

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 - NOV'2024

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. Obtain a sine series for unity in $0 < x < \pi$.
2. Form the partial differential equation by eliminating the arbitrary function from $z = f(x^2 + y^2 + z^2)$.
3. Determine the partial differential equation by eliminating the arbitrary function from $z = f\left(\frac{y}{x}\right)$.
4. Solve $\sqrt{p} + \sqrt{q} = 1$.
5. Compute the Laplace transform of $\sin^3 2t$.
6. Evaluate the Laplace transform of $\cos 4t \sin 3t$.
7. State and prove the linearity property of Laplace transforms.
8. Find the effect of change of scale on Laplace transforms.

Section C

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

9. Enumerate the Fourier series of the function $f(x) = e^x$; $-\pi < x < \pi$.
10. Give the complete solution of $(y - z)p + (z - x)q = x - y$.
11. Solve $z^2(p^2 + q^2 + 1) = b^2$.
12. Find the Laplace Transform of $t \sin^2 t$.
13. Calculate $L[te^{-2t} \cos 5t]$.
