

5. (i) Explain the working of SR flip-flop.
(ii) Explain the working of serial in serial out shift register.
6. (i) Design and explain the working of a 8 to 1 multiplexer.
(ii) Design a Modulo-5 counter and explain its working.
7. (i) Write a note on PROMs. Describe the selection logic used to select a device out of a 4 devices connected.
(ii) Differentiate ROM and EPROM.
8. (i) Differentiate between static and dynamic memory.
(ii) Draw read and write control timing diagrams for accessing and writing to a memory location.

Exam. Code : 105702
Subject Code : 1420

B.Sc. (Information Technology) 2nd Semester
PRINCIPLES OF DIGITAL ELECTRONICS
Paper—I

Time Allowed—2 Hours] [Maximum Marks—75

Note :—There are **EIGHT** questions of equal marks. Candidates are required to attempt any **FOUR** questions.

1. (i) Describe Gray code. Convert 8AB into Octal.
(ii) Convert the following :
(a) Convert $(126.3)_8$ into hexadecimal.
(b) Convert 11010110010 into BCD.
2. Do the following :
(i) Find 1's and 2's complement of 45.
(ii) Write the excess-three codes for decimal numbers 15 and 49.
3. (i) Simplify $F = \sum(1, 3, 4, 5, 10, 13)$ using Boolean algebra.
(ii) Write the steps of K-map simplification and simplify $\sum(2, 3, 8, 11, 13, 15)$ using K-map.
4. (i) Simplify $F = \sum(1, 2, 5, 7, 13)$ using Boolean algebra and design the circuit using NAND gates only.
(ii) Convert $(A + B + C)(B + C)$ into standard POS form.