

**322356(28)**

**B. E. (Third Semester) Examination, April-May 2020**

**(New Scheme)**

**(CSE Branch)**

**DIGITAL ELECTRONICS & LOGIC DESIGN**

*Time Allowed : Three hours*

*Maximum Marks : 80*

*Minimum Pass Marks : 28*

*Note : Attempt all questions. Part (a) of each unit is compulsory and carries 2 marks. Attempt any two parts from part (b), (c) and (d) of each unit. (2 marks each)*

**Unit-I**

1. (a) What is Gray code?
- (b) A 7-bit Hamming code is received is 0010001.  
Assuming that even parity has been used, check

[ 2 ]

if it is correct. If not find the correct code, if parity is used.

- (c) State and explain De-Morgan theorem of between algebra.
- (d) Simplify the Boolean function using  $K$ -map :

$$f = \Sigma m(0, 2, 3, 8, 10, 12) + d(4, 6, 7)$$

Also draw its logic gate.

### Unit-II

2. (a) What is Tri state logic?
- (b) What do you mean by TTL with its totem pole arrangement?
- (c) Explain various parameter of digital logic family in brief.
- (d) Explain interfacing of TTL to CMOS and CMOS to TTL.

### Unit-III

[ 3 ]

3. (a) Define multiplexer with its diagram.
- (b) Draw and explain function of full-adder circuits.
- (c) Implement a 3 line to 8 line decoder with its logic diagram.
- (d) Explain octal to binary encoder with its working.

### Unit-IV

4. (a) What is sequential circuit?
- (b) Convert the SR ff to JK ff.
- (c) Explain T-ff with its working.
- (d) Draw and explain parallel in serial at shift register.

### Unit-V

5. (a) Define ROM.
- (b) Write down the classification and characteristics of various types of memory.
- (c) Explain the function of PLA.

(d) What are the different application of ROM?