GIET UNIVERSITY, GUNUPUR – 765022

B. Tech – I Semester: CYCLE TEST - II

Subject Code: 21BBSBS1010 Subject Name: Engineering Mathematics

(Common to all branches)

Time: 1.30 hrs Maximum : 30 Marks

PART – A (2 x 5 = 10 Marks)

Q.1. Answer ALL questions		CO #	Bloom Leve
a.	Test the exactness of the differential equation $x \sin(y^2)\,dx + y x^2 \cos(y^2)\,dy = 0$.	CO3	K1
b.	Define integrating factor and how it is useful for differential equation.	CO3	K2
c.	Solve $x^2y'' - 3xy' + 4y = 0$.	CO4	K1
d.	Define general and particular solution of a differential equation.	CO4	K1
e.	Define Even and Odd function. Verify $f(x) = x^2 + x^5$ is even or odd.	CO5	K1

PART – B (10 x 2 = 20 Marks)

Answer ALL Questions		Marks	CO#	Bloom Level
2.a.	Solve $\cos(x+y)\frac{dy}{dx} = 1$.	5	CO2	K3
b.	Solve $xy' + y = x^3y^6$.	5	CO2	K3
	(OR)			
c.	Solve $xy\frac{dy}{dx} = 1 + x + y + xy$.	5	CO2	K3
d.	Solve $y'' - 4y' + 4y = \frac{e^{2x}}{x}$ by using variation of parameter.	5	CO2	K3
3.a.	Using Operator method Solve the differential equation $y'' - 4y' + 4y = e^{3x} + x + 1$.	5	CO5	K3
b.	Find the Fourier series $f(x) = \frac{x^2}{2}$ in $-\pi < x < \pi$.	5	CO5	K3
	(OR)			
c.	Solve $y'' + 3y' - 18y = 9\sin x$ by using undetermined coefficient method.	5	CO3	K3
d.	Solve $y'' + 4y' + 4y = 0$.	5	CO3	K3