B.Sc DEGREE EXAMINATION,APRIL 2019
II Year III Semester
Differential Equations and Laplace Transforms

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Solve p^2-p-6=0
2. Solve (y-px) (p-1) =p
3. Solve (D^2+2D+1) y=e^{-x}
4. Solve (D^2+9) y=0
5. Eliminating arbitrary function from z=f(x^2+y^2)
6. Solve pq=1
7. Find L($\sin^2 t$)
8. Find L(cosat)
9. Find L(t^2)
10. Find $L^{-1}(\frac{s}{(s+1)^2})$
11. Solve (x^2D^2-3xD) y=0
12. Eliminate a and b from z=axy+b

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Solve xyp^2+ p($3x^2$-$2y^2$)-6xy=0
14. Solve (D^2+4D+4) y=e^{-x}sin2x
15. Solve p+q=sinx+siny
16. Find $L(\frac{cos3t - cos2t}{t})$
17. Solve $L^{-1}(\log\frac{s+1}{s-1})$
18. Solve z=px+qy+$\sqrt{1+p^2 \quad +q^2}$
19. Eliminating f from z=f(x^2+y^2+z^2)

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Solve xp^2-2yp+x=0
21. Solve $\frac{d^2y}{dx^2}$ +y = secx
22. Solve x(y-z) p+y(z-x) q = z(x-y)
23. Find inverse of Laplace transform of $\frac{s^2}{(s^2+a^2)(s^2+b^2)}$
24. Using Laplace transform solve $\frac{d^2y}{dt^2} + 6\frac{dy}{dt}$ +5y = e^{-2t} given that y=0, $\frac{dy}{dt}$ =1 when t=0

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