Code: 9RBS101 **R09**

B.Pharm I Year (R09) Supplementary Examinations December 2016

REMEDIAL MATHEMATICS

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Find the sum of 'n' terms of arithmetic progression whose 7^{th} term if 30 and 13^{th} term is 54.
(b) Resolve $\frac{3x+2}{2-x-x^2}$ into partial fractions.

2 (a) Show that $cos^4\alpha + 2cos^2\alpha\left(1-\frac{1}{sec^2\alpha}\right) = 1 - sin^4\alpha$.
(b) If $x + \frac{1}{x} = 2cos\theta$ show that $x^3 + \frac{1}{x^3} = 2cos3\theta$

3 (a) Find the value of 't' if the points (t, 2t), (2t, 6t) and (3, 8) are collinear.
(b) If the distance from P to the point (5, -4), (7, 6) are in the ratio 2:3 then find the locus of P.

4 (a) Find the derivative of the following function $\frac{1}{x^2+1}$ by first principal.
(b) Evaluate $lim_{x\to 3}\frac{\tan(x-3)}{(x^2-9)}$.

5 Find the greatest and least values of $2sinx + sin2x$ over [0, 2π].

6 (a) Evaluate $\int x^3 \sin(x^4)\,dx$.
(b) Evaluate $\int_0^{\frac{\pi}{2}} \frac{1}{2+3sinx}\,dx$.

7 (a) Form the differential equation of $ax^2 + by^2 = 1$
(b) Solve $\frac{dy}{dx} = \frac{xy+y}{xy+x}$.

8 The rate at which bacteria multiply is proportional to the instantaneous number present. If the original number doubles in 2 hours. In how many hours will it triple?

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