

SRM UNIVERSITY

Department of Mathematics

CYCLE TEST - 1

15 MA102 – Advanced Calculus and Complex Analysis

SLOT : B 1

Duration: 50 min

Max. Marks: 25

Answer all the questions

PART – A

(3 X 4 marks = 12 marks)

1. Evaluate $\int_0^{\log 2} \int_0^x \int_0^{x+y} e^{x+y+z} dz dy dx$
2. Evaluate $\int_0^\infty \int_0^\infty e^{-(x^2+y^2)} dx dy$ by changing into polar co ordinates
3. Find the area between the parabolas $y^2 = 4ax$ and $x^2 = 4ay$ using double integral.

PART – B

4. (i) Change the order of integration in $\int_0^a \int_{\frac{x^2}{a}}^{2a-x} xy dx dy$ and hence evaluate it. (7 marks)
- (ii) Find the volume of the sphere $x^2 + y^2 + z^2 = a^2$, using triple integral. (6 marks)

All the best