SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.C.A. - END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - II
20UCAAT2002 - Allied Mathematics - II

Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Find the root of the equation x - $cos\ x = 0$ by Newton Raphson method correct to 3 decimal places.

2. From the following table find f(2) and f(8) using Newtons divided difference formula

x	4	5	7	10	11	13
f(x)	48	100	294	900	1210	2028

3. Evaluate $\int_{-3}^{3} x^4\ dx$ using Trapezoidal rule.

4. X is a poisson random variable such that
   P(X=1) = 0.3 and P(X=2) = 0.2. Find P(X=0).

5. Calculate the rank correlation from the following data:

X	92	89	87	86	86	77	71	63	53	50
Y	86	83	91	77	68	85	52	82	37	57

6. Solve the system of equation by gauss elimination method
   $2x + 3y$ - $z = 5$; $4x + 4y$ - $3z = 3$; $2x$ - $3y + 2z = 2$.

7. Evaluate $\int_{0}^{6} \frac{dx}{1+x}$ using Simson rule.

8. Find the line of regression of y on x

x	1	2	3	4	5	8	10
y	9	8	10	12	14	16	15

Contd...

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Solve the system of equation by gauss seidal method
   $10x$ - $5y$ - $2z = 3$; $4x$ - $10y + 3z$ = -3; $x + 6y + 10z$ = -3.
   Correct to 3 decimal places.

10. Using Lagranges interpolation formula. Find y(1) from the following data:

x	-1	0	2	3
y	-8	3	1	12

11. The population of a certain town is given below. Find the rate of growth of the population in 1931,1941,1961,1971.

Year x	1931	1941	1951	1961	1971
Population in thousands y	40.62	60.80	79.95	103.56	132.65

12. Derive the mean and variance for Binomial distribution.

13. Calculate the coefficient of correlation between x and y for the following data:

X	43	44	46	40	44	42	45	42	38	40	42	57
Y	29	31	19	18	19	27	27	29	41	30	26	10

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