(1) Q7 Solution of $(D^4+1)^2 y = 0$ is

(a) $A\cos x + B\sin x$

(b) $e^x(A\cos x + B\sin x)$

(c) $(A_1 + A_2)\cos x + (A_3 + A_4)\sin x$

(d) $(A_1 + A_2 x)\cos x + (A_3 + A_4 x)\sin x$

Answer $\rightarrow$ (d)

(2) Q. The solution of $\dfrac{d^2 y}{dx^2} - 3\dfrac{dy}{dx} + 2y = e^{3x}$ is

(a) $y = c_1 e^x + c_2 e^{2x} + \frac{1}{2} e^{3x}$

(b) $y = c_1 e^{-x} + c_2 e^{-2x} + \frac{1}{2} e^{3x}$

(c) $y = c_1 e^{-x} + c_2 e^{2x} + \frac{1}{2} e^{3x}$

(d) $y = c_1 e^{-x} + c_2 e^x + \frac{1}{2} e^{-3x}$

Answer $\rightarrow$ (a)

(3) Q. The P.I. of $(D^3 - D)y = e^x + e^{-x}$ is

(a) $\frac{1}{2}(e^x + e^{-x})$

(b) $\frac{1}{2} x (e^x + e^{-x})$

(c) $\frac{1}{2} x^2 (e^x + e^{-x})$

(d) $\frac{1}{2} x^2 (e^x - e^{-x})$

Answer $\rightarrow$ (b)

(4) Q. Solution of $\dfrac{d^2 y}{dx^2} + y = 0$, satisfying the condition $y(0) = 1$, $y(\pi/2) = 2$ is

(a) $\cos x + 2\sin x$

(b) $\cos x + \sin x$

(c) $2\cos x + \sin x$

(d) $2(\cos x + \sin x)$

Answer $\rightarrow$ (a)

(5) Q. Solution of $(D^4 + 8D^2 + 16)y = 0$ is given by

(a) $c_1 e^{2x} + c_2 e^{-2x} + c_3 e^x + c_4 e^{-x}$

(b) $(c_1 + c_2 x) e^{2x} + (c_3 + c_4 x) e^{-2x}$

(c) $(c_1 + c_2 x)\cos 2x + (c_3 + c_4 x)\sin 2x$

(d) $(c_1 + c_2 x)\cosh 2x + (c_3 + c_4 x)\sinh 2x$

Answer $\rightarrow$ (c)

(6) Q. General solution of $\dfrac{d^2 y}{dx^2} - \dfrac{dy}{dx} - 2y = 10\cos x$ is

(a) $y = c_1 e^{-x} + c_2 e^{2x} - 3\cos x - \sin x$

(b) $y = c_1 e^x + c_2 e^{2x} - 3\cos x$

(c) $y = c_1 e^{-x} + c_2 e^{2x} - 3x + \sin x$

(d) $y = c_1 e^x + c_2 e^{-2x} - 3\cos x - \sin x$

Answer $\rightarrow$ (a)