Question Paper Code:94023A

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2021

Third Semester

Electrical and Electronics Engineering

19UMA324 - PROBABILITY, STATISTICS,COMPLEX ANALYSIS AND NUMERICAL METHODS

(Regulation 2019)

(Statistical tables are may be permitted)

Duration: 1:45hrs Maximum: 50 Marks

PART A 10*2 =20 Marks

Answer any ten of the following questions

1.	What are the parameters and statistics in sampling?	CO1- U
2.	Define Chi-square test of goodness of fit.	CO1- R
3.	Explain Null Hypothesis	CO1- U
4.	A Continuous random variable with density function is given by $f(x)=6x(1-x), 0\le x\le 1$ Check the above is PDF or not.	CO2- R
5.	For Binomial distribution mean is 6 and variance is 2,Find P[X=x].	CO2- U
6.	A random variable X have a uniform distribution over (-3, 3) Find mean value?	CO2- R
7.	Write the condition of convergence of Newton's method	CO3- R
8.	State the principle used in Gauss Elimination Method	CO3- U
9	Compare Gauss Elimination and Gauss Jordan Methods	CO3- R
10	Write down the fourth order Runge Kutta algorithm	CO6- AP
11	Which method is better ? Taylor's series or RK method. Why?	CO6- AP
12	Write down the Adam's predictor and corrector formula.	CO6- U
13	Find the Residues of $f(z)=\frac{z+1}{z(z-2)}$	CO5- U
14	Expand $\log(1+z)$ as a Taylor's series.	CO5- AP
15	Calculate residue of $f(z)=\frac{e^{2z}}{(z+1)^2}$ as its pole.	CO5- U

PART B 3*10 =30 Marks

Answer any three of the following questions

16 Five coins are tossed 256 times. The number of heads observed is given below. Examine if the coins are unbiased, by employing χ^2goodness of fit. CO1 - Apply (10)

No of Heads	0	1	2	3	4	5
Frequency	5	35	75	84	45	12

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17 Define Binomial distribution. Find the moment generating function and Hence find mean and variance CO2- Apply (10)

18 Solve for a positive root of $3x - \cos x - 1 = 0$ by Newton's Raphson method . CO3- Apply (10)

19 Using Taylor's series method find $y(1.1)$ given $y' = x + y$ with $y(1) = 0$ CO4- Apply (10)

20 Using RK method of fourth order find y(0.1)for the initial value problem $\frac{dy}{dx} = x + y^2, y(0) = 1.$ CO5- Apply (10)