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Question Paper Code: U2F05

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

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)

- How many cells does a 5-variable K-map contains? CO1- U
(a) 2 (b) 4 (c) 32 (d) 8
- 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
- CPU does not perform the operation _____. CO1- U
(a) data transfer (b) logic operation (c) arithmetic operation (d) all of the above
- The status bit is also called as _____. CO1- U
(a) Unsigned bit (b) Signed bit (c) Flag bit (d) None of the above
- The performance of cache memory is frequently measured in terms of a CO1- U
quantity called _____.
(a) Miss ratio (b) Hit ratio (c) Latency ratio (d) Read ratio

PART – B (5 x 3= 15Marks)

- Construct K Map for $F(A,B,C)=\Sigma(3,4,6,7)$. CO2- App
- Construct 2:1 multiplexer. CO1- U
- Draw the block diagram of computer. CO1- U
- Give the booth's recoding and bit-pair recoding of the computer. CO2- App
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10. Define the term RELIABILITY. CO1- U

PART – C (5 x 16= 80Marks)

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)