

POSSESSION OF MOBILE IN EXAMINATION IS UFM PRACTICE

Name of Student ----- Enrolment No. -----

Department -----

BENNETT UNIVERSITY, GREATER NOIDA

Minor-1 Examination, SPRING SEMESTER 2017-18

COURSE CODE: ECSE104L

MAX. DURATION: ONE HOUR

COURSE NAME: DIGITAL DESIGN

COURSE CREDIT: 5

MAX. MARKS: 50

Note:

- All the questions are compulsory.
- Please write precisely and neatly. Please make clear diagram wherever required.

Q1. Design a circuit to check the equality of two 1 bit binary numbers using the universal gate. (5 Marks)

Q2. Identify and analyse the Boolean function with and without don't care condition in terms of gates for the following scenario (10 Marks)

$$F(A, B, C, D) = \sum (2, 4, 7, 10, 12)$$

$$d(A, B, C, D) = \sum (0, 6, 8)$$

Q3. Perform following operation: (5 Marks)

- Subtract 5-20 using 2's complement
- Subtract 19 -10 using 1's complement

Q4. Valentines week is/was from the 7th Feb (Wednesday) to 14th of Feb (Wednesday) and you would like to go outside during these days. You can represent 000 = First Wednesday (7th Feb), and 111 = Second Wednesday (14th Feb). You can go outside (true case) if

- there is no class of Digital Design course (You have digital design class on every Monday, Wednesday and Thursday). Or
- you don't have any examination on that day (you have an examination on 13th Feb, Tuesday).

Prepare a truth-table and find out the Boolean expression for this problem using K-Map. Finally prepare a circuit where input will be the valentines week day (e.g. Monday) and output will be yes/no. (15 Marks)

Q5. Design a hex to seven-segment display decoder. Prepare the truth table and also the minimized Boolean expression for one of the output using K-Map for this problem. (10 Marks)



Q6. Multiple choice question. Write explanation along with your answer. (5*1 = 5 Marks)

I. What is the result when a decimal 5238 is converted to base 16?

- a. 1388
- b. 12166
- c. 327.375
- d. 1476

II. Convert the binary number 1001.0010 to decimal.

- a. 12.5
- b. 125
- c. 90.125
- d. 9.125

III. BCD to seven segment conversion is a _____.

- a. Decoding process
- b. Encoding process
- c. Comparing process
- d. None of the mentioned

IV. A decoder converts n inputs to maximum _____ outputs.

- a. n
- b. n^2
- c. 2^n
- d. n^n

V. 3428 is the decimal value for which of the following binary coded decimal (BCD) groupings?

- a. 11010000101000
- b. 11010001001000
- c. 110100001101010
- d. 011010010000010