(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 2 6 1 0 8

Exam. Code : 0 4 7 3

M.Sc. Physics 2nd Semester

(2055)

ELECTRONICS-II

Paper : PHY-8024

Time Allowed : Three Hours] [Maximum Marks : 60

Note :— Attempt **five** questions in all, selecting **one** question from each unit (Unit I to IV). Question No. **9** of the Unit-V is compulsory.

UNIT—I

1. (a) Minimize the following logic function in term of minterm and don't-care conditions. Also realize using NAND gates :

   $f(A, B, C, D) = \Sigma m (1, 2, 6, 7, 8, 13, 14, 15) + d (0, 3, 5, 12)$ 7

   (b) Explain the working of 3 I/P and 3 O/P PLA architecture with a diagram. Also construct seven segment outputs for four input variables. 5

2. (a) What do you understand by logic family ? Write down different performance characteristics of logic family. 7

   (b) Realise the following function of four variables using 4 to 16 line decoder with active-low outputs :

   $f(A, B, C, D) = \Sigma m (0, 3, 5, 6, 9, 10, 12, 15)$ 5

UNIT—II

3. (a) Differentiate between asynchronous and synchronous counter. Discuss synchronous decade counter with appropriate sequence. 6

   (b) Design ripple counter for 4 bit down counter using flip flop. Draw proper sequence and waveforms for it. 6

4. (a) Discuss master salve J-K flip flop to overcome race round condition of S-R flip flop. Explain the method with the help of diagram. 6

   (b) What is D type flip flop ? Convert D flip flop into T type flip flop. 6

UNIT—III

5. (a) Explain the working of successive approximation and counting type analog to digital converter. 9

   (b) Define accuracy and resolution of A/D converter. How many bits are required in binary ladder to achieve a resolution of 1 mV if full scale is + 5 V ? 3

6. Write the details on :

   (a) Classification of various memories of storage.

   (b) Charge coupled memory devices system along with their useful applications. 6,6

UNIT—IV

7. (a) Describe the epitaxial growth and masking and etching process in the IC fabrication. 8

   (b) Explain the details of any **four** of following :

   (i) SUI

   (ii) RAL

   (iii) LXI

   (iv) CMP

   (v) JMP

   (vi) PUSH 4

8. (a) Give details of organization and operation of 8085A microprocessor. 6

   (b) Discuss various addressing modes of instruction 8085 with examples. 6

UNIT—V

9. Give the point answers of following questions :

   (a) Convert 1100 decimal to octal and hexadecimal system.

   (b) What is switch contact bounce circuit ?

   (c) What is linearity error in digital to analog converter ?

   (d) What is parity generator ?

   (e) How long will it take to shift 7 bit number into SIPO shift register if clock is set at 20 KHz ?

   (f) What is the difference between data bus and address bus ? 6×2=12