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. END SEMESTER EXAMINATIONS APRIL-2022
SEMESTER - II
16UCHAT2MA2 **&** UCH/AT/2MA2 - **Allied Mathematics - II**

Total Duration : 3 Hrs. **Total Marks : 60**

Section A

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

1. Find the Fourier series of the function $f(x) = x$ in the interval $(-\pi, \pi)$.
2. Solve $\sqrt{p} + \sqrt{q} = 2x$.
3. Find the Laplace transform of the following, (i)$\sin 3t \cos 2t$; (ii) $2t + 3 + t^4$.
4. Find the inverse Laplace transform of the function $\frac{1}{(S+1)(S+2)}$.
5. If $\phi = x^3y^2z^4$ find grad ϕ at $(1, 1, 1)$.
6. Form the P.D.E by eliminating the arbitrary function form $\phi(x^2+y^2, x^2+y^2)$=0.
7. Define (i) Solenoidal, (ii) Irrotational.
8. Find $L^{-1}\left[log\left(\frac{s+1}{s+2}\right)\right]$

Section B

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

9. Expand $f(x)$=x as fourier in the interval (0,2π).
10. Solve $(mz - ny)$p + $(nx - lz)$q = $ly - mx$.
11. Find L $\left[\frac{\cos t - \cos 2t}{t}\right]$.
12. Using Laplace transfor solve the equation $y' + 3y = e^{-2t}$ gives $y(0) = 4$.
13. Verify Green's theorem for $\int_c 1x^2(1 + y)dx + (y^3 + x^3)dy$, where c is the square formed by $x = \pm$ a, y=$\pm a$.

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