B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Third Semester

Branch—Computer Science/Information Technology

ENO 10 301 B—ENGINEERING MATHEMATICS—II (CS, IT)

(Regular)

Time : Three Hours   Maximum : 100 Marks

Part A

Answer **all** *questions briefly.*
Each question carries 3 marks.

1. Write in symbolic form :
    (a) Some girls are not white.
    (b) It is true that all roads lead to Kollam
    (c) Some cones are not good.

2. Using Euclidean algorithm, find gcd of 15276 and 2055.

3. Give examples of two functions $f : N \to Z$ and $g : Z \to Z$ such that $g \circ f$ is injective but g is not injective.

4. Define a Bounded lattice and a Sublattice.

5. Define
    (a) Hamiltonian cycle.
    (b) Spanning tree.

                                                                    (5 × 3 = 15 marks)

Part B

Answer **all** *questions, each question carries 5 marks.*

6. Construct truth table for $P \vee \rceil (P \wedge Q)$.

7. If $a \equiv b \pmod n$ then show that $a^k = b^k \pmod n$ for every positive integer k.

8. I denotes the set of all integers and m is an integer. Show R = { $< x, y > / x - y$ is divisible by m} is an equivalence relation.

9. Define chain and subchains and show that every chain is a distribution lattice.

10. Give an example of a graph in which the length of the longest cycle is 9 and the length of the shortest cycle is 4.

                                                                    (5 × 5 = 25 marks)

                                                                    Turn over