SYMBIOSIS SKILLS AND OPEN UNIVERSITY

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Kiwale, Adjoining Mumbai - Pune Express Highway, Pune 412 101
State – Maharashtra, INDIA.| http://www.ssou.ac.in

Programme: B. Tech. **Class:** F.E. **A.Y.:** 2017-18 **Semester:** II
Subject: Applied Mathematics II (Skills) **Date:** 15/03/2018

SKILL ACTIVITY 4

WRITE COMMANDS FOR FOLLOWING USING MATLAB

Q1. Find the region of integration (Any 3)

1. $\int_0^6 \int_{y^2/3}^{2y} dx\, dy$
2. $\int_0^3 \int_{-x}^{x(2-x)} dy\ dx$
3. $\int_0^{\pi/4} \int_{\sin x}^{\cos x} dy\, dx$
4. $\int_{-1}^{2} \int_{y^2}^{y+2} dx\, dy$
5. $\int_{-1}^{0} \int_{-2x}^{1-x} dy\, dx + \int_0^2 \int_{-x/2}^{1-x} dy\, dx$
6. $\int_0^2 \int_{x^2-4}^{0} dy\, dx + \int_0^4 \int_0^{\sqrt{x}} dy\, dx$

Q2. Find the polar region and evaluate the following integrals

1. $\int_0^1 \int_x^1 \frac{y}{x^2+y^2}\ dy\, dx$
2. $\int_0^1 \int_0^{x/2} \frac{x}{x^2+y^2}\ dy\, dx$
3. $\int_0^1 \int_{-y/3}^{y/3} \frac{y}{\sqrt{x^2+y^2}}\ dx\, dy$
4. $\int_0^{\vert 1} \int_y^{2-y} \sqrt{x+y}\ \ dx\, dy$

Q3. Evaluate the following integrals (Any 6)

1. $\int_0^1 \int_0^1 \int_0^1 (x^2+y^2+z^2)\, dz\, dy\, dx$

2. $\int_0^{\sqrt{2}} \int_0^{3y} \int_{x^2+3y^2}^{8-x^2-y^2} dz\, dx\, dy$
3. $\int_1^{e} \int_1^{e^2} \int_1^{e^3} \frac{1}{xyz}\, dx\, dy\, dz$
4. $\int_0^{1} \int_0^{3-3x} \int_0^{3-3x-y} dz\, dy\, dx$
5. $\int_0^{\pi/6} \int_0^{1} \int_{-2}^{3} y \sin z\, dx\, dy\, dz$
6. $\int_{-1}^{1} \int_0^{1} \int_0^{2} (x+y+z) dy\, dx\, dz$
7. $\int_0^{3} \int_0^{\sqrt{9-x^2}} \int_0^{\sqrt{9-x^2}} dz\, dy\, dx$
8. $\int_0^{2} \int_{-\sqrt{4-y^2}}^{\sqrt{4-y^2}} \int_0^{2x+y} dz\, dx\, dy$
9. $\int_0^{1} \int_0^{2-x} \int_0^{2-x-y} dz\, dy\, dx$
10. $\int_0^{1} \int_0^{1-x^2} \int_3^{4-x^2-y} x\, dz\, dy\, dx$