



DEPARTMENT OF MATHEMATICS
UNIVERSITY COLLEGE OF ENGINEERING (A)
Osmania University, Hyderabad-07

CLASS TEST-II
MATHEMATICS - II
(Common to all branches)

Class: B.E
Semester: II
Academic Year: 2021-2022

Max Marks: 20
Duration: 1 HOUR
Date: 01-08-2022

PART A		Marks	BT	CO
Answer All Questions (6 M)				
1. a)	Show that the function $f(z)$ defined by $f(z) = \begin{cases} \frac{Re(z)}{0} & , z \neq 0 \\ 0 & , z = 0 \end{cases}$ is not continuous at $z = 0$	2	L1	4
b)	Solve : $(D^2 + 6D + 9)y = 5e^{3x}$	2	L2	3
c)	Define Conformal mapping / Bilinear Transformation and write the Properties of Bilinear transformation	2	L2	5
PART B				
Answer Any Two Questions (7 M)				
2. a)	Solve : $(D^2 - 4D + 4)y = e^x + x^3 + \cos 2x$	4	L2	3
b)	Solve : $(D^2 + 1)y = \csc x \cot x$ by using Method of variation of Parameters	3	L3	3
3. a)	Prove that $u = x^2 - y^2 - 2xy - 2x + 3y$ is harmonic. Find a function v such that $f(z) = u + iv$ is analytic. Also express $f(z)$ in terms of z .	4	L2	4
b)	Evaluate : $\int \frac{e^z}{(z-1)(z-4)} dz$ where C is the circle $ z = 2$ by using Cauchy's Integral Formula	3	L3	4
4. a)	Find the bilinear transformation which maps the points $z = 2, 1, -2$ into the points $w = 1, i, -1$	4	L1	5
b)	$\int \frac{1-2z}{z(z-1)(z-2)} dz$, Where C is the circle $ z = 1.5$ by using Cauchy's Residue theorem.	3	L2	5