Paper Code:BSC-MATH-203G   **Subject: Mathematics-III**

Time: One Hour Thirty Minutes   **Max. Marks: 30**

Note: Attempt any *three* questions including Q.no. 1 which is compulsory. All questions carry equal marks.

Q.1.Attempt any two questions from the following questions: (2 X 5 =10)

a. Solve xdy-ydx=$(x^2 + y^2)dx$

b. Solve (ycosx+1)dx + sinx dy= 0

c. Solve by method of variation of parameters: $y'' + 4y = 4\ sec^2 2x$

d. Solve x logx $\frac{dy}{dx}$ + y= 2logx

e. Solve (x $y^3 + y$) dx + $2(x^2y^2 + x + y^4)dy = 0$

Q.2. (a) Solve ($D^4 - 1)y = cosxcoshx$ (10)

OR

(b) Solve $x^2\ y'' - x\ y' - 3y = x^2 logx$ (10)

Q.3. (a) Solve $\frac{dy}{dx} + \frac{1}{x} = \frac{e^y}{x^2}$ (10)

OR

(b) Solve the following simultaneous equations: $\frac{dx}{dt} + y = sint$, $\frac{dy}{dt} + x = cost$,

   y(0)= 0,   x(0) = 2

                                                                (10)

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