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Name of Examination : **Summer 2021** - (Preview)

Course Code & Course Name : **EE253U - Digital Electronics & Microprocessor**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

- 1) Solve any three from following questions:
 - a) Simplify the following function using K-map: [6]
 - i) $F(A,B,C,D) = \sum m(0, 2, 8, 10, 14) + \sum d(5, 15)$
 - ii) $F(A, B, C, D) = \sum m(0, 1, 3, 5, 7, 8, 9, 11, 13, 15)$
 - b) What do you mean by addressing modes of 8085. Explain with suitable example. [6]
 - c) Explain the following terms: [6]
 - i) RAM ii) ROM iii) EPROM iv) EEPROM
 - d) How to implement full subtractor using two half subtractors? [6]
- 2) Solve any three from following questions:
 - a) Implement the following function using 4:1 multiplexer: [6]
 $F(A,B,C,D) = \sum m(0,1,2,4,6,9,12,14)$
 - b) Explain the difference between synchronous and asynchronous counter. [6]
 - c) i. Express the function in standard SOP form $F = A + A.B + B.C$ [3]
 - ii. Express the function in standard POS form [3]
 $F = (A' + B + C) * (B' + C + D') * (A + B' + C' + D)$
 - d) Explain the operation of TTL as a NAND gate. [6]
- 3) Solve any three from following questions:
 - a) Draw the architecture of 8085 microprocessor and explain it in brief. [6]
 - b) Design a BCD to seven segment decoder for common cathode configuration. [6]
 - c) Design binary to gray code converter (3 bit binary). [6]
 - d) Convert the following Flip Flop: [6]
 - i) S-R to J-K Flip Flop and ii) J-K to T Flip Flop
- 4) Solve the following question:
 - a) Explain the classification of instruction set of 8085 microprocessor and explain with suitable example. [6]

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