I Sessional B.Tech. I Sem. BEM – C 102

Sec. A (Attempt any two questions) 6 x 2	Sec. B (Attempt any one question) 8 x 1
1. Find the n th derivative of sinh2x sin4x. 2. Find the radius of curvature of the cardiod $r = a(1 + \cos\theta)$ at any point (r, θ) on it. Prove that ρ^2/r is a constant. 3. Evaluate $\lim_{x\to\pi/4} \frac{sec^2x-2tanx}{1+cos4x}$ 4. Expand log x in powers of (x-1) and hence find the value of $log_e 1.1$.	1. If $y = (x^2 - 1)^n$, prove that $(x^2-1)y_{n+2} + 2xy_{n+1} - n(n+1)y_n = 0$ 2.Find all the asymptotes of the curve $4x^3 - 3xy^2 - y^3 + 2x^2 - xy - y^2 - 1 = 0$