Roll.No. | 22UDSAT2002

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Sc CS with DS - END SEMESTER EXAMINATIONS - NOVEMBER 2025
SEMESTER - II
22UDSAT2002 - Allied Mathematics - II

Total Duration : 2 Hrs.30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Evaluate $\int_0^{\frac{\pi}{2}} \sin^2 x \, dx$
2. Find the constant a_0 for the Fourier series for the function f(x) = x in $0 \leq x \leq 2\pi$
3. Solve $(D^2 + 5D + 6)y = 0$
4. Solve $(D^2 + 9)y = 0$
5. Find the Laplace transforms of (i) $3\cos 4t$ (ii) $4\sin 3t$.
6. Solve q -p +x -y = 0.
7. Eliminate the arbitrary constants a, b from z =(x +a) (y +b).
8. Find the Laplace transform of L($\cos^2 t$).

Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Evaluate $\int_0^{\frac{\pi}{2}} \sin^6 x \cos^9 x \; dx.$
10. Find the Fourier series for the function f(x) $= x^2$ in $-\pi \leq x \leq \pi$.
11. Solve $(D^2 + 3D + 2)y = e^{2x} \cos 3x$.
12. Solve the equation xp + zq = y.
13. Find the value of (i) L($\sin 3t \cos t$) (ii) L($\cos 2t \cos t$)

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