Code No: B1102 **R10** SET - 1

**I B. Pharmacy I Semester Supplementary Examinations, Jan/Feb - 2018**
**MATHEMATICS-I**

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) If the $11^{th}$ term of an arithmetic progression is 6 and the common difference is 2, then find the $26^{th}$ term of the progression. (8M)

   b) Find the middle term in the binomial expansion of $(x^2 - \frac{1}{x^3})^9$. (7M)

2. a) Resolve $\frac{x^2+6x+6}{(x+1)^2(x+3)}$ into partial fractions. (8M)

   b) Using Cramer's rule, solve (7M)

$$x + y + 2z = 4$$
$$2x + 5y - 2z = 3$$
$$x + 7y - 7z = 5$$

3. a) If $\cos\theta = \frac{4}{3}$ and $\theta$ is in the third quadrant, find the value of $\cos\theta + \tan\theta$. (8M)

   b) Find the value of $\cos(945^0)$. (7M)

4. a) If $A + B = 45^0$, find the value of (1+tan A) (1+tanB). (8M)

   b) The angle of elevation of a tower of height 100mts observed from a point on the ground is $45^0$. Find the distance of the point from this foot of the tower. (7M)

5. a) Find the point on x-axis which is equidistant from the points (-2,0) and (-1, -3). (8M)

   b) Find the coordinates of the point which divides the line joining the points (5,2) and (7,9) in this ratio 2:7. (7M)

6. a) Find the equation of the straight line passing through (1,1) and perpendicular to the line passing through the points (3,5) and (-6,-2). (8M)

   b) Find the angle between this lines x+2y+5=0 and 2x-y-3=0. (7M)

7. a) Find $\lim_{x \to \infty} \frac{5x^2+3x+1}{x^2-x+1}$. (8M)

   b) Show that $f(x) = \begin{cases} x^2, & x \le 1 \\ x^3, & x > 1 \end{cases}$ is continues at x=1. (7M)

8. a) Find the derivative of $x^2 e^x Sin^2 x$. (8M)

   b) Find the derivative of $\frac{5^x \ Sin\, x}{x}$. (7M)
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