

Roll.No.

20UCHAT2002

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 Chemistry- END SEMESTER EXAMINATIONS - NOVEMBER 2025
SEMESTER - II

20UCHAT2002- Allied Mathematics - II

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

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

1. Define Fourier series for a function $f(x)$ in the interval $[0, 2\pi]$.
2. State the conditions for the existence of a Fourier series.
3. Form a PDE from $z = ax + by + c$.
4. Solve $pq = 1$.
5. Write Lagrange's linear equation and explain its form.
6. Define Laplace transform and give its formula.
7. Find $L\{e^{at}\}$.
8. State and prove the first shifting theorem of Laplace transform.

Section C

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

9. Find the Fourier series for $f(x) = x^2$ in the interval $[-\pi, \pi]$.
10. Form the PDE by eliminating arbitrary function from $z = f(x^2 + y^2)$.
11. Solve Lagrange's linear equation $(y - z) p + (z - x) q = x - y$.
12. Find $L\{\sin at\}$ and $L\{\cos at\}$.
13. Using the differentiation property, find $L\{t \sin at\}$.
