

1. Answer any **FIVE** of the followings: [5×2=10]
- Evaluate $\int_0^1 \int_0^2 f(x, y) dy dx$.
 - Form the iterated integral: $\iiint_R dV$, $R = \{(x, y, z) | \}$
 - Evaluate $\int_0^{\pi/2} \int_0^1 f(r, \theta) dr d\theta$.
 - Form the double integral, $\iint_R dA$ over the triangular region R enclosed by
 - Solve the DE $\frac{dy}{dt} = -$ using separation of variables.
 - Write down the complementary function y_c whose auxiliary roots are given as $m =$
 - Find the particular integral y_p for the given DE $\frac{d^2y}{dx^2} = f(x)$.
2. Answer any **ONE** of the followings: 6
- Evaluate $\iint_D dA$, where D is the region bounded by the curves y
 - Evaluate $\int \int_R f(x, y) dA$ by changing to polar coordinates, where R is the region
3. Answer any **ONE** of the followings: 6
- Find the center of mass of a lamina occupied by the ***** having density function $\rho(x, y)$.
 - Find the volume of a tetrahedron enclosed by the coordinate planes and the plane
4. Answer any **ONE** of the followings: 6
- Solve the first order linear DE
 - Solve the system of DE
5. Answer any **TWO** of the followings: [2×6=12]
- Solve the initial value problem .
 - Solve the DE using method of undetermined coefficients.
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