the equation;

$$\frac{x+2}{x+3} = \frac{x+4}{2x+3}$$

b) If $A = \begin{pmatrix} 4 & 7 \\ 6 & 5 \end{pmatrix}$, $B = \begin{pmatrix} 3 & 8 \\ 7 & 2 \end{pmatrix}$, $C = \begin{pmatrix} 8 & 11 \\ 6 & 1 \end{pmatrix}$, then show that: $(A + B) + C = A + (B + C)$.

2. a) Solve for x : $\begin{vmatrix} x & 3 \\ 5 & 2x \end{vmatrix} = \begin{vmatrix} 5 & -4 \\ 5 & 3 \end{vmatrix}$

b) Solve the equations:

$$\begin{aligned} x + 3y &= 6 \\ 3x - y &= 14 \end{aligned}$$

3. a) Evaluate $\lim_{x \rightarrow 4} \frac{x^3 + 4}{1 - x}$.

b) If $y = x^x$ then find $\frac{dy}{dx}$.

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4. a) Evaluate $\int x \cos x dx$
b) Evaluate $\int (2x + 4)\sqrt{x^2 + 4x + 3} dx$.
5. a) Evaluate $\int \frac{3x + 4}{x^2 - 5x + 6} dx$
b) Form a differential equation of the family of curves $y = A e^{3x} + B e^{5x}$ for different values of A and B.
6. a) Solve $\frac{dy}{dx} = \frac{1 + y^2}{1 + x^2}$.
b) Solve $(1 + x^2)\frac{dy}{dx} + 2xy = 4x^2$
7. a) Draw bar diagrams to represent the following figures relating to the production of wheat of a certain village.
Years : 1959 1960 1961 1962 1963
Wheat in quintals : 200 350 450 550 600
b) Compute the arithmetic mean of the following by any method.
Class : 20-30 30-40 40-50 50-60 60-70
Frequency : 8 26 30 20 16
8. a) A perfect cubical die is thrown a large number of times in sets of 8. The occurrence of 5 or 6 is called a success. In what proportion of sets you expect 3 successes.
b) Find the mean and variance of the Poisson's distribution.
