

Paper II : Differential Equations and Integral Transforms

M. M. : B.A. 25/B.Sc. : 50

Note : Attempt all questions. Each question carry equal marks.

1. Find the value of $L(5t - 2)$ is :

- (a) $\frac{5}{p^2} - \frac{2}{p^2}$ (b) $\frac{5}{p^2} - \frac{2}{p}$ (c) $\frac{5}{p^2} + \frac{2}{p^2}$ (d) $\frac{5}{p^2} + \frac{2}{p}$.

2. Find the value of $L(t^3 e^{-3t})$ is :

- (a) $\frac{6}{(5+3)^4}$ (b) $\frac{6}{(5^2+3)^4}$ (c) $\frac{6}{(5^2-3)^4}$ (d) None of these.

3. $L^{-1} \left\{ \frac{1}{s-2} + \frac{2}{s+5} + \frac{6}{s^4} \right\}$ is :

- (a) $e^{4t} + 2e^{5t} + t^3$ (b) $e^{-2t} + 2e^{5t} + t^5$
 (c) $e^{2t} + 2e^{-5t} + t^3$ (d) None of these.

4. Find the value of $L^{-1} \left\{ \frac{p}{(p+3)^{7/2}} \right\}$:

- (a) $\frac{5}{4}, \frac{4}{3}, \frac{1}{2} \sqrt{\pi}$ (b) $\frac{3}{2}, \frac{5}{2}, \frac{1}{6}, \sqrt{\pi}$ (d) $\frac{5}{2}, \frac{3}{2}, \frac{1}{2} \sqrt{\pi}$ (d) None of these.

5. Find the value of $L^{-1} \log \left[\frac{p+3}{p+2} \right]$ is :

- (a) $\frac{1}{t} [t^{2t} - e^{3t}]$ (b) $\frac{1}{t} [e^{-2t} - e^{-3t}]$ (c) $\frac{1}{t} [e^{4t} - e^{3t}]$ (d) $\frac{1}{t} [e^{-4t} - e^{-3t}]$.

6. Find the value of $L^{-1} \left\{ \frac{1}{s^2 + a^2} \right\}$ is :

- (a) $\frac{\sin at}{a}$ (b) $\frac{\cos at}{a}$ (c) $\frac{\tan at}{a}$ (d) $\frac{\operatorname{cosec} at}{a}$.

7. Find the value of $L^{-1} \left\{ \frac{1}{(p^2 + 1)^2} \right\}$ is :

- (a) $\frac{1}{2}(\sin t - t)$ (b) $\frac{1}{2}(t - \cos t)$
 (c) $\frac{1}{2}(\sin t - t\cos t)$ (d) $\frac{1}{2}(\cos t - t\sin t)$.

8. Find the value of $L^{-1}\left[\frac{3p+7}{p^2-2p-3}\right]$:

- (a) $4e^{-3t} - e^{-4}$ (b) $4e^{3t} - e^{-t}$ (c) $4e^{5t} - e^{-4}$ (d) None of these.

9. $L^{-1}\left\{\frac{1}{(s+1)(s^2+1)}\right\}$:

- (a) $\frac{1}{2}[e^{-t} - \cos t + \sin t]$ (b) $\frac{1}{2}(e^{-5} - \sin t + \cos t)$
 (c) $\frac{1}{2}[e^{-7} - \cos t + \sin t]$ (d) None of these.

10. Find the value of $L^{-1}\left[\frac{2s^2+1}{s(s+1)^2}\right]$:

- (a) $1 + e^t - 5te^{-4t}$ (b) $1 + e^{-4t} - 5te^{4t}$
 (c) $1 + e^t - 5te^t$ (d) $1 + e^{-t} - 3te^{-t}$.

11. Find the value of $L^{-1}\left[\frac{1}{2s-5}\right]$:

- (a) $\frac{1}{3}e^{-t/2}$ (b) $\frac{1}{3}e^{5t/2}$ (c) $\frac{1}{3}e^{-4t}$ (d) None of these.

12. Find the value of $L^{-1}\left\{\frac{2p-1}{p^3-p}\right\}$:

- (a) $1 - \frac{3}{2}e^{-t} + \frac{1}{2}e^t$ (b) $\frac{3}{2}e^t + e^{-t}$
 (c) $1 - \frac{5}{2}e^t + \frac{1}{2}e^{-t}$ (d) $\frac{3}{2}e^{-t} + e^{4t}$.

13. Value of $L\{\sin^2 t\}$ is :

- (a) $\frac{2}{s^2(s+5)}$ (b) $\frac{5}{s^2(s+5)}$ (c) $\frac{2}{s(s^2+4)}$ (d) $\frac{5}{s(s^2+9)}$.

14. Value of $L[t\cos(at)]$ is :

- (a) $\frac{(p^2-a^2)^2}{(p^2+a^2)^2}$ (b) $\frac{p^2-a^2}{(p^2+a^2)^2}$ (c) $\frac{p^2-a^2}{p^2+a^2}$ (d) None of these.

15. If $f(s)$ is the Fourier transform of $F(x)$, then Fourier transform of $F(ax)$ is :

- (a) $\frac{1}{a}f\left[\frac{s^2}{a}\right]$ (b) $\frac{1}{a}f\left[\frac{s^2}{a^2}\right]$ (c) $\frac{1}{2}f\left[\frac{s}{a}\right]$ (d) None of these.

16. If $f(s)$ is the Fourier transform of $F(x)$, then Fourier transform of $F(x-a)$ is :

- (a) $e^{-isa}f(s)$ (b) $e^{isa}f(s)$ (c) $e^{-isa}f(s^2)$ (e) $e^{iae}f(s^2)$.

17. Find the Fourier transform of $f(x) = \begin{cases} x, & |x| \leq a \\ 0, & |x| > a \end{cases}$

- (a) $\frac{1}{s}(as \cos sa - \sin^2 as)$ (b) $\frac{2i}{s^2}(\sin as)$
 (c) $\frac{2i}{s^2}(as \cosh a - \sin as)$ (d) $\frac{1}{s}(\cos as)$.

18. Find the Fourier transform of $f(x) = \begin{cases} 1, & |x| < a \\ 0, & |x| > a \end{cases}$

- (a) $\frac{2}{s^2} \cos^2 sa$ (b) $\frac{2}{s^2} \sin^2 a$ (c) $\frac{2}{s} \cos sa$ (d) $\frac{2}{s} \sin sa$.

19. Fourier sine transform of $f(x) = \frac{1}{x}$ is :

- (a) $\frac{\pi}{2}$ (b) $\frac{\pi^2}{2}$ (c) $\frac{\pi^2}{4}$

(d) None of these.

20. Value of $F_s^{-1}\{e^{-as}\}$ is :

- (a) $\frac{2x^2}{\pi^2(\pi+x)}$ (b) $\frac{2x}{\pi(\pi^2+x^2)}$ (c) $\frac{2x}{\pi^2(\pi+x)}$

(d) None of these.

21. Fourier sine transform of $\frac{e^{-ax}}{x}$ is :

- (a) $\tan^{-1}\left(\frac{s}{a}\right)$ (b) $\tan^{-1}\left(\frac{s^2}{a^2}\right)$ (c) $\tan\left(\frac{s^2}{a}\right)$ (d) $\tan\left(\frac{s}{a^2}\right)$.

22. Fourier cosine transform of e^{-x} is :

- (a) $\frac{s^2}{1+s}$ (b) $\frac{1}{1+s^2}$ (c) $\frac{s}{1+s^2}$ (d) None of these.

23. Fourier cosine transform of $f(x) = \begin{cases} 1, & 0 \leq x \leq 1 \\ 0, & x > 1 \end{cases}$ is :

- (a) $\frac{\sin^2 s}{s^2}$ (b) $\frac{\cos^2 s}{s^2}$ (c) $\frac{\sin s}{s}$ (d) $\frac{\cos s}{s}$.

24. Fourier cosine transform of $f(x) = \begin{cases} \cos x & \text{when } 0 < x < a \\ 0 & \text{when } x > a \end{cases}$

- (a) $\frac{1}{2} \left[\frac{\sin(1+s)a}{1+s} + \frac{\sin(1-s)a}{1-s} \right]$ (b) $\frac{\sin s}{s}$

- (c) $\frac{1}{4} \left[\frac{\sin sa}{s} + \frac{\cos sa}{s} \right]$ (d) $\frac{\cos s}{s}$.

25. Solve the following differential equation :

$$(1+x)y \, dx + (1-y)x \, dy = 0$$

- (a) $x^2y^2 = ce^{y-x}$ (b) $xy = ce^{y-x}$ (c) $xy^2 = c^{y-x} e$ (d) $x^2y = c^{y-x} e$.

26. Solve the following differential equation :

$$\left(y - x \frac{dy}{dx} \right) = a \left(y^2 + \frac{dy}{dx} \right)$$

- (a) $y = c(a+x)(1-ay)$
 (c) $y = c^2(a+x)(1-ay)$

- (b) $y = c(a-x)(1+ay)$
 (d) $y = c^2(a-x)(1+ay)$.

27. Solve $\cos(x+y)dy = dx$

- (a) $y = c + \log \frac{1}{2}(x+y)$

- (b) $y = c + \cot 2(x+y)$

- (c) $y = c + \tan \frac{1}{2}(x+y)$

- (d) $y = c + \sin 2(x+y)$.

28. The integrating factor of $\frac{dy}{dx} + \frac{1}{x}y = x^2y^6$ is :

- (a) $1/x^5 + 2$ (b) $1/x^5$ (c) $1/x + 1$ (d) $x + 1$.

29. Solve $(x^2 + y^2)dx - 2xydy = 0$

- (a) $x - y^2 = cx^2$ (b) $x^2 - y^2 = cx$ (c) $x^2 - y^2 = cx^2$ (d) $x - y = cx^2$.

30. The integrating factor of $x\left(\frac{dy}{dx}\right) + y = y^2 \log x$ is :

- (a) $1/x$ (b) $x + 1$ (c) $1/x + 1$ (d) $1/x^2$.

31. The integrating factor of $\frac{dy}{dx} + \frac{1}{x} = \frac{e^y}{x^2}$ is :

- (a) $1/x^4$ (b) $1/x^3$ (c) $1/x^2$ (d) $1/x$.

32. The order of the differential equation

$$\frac{d^4y}{dx^4} - 3\left(\frac{d^2y}{dx^3}\right)^2 + 4\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 0$$

- (a) 3 (b) 6 (c) 4 (d) 2.

33. The integrating factor of $\frac{dx}{dy} + P(y)x + Q(y)$ is :

- (a) $e^{\int P dy}$ (b) $e^{\int P dx}$ (c) $e^{\int Q dx}$ (d) $e^{\int -P dx}$.

34. The differential equation $Mdx + Ndy = 0$ is exact if :

- (a) $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$ (b) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$ (c) $\frac{\partial M}{\partial y} + \frac{\partial N}{\partial x} = 0$ (d) $\frac{\partial M}{\partial x} + \frac{\partial N}{\partial y} = 0$.

35. Which of the following equation is exact :

- (a) $(4x + 3y + 1)dx + (3x + 2y + 1)dy = 0$

- (b) $(4x + 4y + 1)dx + (3x + 2y + 10)dy = 0$

- (c) $(4x + 5y + 1)dx + (3x + 2y + 1)dy = 0$

- (d) $(4x + 5y + 1)dx + (3x + 2y + 10)dy = 0$.

36. Which of the following equation is exact :

- (a) $(x^2 - a^4y)dx - (ax - y^2)dy = 0$ (b) $(x^2 - ay)dx - (a^3x - y^2)dy = 0$

- (c) $(x^2 - ay)dx - (a^2x - y^2)dy = 0$ (d) $(x^2 - ay)dx - (ax - y^2)dy = 0$.

37. Solution of the following differential equation is :

$$p^2 - 5p + 6 = 0$$

- (a) $(y - x^2 - c)(y - 3x^2 - c) = 0$ (b) $(y - x^3 - c)(y - 3x - c) = 0$

- (c) $(y - 2x - c)(y - 3x - c) = 0$ (d) $(y - 2x^3 - c)(y - 3x - c) = 0$.

38. Solution of the equation $y = x(dy/dx) + (dy/dx)^2$ is :

- (a) $y = cx + c^2$ (b) $y = cx^2 + c^2$ (c) $y = cx^3 + c^2$ (d) $y = cx^4 + c^2$.

39. Solution of the equation $\sin px \cos y \cos px \sin y + p$ is :

- (a) $y = cx - \cos^{-1} c$ (b) $y = cx - \sin^{-1} c$

- (c) $y = cx - \tan^{-1} c$ (d) $y = cx - \operatorname{cosec}^{-1} c$.

40. Solution of the differential equation $y = px + a/p$ is :

- (a) $y = cx + a/x$ (b) $y = cx^2 + a/x^2$ (c) $y = cx^2 + a/x$ (d) $y = cx^4 + a/x$.

41. Solution of the equation $y = px + ap(1-p)$ is :

- (a) $y = cx^2 + ac(1+c)$ (b) $y = cx^3 + ac(1-c)$
 (c) $y = cx^2 + ac(1-c)$ (d) $y = cx + ac(1-c)$.

42. Find the singular solution of $y^2 - 2pxy + p^2(x^2 - 1) = m^2$

- (a) $y^2 + m^2x^2 = m^2$ (b) $y^2 + m^2x^3 = m^2$
 (c) $y^2 + m^2x^3 = m^2$ (d) $y^4 + m^2x^3 = m^2$.

43. Find the singular solution of $y = px + a/p$

- (a) $y = 4ax^2$ (b) $y = 4ax^3$ (c) $y^2 = 4ax$ (d) $y^2 = 4ax^2$.

44. Solution of the differential equation $\frac{d^2y}{dx^2} - 3 \frac{dy}{dx} - 4y = 0$ is :

- (a) $y = c_1 e^{-x} + c_2 e^{4x}$ (b) $y = c_1 e^{-6x} + c_2 e^{8x}$
 (c) $y = c_1 e^{-10x} + c_2 e^{8x}$ (d) $y = c_1 e^{-12x} + c_2 e^{8x}$.

45. Solution of the differential equation $\frac{d^2y}{dx^2} - 4 \frac{dy}{dx} + 4y = 0$ is :

- (a) $y = (c_1 + c_2 x) e^{5x}$ (b) $y = (c_1 + c_2 x) e^{4x}$
 (c) $y = (c_1 + c_2 x) e^{3x}$ (d) $y = (c_1 + c_2 x) e^{2x}$.

46. Particular integral of $\frac{d^2y}{dx^2} - 3 \frac{dy}{dx} + 2y - e^{5x}$ is :

- (a) $\frac{1}{8} e^{4x}$ (b) $\frac{1}{8} e^{6x}$ (c) $\frac{1}{12} e^{5x}$ (d) $\frac{1}{12} e^{7x}$.

47. Particular integral of $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 2y = \sin 2x$ is :

- (a) $\frac{1}{20} \cos 2x - \frac{3}{20} \sin 2x$ (b) $\frac{1}{20} \sin 2x - \frac{3}{20} \cos 2x$
 (c) $\frac{1}{20} \cos 2x^2 - \frac{3}{20} \sin 2x^4$ (d) $\frac{1}{20} \sin 2x^2 - \frac{3}{20} \cos 2x^4$.

48. Particular integral of $(D^2 - 2D + 5)y = \sin 3x$ is :

- (a) $(1/26)(3\sin 3x - 2\cos 3x)$ (b) $(1/26)(3\cos 3x - 2\sin 3x)$
 (c) $(1/26)(3\sin 3x^2 - 2\cos 3x^2)$ (d) $(1/26)(3\cos 3x^2 - 2\sin 3x^2)$.

49. Particular integral of $(D^2 + D - 6)y = x$ is :

- (a) $-\frac{1}{36}(6x + 1)$ (b) $\frac{1}{36}(6x^2 + 1)$ (c) $\frac{1}{36}(6x^3 + 1)$ (d) $\frac{1}{36}(6x^4 + 1)$.

50. Particular integral of $(D^2 + 2D + 1)y = 2x + x^2$ is :

- (a) $(x^2 - 2x + 2)$ (b) $(x^3 - 2x + 2)$ (c) $(x^4 - 2x + 2)$ (d) $(x^5 - 2x + 2)$.

51. Solution of the differential equation $x^2 D^2 y + 5x D y + 4y = 0$ is :

- (a) $y = (c_1 + c_2 \log x) x^6$ (b) $y = (c_1 + c_2 \log x) x^4$
 (c) $y = (c_1 + c_2 \log x) x^4$ (d) $y = (c_1 + c_2 \log x) x^{-2}$.

52. The complementary function of $x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} - 3y = x^2 \log x$ is :

- (a) $c_1 e^{5x} + c_2 e^{-2x}$ (b) $c_1 e^{5x} + c_2 e^{-2}$
 (c) $c_1 e^{3x} + c_2 e^{-x}$ (d) $c_1 e^{3x} + c_2 e^{-2x}$.

53. The complementary function of $x^2(D^2y/dx^2) - 4x(dy/dx) + 6y = x$

is :

- (a) $c_1x^2 + c_2x^3$ (b) $c_1x^3 + c_2x^4$
 (c) $c_1x^4 + c_2x^5$ (d) $c_1x^5 + c_2x^6$.
54. The complementary function of $x^2 \frac{d^2y}{dx^2} + 4x \frac{dy}{dx} + 2y = e^x$ is :
- (a) $c_1 + c_2x$ (b) $c_1x^{-1} + c_2x^{-2}$ (c) $c_1x^{-2} + c_2x^{-3}$ (d) $c_1x^{-3} + c_2x^{-4}$
55. Solution of $\frac{\partial z}{\partial x} + \frac{\partial z}{\partial y} = \sin x$ is :
- (a) $\phi(x - y, z + \cos x) = 0$ (b) $\phi(x, z + \sin x) = 0$
 (c) $\phi(x + y, z + \sin x) = 0$ (d) $\phi(x, z + \cos x) = 0$.
56. Solution of $2p + 3q = 1$ is :
- (a) $\phi(x + 2z, y + 3z) = 0$ (b) $\phi(x + 3z, y + 2z) = 0$
 (c) $\phi(x - 2z, y - 3z) = 0$ (d) $\phi(x - 3z, y - 4z) = 0$.
57. Solution of $p + q = 1$ is :
- (a) $\phi(x - y, x - z) = 0$ (b) $\phi(x + y, x + z) = 0$
 (c) $\phi(x, x + z) = 0$ (d) $\phi(x - y, z) = 0$.
58. Solution of $zp = -x$ is :
- (a) $x + z + \phi(y) = 0$ (b) $x^2 + z^2 = \phi(y)$ (c) $x^3 + z^3 \phi(y)$ (d) None of these.
59. Solution of $xp + yq = z$ is :
- (a) $\phi(x, x/z) = 0$ (b) $\phi(x/y, x) = 0$
 (c) $\phi(x/y, x/z) = 0$ (d) None of these.
60. Solution of $p - q = z/(x + y)$ is :
- (a) $x - (x - y) \log z = \phi(x + y)$ (b) $x - (x + y) \log z = \phi(x - y)$
 (c) $x - (x^2 + y^2) \log z = \phi(x - y)$ (d) $x - (x + y) \log z = \phi(x + y)$.
61. Solution of $z(p - q) = z^2 + (x + y)^2$ is :
- (a) $e \{z^2 + (x + y)^2\} = \phi(x + y)$ (b) $e \{z^2 + (x + y)^2\} = \phi(x - y)$
 (c) $e^{2x} \{z^2 + (x - y)^2\} = \phi(x - y)$ (d) $e^{2y} \{z^2 + (x + y)^2\} = \phi(x + y)$.
62. Solution of $xyp + y^2q = zxy - 2x^2$ is :
- (a) $x - \log(z - x/y) = \phi(x/y)$ (b) $x - \log(z - 2x/y) = \phi(x^2/y^2)$
 (c) $x - \log(z - 2x^2/y^2) = \phi(x/y)$ (d) None of these.
63. Solution of $(y - z)p + (z - x)q = x - y$ is :
- (a) $\phi(x + y + z, xy + yz + zx) = 0$ (b) $\phi(x^2 + y^2 + z, xy + yz + zx) = 0$
 (c) $\phi(x^2 + y^2 + z^2, xy + yz + zx) = 0$ (d) $\phi(x + y^2 + z^2, xy + yz + zx) = 0$.
64. Solution of $(y^2 + z^2)p - xyq = -zx$ is :
- (a) $\phi(x + y + z, y/z) = 0$ (b) $\phi(x^2 + y^2 + z^2, y/z) = 0$
 (c) $\phi(x^3 + y^3 + z^3, y/z) = 0$ (d) None of these.
65. Solution of $x(y^2 + z)p - y(x^2 + z)q = z(x^2 - y^2)$ is :
- (a) $\phi(x^2y^2z^2, x^2 + y^2 - 2z) = 0$ (b) $\phi(xyz, x + y - z) = 0$
 (c) $\phi(xyz, x^2 + y^2 - 2z) = 0$ (d) None of these.
66. Solution of $x(y - z)p + y(z - x)q = z(x - y)$ is :
- (a) $\phi(x + y + z, xyz) = 0$ (b) $\phi(x^2 + y^2 + z^2, xyz) = 0$
 (c) $\phi(x^3 + y^3 + z^3, xyz) = 0$ (d) None of these.
67. Solution of $p + q = x + y + z$ is :
- (a) $\phi(x - y, e^{-x}(2 + x + y + z)) = 0$ (b) $\phi(x - y, e(x + y + z)) = 0$
 (c) $\phi(x^2 - y^2, e(x + y + z)) = 0$ (d) None of these.
68. Solution of $xzp + yzq = xy$ is :
- (a) $\phi(x/y, x^2y^2 - z) = 0$ (b) $\phi(x/y, xy - z) = 0$
 (c) $\phi(x/y, xy - z^2) = 0$ (d) None of these.

69. Solution of $p + q = z$ is :

- (a) $\log z = x^2 + ay + b$ (b) $(1+a)\log z + x + ay + b$
 (c) $(1+a)\log z = x^2 + ay^2$ (d) None of these.

70. Solution of $x(1+y)p = y(1+x)q$ is :

- (a) $z = a(\log x^2y^2 + x + y) + b$ (b) $z = a(\log xy + x^2 + y^2) + b$
 (c) $z = a(\log x^2y + x^2 + y) + b$ (d) $z = a(\log xy + x + y) + b$.

71. Solution of $r = a^2t$ is :

- (a) $z = \phi_1(y^2 + ax^2) + \phi_2(y - ax)$ (b) $z = \phi_1(y + ax) + \phi_2(y^2 - ax^2)$
 (c) $z = \phi_1(y + ax) + \phi_2(y - ax)$ (d) None of these.

72. Solution of $25r - 40s + 16t = 0$

- (a) $z = \phi_1(5y + 4x) + x\phi_2(5y + 4x)$ (b) $z = \phi_1(5y^2 + 4x^2) + x\phi_2(5y + 4x)$
 (c) $z = \phi_1(5y + x) + x\phi_2(5y^2 + 4x^2)$ (d) None of these.

73. The complementary function of $(D^2 + 3DD' + 2D'^2)z = x + y$ is :

- (a) $z = \phi_1(y - x^2) + \phi_2(y - 2x^2)$ (b) $z = \phi_1(y - x) + \phi_2(y - 2x)$
 (c) $z = \phi_1(y^2 - x^2) + \phi_2(y - 2x)$ (d) None of these.

74. Particular integral of $r - 2s + t = \sin(2x + 3y)$ is :

- (a) $-\cos(2x^2 + 3y^2)$ (b) $-\cos(2x + 3y)$
 (c) $-\sin(2x^2 + 3y^2)$ (d) $-\sin(2x + 3y)$.

75. The value of $L(\cos ht)$ is :

- (a) $p/(p^2 - a^2)$ (b) $p^2/(p - a)$ (c) $p^2/(p^2 + a^2)$ (d) None of these.

76. The value of $L(\cos at)$ is :

- (a) $p^2/(p + a)$ (b) $p/(p - a)$ (c) $p/(p^2 + a^2)$ (d) $p^2/(p^2 - a^2)$.

77. The value of $L(e^{at})$ is :

- (a) $1/(p^2 - a^2)$ (b) $1/(p^2 + a^2)$ (c) $1/(p - a)$ (d) None of these.

78. The value of $L[F(at)]$ is :

- (a) $\frac{1}{2}f\left(\frac{p}{a}\right)$ (b) $\frac{1}{a}f\left(\frac{p^2}{a^2}\right)$ (c) $\frac{1}{2}f\left(\frac{p^2}{a}\right)$ (d) None of these.

79. The value of $L[e^{at}F(t)]$ is :

- (a) $f(p^2 - a^2)$ (b) $f(p - a)$ (c) $f(p^2 + a^2)$ (d) $f(p + a)$.

80. The value of $L(2e^{5t})$ is :

- (a) $\frac{2}{p^2 + 5}$ (b) $\frac{2}{p^2 - 5}$ (c) $\frac{2}{p + 5}$ (d) $\frac{2}{p - 5}$.