

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<sup>th</sup> term of an arithmetic progression is 6 and the common difference is 2, (8M)  
 then find the 26<sup>th</sup> term of the progression.
- 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)
 
$$\begin{aligned} x + y + 2z &= 4 \\ 2x + 5y - 2z &= 3 \\ x + 7y - 7z &= 5 \end{aligned}$$
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  $\cos(945^\circ)$ . (7M)
4. a) If  $A + B = 45^\circ$ , find the value of  $(1+\tan A)(1+\tan B)$ . (8M)
- b) The angle of elevation of a tower of height 100mts observed from a point on the ground is  $45^\circ$ . 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  $\lim_{x \rightarrow \infty} \frac{5x^2 + 3x + 1}{x^2 - x + 1}$ . (8M)
- b) Show that  $f(x) = \begin{cases} x^2, & x \leq 1 \\ x^3, & x > 1 \end{cases}$  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)