SIES Graduate School of Technology

UNIVERSITY TEST- I EXAMINATION FEB - 2015

(First half of 2015)

Class: FE (All branches) Duration: 1 Hr.

Subject: Applied Mathematics II Max. Marks: 20

NB: Attempt any FOUR questions, all questions carry equal marks (05)

1) Evaluate $\int_0^1 (x\log x)^3\,dx$

2) Evaluate $\int_0^1 \sqrt{1-\sqrt{x}}\;dx \bullet \int_0^{1/2} \sqrt{2y-4y^2}\,dy$

3) Show that $\int_0^1 \frac{x^{\alpha}-1}{\log x}dx = \log(1+\alpha), \quad \alpha > 0$ using DUIS.

4) Solve $\left(1+\log(xy)\right)dx+\left(1+\frac{x}{y}\right)dy=0$

5) Solve $(4xy+3y^2-x)dx+x(x+2y)dy=0$

6) Solve $\frac{dr}{d\theta}=\frac{r\sin\theta-r^2}{\cos\theta}$