ACE Engineering College
(with a Difference in Excellence)
An AUTONOMOUS Institution

Question Paper Code: MA201BS

ACE-R20

Semester End Examination
I B. Tech- II Semester Supply – JUNE-2022
MATHEMATICS-II
(Common to all Branches)

Time: 3 Hours **Max. Marks: 70**

H. T. No										

Answer any 5 Questions out of 8 Questions from the following

Q.No	Question	Marks
1. a)	Solve $(x^2 - ay)dx = (ax - y^2)dy$	7M
b)	Solve $x\,logx\,\frac{dy}{dx} + y = logx^2$	7M
2. a)	Solve $\frac{dy}{dx} + y\,tanx = y^3\,secx$	10M
b)	Solve $p = \log(py - x)$	4M
3. a)	Solve $(D^2 + 2D + 3)y = \sin t$	7M
b)	Solve $(D^3 + 2D^2 + D)y = x^2e^{2x}$	7M
4. a)	Solve by method of variation of parameters, $y''-2y'+y=e^x \log x$	7M
b)	Solve $(x^2D^2 + 4xD + 2)y = e^x$	7M
5. a)	Evaluate $\iint_{y=0,x=1}^{y=3,x=2}(xy)(x + y + 1)\,dxdy$	6M
b)	Change the order of integration and evaluate $\iint_{x=0,y=\frac{x}{a}}^{x=a,y=\sqrt{\frac{x}{a}}}(x^2 + y^2)\,dxdy$	8M
6. a)	Find $\nabla\emptyset, if\ \emptyset = log(x^2 + y^2 + z^2)$	6M
b)	If F=(x+y+1)i+j-(x+y)k, show that F. Curl F=0	8M
7.	Verify Green's theorem for $\oint_c (xy + y^2)\,dx + x^2dy$ Where 'c' is bounded by $y = x$ and $y = x^2$	14M
8. a)	Solve the recurrence relation $a_n-7a_{n-1}+10a_{n-2}=6+8n$ where $a_0=1$ and $a_1=2$	10M
b)	Find the generating function for the sequence 0,1,2,3.....	4M