S.S. Jondhle College of Engg. and Tech. Asangaon.

F.E. C201 Unit Test : I max. marks (20)

Div. A,C. sub: App. Maths-II Date: 03/03/2015

Q.1. Attempt the following questions.

a) Evaluate : $\int_0^1 dx / \sqrt{-\log x}$ —(03)

b) Prove that $B(x,x) = \frac{1}{2^{2x-1}} B\left(x, \frac{1}{2}\right)$ —(03)

c) solve : $(x+2y^3)\frac{dy}{dx} = y$ —(03)

d) solve : $(1+y^2)dx = (e^{\tan^{-1}y} - x)dy$ —(03)

Q.2. Attempt any two questions

a) Evaluate : $\int_0^\infty \frac{e^{-x}(1-e^{-ax})}{x} dx$ —(04)

b) solve : $\frac{dy}{dx} + x\sin 2y = x^3\cos^2 y$ —(04)

$\frac{dy}{dx} + Py = Q$.

c) Use Euler's modified method find the approximate value of y at $x = 1.2$ given that $\frac{dy}{dx} = \log(x+y)$ and $y(1) = 2$ —(04)

$(x+2y^3)\frac{dy}{dx} = y$

$\frac{dy}{dx} = \frac{y}{x+2y^3}$ $\quad \frac{dx}{dy} = \frac{x+2y^3}{y}$

$\frac{dx}{dy} - \frac{x}{y} = 2y^2$ $\quad \frac{dx}{dy} = \frac{x}{y} + 2y^2$