Roll No:							

PADRE CONCEIÇÃO COLLEGE OF ENGINEERING, VERNA-GOA

TUTORIAL NO: 6 (Batch 1)

Semester: II (RC 2019-'20) **Course:** FE210
Course Instructor: Prof. Komal Paroolkar Mathematics-II

Topic: Double Integration in Polar coordinates.

		CO	CL
Q1.	Evaluate $\int\int 3rsin\theta \ drd\theta$ over the region $\{(r,\theta)/\ r \leq 1, r \leq 1+cos\theta, 0 \leq \theta \leq \pi\}$	**CO1**	**CL3**
Q2	Convert to polar and hence evaluate $\int_0^\infty \int_y^\infty e^{-3(x^2+y^2)} dxdy$	**CO1**	**CL3**
Q3	Evaluate $\iint rsin\theta + 3 \ drd\theta$ over the region $1 \leq r \leq 1+cos\theta$.	**CO1**	**CL3**
Q4.	Change to polar and evaluate $\int_0^2 \int_0^{\sqrt{4-y^2}} \frac{1}{1+\sqrt{x^2+y^2}} dxdy$	**CO1**	**CL3**
Q5.	Change to polar and evaluate $\int_0^\infty \int_0^\infty \frac{2}{1+(x^2+y^2)^2} dxdy$	**CO1**	**CL3**

Roll No:							

PADRE CONCEIÇÃO COLLEGE OF ENGINEERING, VERNA-GOA

TUTORIAL NO: 6 (Batch 2)

Semester: II (RC 2019-'20)
Course Instructor: Prof. Komal Paroolkar

Course: FE210
Mathematics-II

Topic: Double Integration in Polar coordinates.

		CO	CL
Q1.	Change to polar and evaluate $\int_0^\infty \int_0^\infty \frac{2}{1+(x^2+y^2)^2} dxdy$	**CO1**	**CL3**
Q2	Evaluate $\int\int r^2 sin\theta \, drd\theta$ over the region bounded by $r = a \; and \; r = 2acos\theta$ above the initial line.	**CO1**	**CL3**
Q3	Evaluate $\int\int r + 3cos\theta \, drd\theta$ over the region bounded by $r = a(1 + cos\theta)$ above the initial line.	**CO1**	**CL3**
Q4.	Evaluate $\int_0^a \int_0^{\sqrt{ax-x^2}} (a^2 - x^2 - y^2)^{3/2} dxdy$	**CO1**	**CL3**
Q5.	Convert to polar and hence evaluate $\int_0^a \int_0^{\sqrt{a^2-x^2}} e^{(x^2+y^2)} dxdy$	**CO1**	**CL3**

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Roll No:							

PADRE CONCEIÇÃO COLLEGE OF ENGINEERING, VERNA-GOA

TUTORIAL NO: 6 (Batch 3)

Semester: II (RC 2019-'20) **Course:** FE210
Course Instructor: Prof. Komal Paroolkar Mathematics-II

Topic: Double Integration in Polar coordinates.

		CO	CL
Q1.	Change to polar and evaluate $\int_0^{2a}\int_0^{\sqrt{2ax-x^2}} ye^{\sqrt{(x^2+y^2)}}dxdy$	**CO1**	**CL3**
Q2	Change to polar and evaluate $\int_0^{\infty}\int_0^{\infty} \frac{2}{1+(x^2+y^2)^2}dxdy$	**CO1**	**CL3**
Q3	Evaluate $\int_0^{a}\int_0^{\sqrt{a^2-x^2}} y^2\sqrt{x^2+y^2}dxdy$	**CO1**	**CL3**
Q4.	Evaluate $\iint rsin\theta + 3drd\theta$ over the region $\{(r,\theta); r \leq 2cos\theta, 0 \leq \theta \leq \pi\}$	**CO1**	**CL3**
Q5.	Evaluate $\int\int r^2 + 3sin\theta\, drd\theta$ over the region $r \leq 1$ above the initial line	**CO1**	**CL3**

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