**C** **Reg. No. :** | | | | | | | | | | | | |

# Question Paper Code: U2F05

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Second Semester

Computer science and Design

21UCD205- Digital and Computer Organization

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. How many cells does a 5-variable K-map contains? CO1- U

   (a) 2 (b) 4 (c) 32 (d) 8

2. Full adder is constructed by using _____. CO1- U

   (a) Two Half Adder& one OR gate (b) two OR gate &one HA

   (c) One HA & two OR gate (d) One OR gate & one HA

3. CPU does not perform the operation _____. CO1- U

   (a) data transfer (b) logic operation (c) arithmetic operation (d) all of the above

4. The status bit is also called as ___. CO1- U

   (a) Unsigned bit (b) Signed bit (c) Flag bit (d) None of the above

5. The performance of cache memory is frequently measured in terms of a quantity called ____. CO1- U

   (a) Miss ratio (b) Hit ratio (c) Latency ratio (d) Read ratio

PART – B (5 x 3= 15Marks)

6. Construct K Map for F(A,B,C,)=Σ(3,4,6,7). CO2- App

7. Construct 2:1 multiplexer. CO1- U

8. Draw the block diagram of computer. CO1- U

9. Give the booth's recoding and bit-pair recoding of the computer. 1000111101000101 CO2- App

10. Define the term RELIABILITY. CO1- U

PART – C (5 x 16= 80Marks)

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| 11. | (a) | What do you mean by number system? List types of number system and Explain in detail. | CO1-U | (16) |
| | | Or | | |
| | (b) | Explain in detail about Boolean theorems with an example. | CO1-U | (16) |
| 12. | (a) | Explain in detail about binary counters. | CO1-U | (16) |
| | | Or | | |
| | (b) | Illustrate JK Flip-Flop with truth table and logic circuits. | CO1-U | (16) |
| 13. | (a) | Explain basic operational concepts of a computer system. | CO1-U | (16) |
| | | Or | | |
| | (b) | What do you mean by addressing modes? Explain various addressing modes with the help of examples. | CO1-U | (16) |
| 14. | (a) | Explain the design of Addition/Subtraction logic unit. | CO1-U | (16) |
| | | Or | | |
| | (b) | Explain restoring and non-restoring division technique. | CO1-U | (16) |
| 15. | (a) | Illustrate the characteristics of some common memory technologies. | CO1-U | (16) |
| | | Or | | |
| | (b) | What is an interrupt? Explain the different types of interrupts and the different ways of handling interrupts. | CO1-U | (16) |