Reg. No. :

Question Paper Code: 93024

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Electrical and Electronics Engineering

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

(Regulation 2019)

(Statistical tables are may be permitted)

Duration: One hour   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The degrees of freedom in t-tests is   CO1- U

    (a) n-1   (b) n-2   (c) n-3   d) n-4

2. Large sample size is   CO1- U

    a) 30   b) >30   c) <30   d) none of these

3. Probability of an impossible event is   CO2- R

    (a) 1   (b)10   (c)0   (d) 100

4. The limiting case of Binomial distribution is   CO2- U

    (a)) Normal   (b) Poisson   (c) Gamma   (d) Uniform

5.   CO3-U
    For any root the order of convergence of Newton's method is _____
    (a) 4   (b) 1   (c) 2   (d) 3

6. Iteration method converges if $|g^1(x)|$ _____   CO3- U

    (a) >1   (b)<1   (c)=0   (d)>0

7. Taylor Series method will be very useful to give some _____ values for RK, Milne's and Adam's methods   CO4- U

    (a) initial   (b)final   (c)intermediate   (d) two

8. _____ prior values are required to predict the next value in Milne's method   CO4- R

   (a) 1   (b)2   (c)3   (d) 4

9. If f(z) is analytic at all points inside and on a simple closed curve c, then $\int_c f(z)dz$ = ------   CO5-R

   (a) 2πi   (b) 0   (c) 4πi   (d) 1/2πi

10. Simple pole is a pole of order _____   CO5-R

    (a) 1   (b) 4   (c) 0   (d)3

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Five coins are tossed 256 times. The number of heads observed is given below. Examine if the coins are unbiased, by employing χ^2 goodness of fit.   CO1- App   (8)

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

12. State and prove Memory less Property for an Exponential distribution   CO2- App   (8)

13. Solve for a positive root of   3x – cos x - 1 =0 by Newton's Raphson method .   CO3- Ana   (8)

14. Using Taylor's series method find $y(1.1)$ given $y' = x + y$ with $y(1) = 0$ CO4- App   (8)

15. Find the Laurent's series expansion of the function $\frac{z-1}{(z+2)(z+3)}$ valid in the region (i)2 < |z| < 3 (ii) |z|<2   CO5- U   (8)

    (iii) |z|>3