

(FOR THE CANDIDATES ADMITTED

SUBJECT CODE

25 UCT 1A1

DURING THE ACADEMIC YEAR 2025-26 ONLY)

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI**END-OF-SEMESTER EXAMINATIONS : NOVEMBER – 2025****B.Sc. – Computer Technology****MAXIMUM MARKS: 75****I SEMESTER****TIME : 3 HOURS****PART – III****MATHEMATICS-I : VEDIC METHODS AND DISCRETE
MATHEMATICS****SECTION – A****(10 X 1 = 10 MARKS)****ANSWER THE FOLLOWING QUESTIONS.****(K1)**

1. The literal means _____
 - a) all from 0 and the last from 9
 - b) all from 1 and the last from 9
 - c) all from 9 and the last from 100
 - d) all from 9 and the last from 10
2. The _____ in Vedic Maths utilizes a "bar" (a horizontal line above a digit) to represent a negative digit within a number.
 - a) Puranapurabhyam
 - b) Ekadhikena Purvena
 - c) Vinculum method
 - d) Sankalan Vyavkalanabhyam
3. The set of all possible subsets of a given set, including the empty set is called as _____.
 - a) Singleton set
 - b) power set
 - c) subset
 - d) disjoint sets
4. _____ a sequence of statements called premises, followed by a conclusion.
 - a) Argument
 - b) Contradiction
 - c) Tautology
 - d) Duality
5. The binary relation $\{(1,1), (2,1), (2,2), (2,3), (2,4), (3,1), (3,2)\}$ on the set $\{1, 2, 3\}$ is _____.
 - a) reflexive, symmetric and transitive
 - b) irreflexive, symmetric and transitive
 - c) neither reflexive, nor irreflexive and not transitive
 - d) irreflexive and antisymmetric

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES. (K2)

6. What is Vedic mathematics?
7. What is Nikhilam Navatascaramam Dasatah?
8. Define a subset.
9. What is a Contradiction?
10. Define a binary relation.

(CONTD 2)

SECTION – B

(5 x 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

11. a) Add: $26 + 59 + 394 + 66 + 11 + 14$ using Puranapurabhyam Vedic method.

(OR)

- b) Find the value of $349 + 452 + 76 + 22 + 15$ using Ekadhikena Purvena.

12. a) Subtract : $5495 - 3887$ using Vinculum method.

(OR)

- b) Subtract $10000 - 462$ using Nikhilam Navatascaramam Dasatah.

13. a) What are the operations on Sets?

(OR)

- b) What are minsets?

14. a) Construct the truth table for $(P \vee Q) \vee \neg P$.

(OR)

- b) Write short notes on conditional and biconditional statements.

15. a) Describe the Set operation on relations.

(OR)

- b) Write short notes on Invertible functions.

SECTION – C (5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.(K4/K5)

16. a) Solve $77 + 777 + 7777 + 77777$ using Sankalan Vyavkalanabhyam.

(OR)

- b) Explain the Vedic Sutras and their applications.

17. a) Subtract $8745 - 4599$ using Digit Separator Method.

(OR)

- b) List the steps involved in the Digit Separator Method for subtraction.

18. a) What are the Laws of set theory?

(OR)

- b) Discuss the fundamental properties of set algebra.

19. a) Prove that $(P \rightarrow Q) \Leftrightarrow (\neg P \vee Q)$ is a Tautology.

(OR)

- b) Show that $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Leftrightarrow R$

20. a) Explain the types of functions in detail.

(OR)

- b) Discuss types of relations in detail.