

B.Sc. III Sem-VI
B.Sc.4532 / MAT-306 - Mathematics Paper-VI (Optional) :
Number Theory and Discrete Mathematics

P. Pages : 3

Time : Three Hours



GUG/S/19/1355

Max. Marks : 60

- Notes : 1. Solve all **five** questions.
 2. All questions carry equal marks.

UNIT – I

1. a) Find all solutions of $10x - 7y = 17$. 6
 b) Find all solutions in positive integers $5x + 3y = 52$. 6

OR

- c) State and prove Fermat's theorem. 6
 d) Find the solution of $8x + 7y = 89$. 6

UNIT – II

2. a) Solve the simultaneous congruence 6
 $x \equiv 1 \pmod{7}$
 $x \equiv 2 \pmod{11}$
 $x \equiv 3 \pmod{13}$
 b) Find all integer that satisfied simultaneously. 6
 $x \equiv 2 \pmod{3}$
 $x \equiv 3 \pmod{5}$
 $x \equiv 5 \pmod{2}$

OR

- c) Solve $x^3 + 2x - 3 \equiv 0 \pmod{45}$. 6
 d) Solve $59x \equiv 31 \pmod{67}$. 6

UNIT – III

3. a) Show that the digraphs given below are isomorphic. 6



