

2025

M.Sc. 1st Semester Examination

APPLIED MATHEMATICS

Paper : MTMO406VC

[Indian Knowledge System]

Full Marks : 25

Time : One Hour

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *two* questions : $2 \times 2 = 4$

1. What do you know about Indo-Arabic Numerals?
[CO1]
2. Write down the eight fundamental operations in Mathematics, as invented by Aryabhatta I. Mention the title of his book.
[CO2]
3. What contributions did Varahamihira make to astronomy?
[CO2]
4. Which text is Brahmagupta famous for? What is the most famous discovery?
[CO1]

P.T.O.

(2)

Group - B

Answer any *two* questions : $4 \times 2 = 8$

5. State the Pythagorean theorem as mentioned by Baudhayana in Sulba-Sutra. Prove it. Also mention atleast one Pythagorean triple as mentioned by Baudhayana. [CO1]
6. Write a short note on Place-Value system. [CO2]
7. What are the key contributions of Aryabhata I to Astronomy? [CO1]
8. Who was Madhava? Write down his contributions towards infinite series. [CO2]

Group - C

Answer any *one* question : $8 \times 1 = 8$

9. Find the cube root of 28094464 by Aryabhata I's method. [CO1]
10. What do you mean by "Kuttaka" method? Find the general solution of the equation
$$137x + 10 = 60y$$
in positive integers by Brahmagupta Kuttaka method. [CO2]

Internal Assessment : 5 marks
