GOVERNMENT COLLEGE OF ENGINEERING, AMRAVATI
(An autonomous institute of Govt. of Maharashtra)

CT-1 [Direct-IInd year] W- 2015 **MARKS-15 TIME-1 HOUR**
SHU301,SHU303, SHU304 ENGG.MATHS-III [CIVIL/ MECH/ELPO/EXTC/CS/IT/IN]

Q.1 Using the method of variation of parameters Solve

$$\left(1+\frac{1}{e^x}\right)^2\left[\left(D^2-1\right)y\right]=1$$ **3**

Q.2 Solve $y=\log x\dfrac{\sin(\log x)+1}{x}-x^2\dfrac{d^2y}{dx^2}+3x\dfrac{dy}{dx}$. **3**

Q. 3 ATTEMPT ANY THREE **9**

(A) Solve $\left(D^3+1\right)y=\cos^2\left(\frac{x}{2}\right)+e^{-x}$

(B Solve $\dfrac{1}{e^x}\left(\dfrac{d^2y}{dx^2}-2\dfrac{dy}{dx}+2y\right)-\tan x=0$

(C) Solve the method of variation of parameter $\dfrac{d^2y}{dx^2}+y=\tan x$

(D) Solve $(1+x)^2\dfrac{d^2y}{dx^2}+(1+x)\dfrac{dy}{dx}+y=2\sin\log(1+x)$