NP-3605

B.Sc. (Com. Science)

Examination, May-2025

Computer Oriented Numerical Techniques

(BCS-401)

Time : Three Hours] *[Maximum Marks : 75*

Note : Attempt **all** the sections as per instructions.

Section-A

Note : Attempt **all** questions. 5×3=15

1. Evaluate $\Delta^3 (1-x)(1-2x)(1-3x)$.
2. If mean & median of a series are 26.8 and 27.9 respectively. Find its mode.
3. Write down Simpson's 1/3 formula.
4. If a dice is thrown. What is the probability that out come will be an odd number.
5. Explain Lagrang's Interpolation formula for unequal Intervals.

Section-B

Note : Attempt any **two** questions. 2×7½

6. Calculate mean & median from the following data :

Class	Frequency
30-40	6
40-50	10
50-60	16
60-70	14
70-80	10
80-90	5
90-100	2

7. If f(0) = 2, f(1) =3, f(2)=12, f(5) = 147 . Find f(4).
8. Compute rank correlation coefficient between the two series X and Y, given below :

X	70	65	71	62	58	69	78	64
Y	91	76	65	83	90	64	55	48

Section-C

Note : Attempt any **three questions.** 3×15

9. Find the root of **the equation** $x^4-x-9=0$ by Newton Raphson **method** lying between 1 & 2.

10. (a) The population of a Country in decennial census were as under. Estimate the population for the year 1925.

Year	Population (in /1000)
1891	46
1901	66
1911	81
1921	93
1931	101

(b) Explain Binomial distribution with its important properties.

11. A sample analysis of examination results of 500 student was made. It was found that 220 had failed, 170 had secured third class, 90 were secured second division and 20 got first class. Are these figures agree with the general examination result which is in the ratio 4 : 3 : 2 : 1 for the various categories respecting (Given that ψ_3^2 (.05) = 7.81).

12. (a) Evaluate $\int_0^{\pi} x^4$ by Simpson's 3/8 Rule.

(b) Find the missing value in the following table :

Year	2011	2012	2013	2014	2015	2016	2017
Production	17.1	13.0	14.0	9.6	-	12.4	18.2

13. We have a consignment of 1000 cartons containg 100 electric light bulbs. Sampling reveals an average of 1 bulb per 100 is defective. Use Poisson distribution to find the expected number of cartons out of the 1000, which have 0, 1, 2, 3, 4, 5 and 6 defective bulbs. (Given that e^{-1} = 0.3679)