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 APRIL - 2024
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. Find $\int x^3 \sin x dx$
2. Solve $\int_0^{\pi/2} \sin^7 x dx$.
3. Predict a_0 and a_n of the fourier series for the function $f(x) = \pi - x, 0 < x < 2\pi$.
4. Solve the fourier coefficients of $f(x) = \sin 4x \cos 2x, -\pi \leq x \leq \pi$
5. Find $(D^2 + 5D + 4)y = 0$
6. Compute the partial differential equation by eliminating the constants a and b from the equation $z = (x + a)(y + b)$
7. Solve pq = y.
8. Determine the value of L(sin3t cos3t)

Section C

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

9. Compute $\int_0^{\pi/2} \sin^8 x \cos^6 x dx$
10. Predict the fourier series for f(x) [-π,π] if
    $f(x) = -\pi, -\pi < x < 0,$
    $x, 0 < x < \pi$
11. Solve $(D^2$ + 2D - 3)y $= e^x \, cosx.$
12. Solve p $= (1 + q^2)y^2$
13. Evaluate (i) L $(e^{-3t} \sin t \cos t)$
    (ii) L(e$^{3t}(cos^2 t - sin^2 t)$)

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