Roll.No. | 22UAIAT2002

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 AI- END SEMESTER EXAMINATIONS - NOVEMBER 2025
SEMESTER - II
22UAIAT2002- Allied Mathematics - II

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

Section B

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

1. State Bernoulli's formula for integration by parts.
2. Derive the reduction formula for $\int \sin^n x \ dx$.
3. What is the Fourier series for an even function in $(-\pi, \pi)$?
4. Define a Fourier series for a function in the interval $(0, 2\pi)$.
5. Write the complementary function (C.F.) and particular integral (P.I.) of a second-order equation.
6. Find the PDE by eliminating the arbitrary function from z=f(x+y).
7. Find L{1} and L{t}.
8. State the first shifting theorem.

Section C

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

9. Find the value of $\int_0^{\pi/2} \sin^4 x \cos^2 x \ dx$.
10. Find the Fourier series expansion of $f(x) = x^2 in(-\pi, \pi)$.
11. Solve $y'' + 4y = e^x \cos 2x$.
12. Solve $(x + y)p + (x - y)q = z$.
13. Find $L\{ \ e^{2t} \sin 3t\}$.

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