O.P.Code: 16HS612	R16	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations June-2024
ENGINEERING MATHEMATICS-III

(Common to All)

Time: 3 Hours **Max. Marks: 60**

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Show that $f(z)=z+2\bar{z}$ is an not analytic any where in the complex plane.	CO1	L2	6M
	b	Evaluate $\int_c \frac{1}{z^3(z+4)}dz$ where c is the circle $\|z\|=2$ using Cauchy's integral formula.	CO1	L4	6M

OR

2	a	Find an analytic function whose imaginary part is $e^x(x\sin y+y\cos y)$.	CO1	L3	6M
	b	Evaluate $\int_0^{1+i}(x^2-iy)dz$ along the path $y=x^2$.	CO1	L4	6M

UNIT-II

3		Show that $\int_0^{\pi}\frac{\cos 2\theta}{1+2a\cos 2\theta+a^2}d\theta=\frac{2m^2}{1-a^2},(a^2<1)$ using residue theorem.	CO2	L2	12M

OR

4	a	Find the residues of the function $f(z)=\frac{e^{2z}}{z(z-3)}$ $where\, C:\|z\|=2$	CO2	L3	6M
	b	Find the bilinear transformatioon that maps the point's $(0,1,i)$ into the points $1+i,-i,2-i$ in w-plane.	CO2	L3	6M

UNIT-III

5		Find the root of the equation $xe^x=2$ using Regula-falsi method.	CO3	L3	12M

OR

6		From the following table vaule of $y=\tan x$ interpolate value of y when $x=0.12$ and $x=0.28$	CO3	L3	12M

x	0.1	0.15	0.2	0.25	0.3
y	0.1003	0.1511	0.2027	0.2553	0.3093

UNIT-IV

7		Fit the curve $y = a e^{bx}$ to the following date								CO4	L3	12M

x	0	1	2	3	4	5	6	7	8
y	20	30	52	77	135	211	326	550	1052

OR

8		Dividing the range into 10 equal parts, find the value of $\int_0^{\pi/2} \sin x \, dx$ Simpson's $\frac{1}{3}$ rule.								CO4	L3	12M

UNIT-V

9	a	Given that $\frac{dy}{dx} = 1 + xy$, and $y(0) = 1$ compute $y(0.1)$ & $y(0.2)$ using Picard's method.								CO5	L3	6M
	b	Solve $y' = y^2 + x^2, y(0) = 1.$ by Euler's method and find $y(0.1)$ & $y(0.2)$.								CO5	L3	6M

OR

10		Solve $\frac{dy}{dx} = 1 + xy, y(0) = 2$ using R-K method to find $y(0.1)$, $y(0.2)$& $y(0.3)$								CO5	L3	12M

***** END *****