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II/IV B.Tech (Supplementary) DEGREE EXAMINATION

September, 2022

Common to CB, CSE, DS & IT Branches

Third Semester

Computer Organization

Time: Three Hours

Maximum: 70 Marks

Answer Question No.1 compulsorily.

(14X1 = 14 Marks)

Answer ONE question from each unit.

(4X14=56 Marks)

1. a) Convert 248 to BCD number CO1
- b) How do you calculate the r's complement of a given number CO1
- c) Draw the symbol for three state buffer CO1
- d) Define instruction code and operation code CO2
- e) What are the different types of control organization CO2
- f) Define control word CO2
- g) What is the use of stack pointer register CO3
- h) Define addressing mode CO3
- i) Write any two data transfer instructions CO3
- j) Define condition code bits CO3
- k) What is the use of cache memory CO4
- l) Define multi programming CO4
- m) Differentiate RAM and ROM CO4
- n) Define virtual memory CO4

Unit - I

2. a) What are the different types of ways to represent negative numbers in signed magnitude representation CO1 7M
 - b) With a neat sketch explain 4 bit adder CO1 7M
- (OR)
3. a) Convert the following CO1 7M
 - i) $(7562)_{10} = (?)_8$ ii) $(456)_{16} = (?)_8$ iii) $(127.12)_{10} = (?)_{16}$
 - b) Design the four bit arithmetic circuit with a neat sketch CO1 7M

Unit - II

4. a) What is an instruction cycle? Draw the flowchart for instruction cycle. CO2 7M
 - b) Explain about micro instruction format CO2 7M
- (OR)
5. a) Differentiate Direct and Indirect addresses with an example CO2 7M
 - b) Draw the block diagram for micro program sequencer for a control memory CO2 7M

Unit - III

6. a) Convert the following expression from infix to reverse polish notation CO3 7M
 $A+B*[C*D+E*(F+G)]$
 - b) Differentiate RISC and CISC CO3 7M
- (OR)
7. a) Write the algorithm for addition and subtraction of numbers in signed 2's complement representation CO3 7M
 - b) Explain Booth Multiplication Algorithm with an example CO3 7M

Unit - IV

8. a) Explain Associative mapping and Set- Associative memory mapping CO4 7M
 - b) Explain about Auxiliary Memory CO4 7M
- (OR)
9. a) Explain about Associative memory CO4 7M
 - b) Explain about DMA CO4 7M

