

Code No: 153AG**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech II Year I Semester Examinations, April/May - 2023****COMPUTER ORGANIZATION AND ARCHITECTURE****(Common to CSE, CSBS, CSIT, CE(SE), CSE(CS), CSE(DS), CSE(N), AI&DS, AI&ML, CSD)****Time: 3 Hours****Max. Marks: 75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) What is a computer? [2]
- b) Explain functionalities of CPU. [3]
- c) What are different addressing modes? [2]
- d) Discuss about any two types of instruction formats. [3]
- e) Give an example of decimal representation. [2]
- f) Explain about BCD adder. [3]
- g) What is magnetic tape? [2]
- h) Describe parallel priority interrupt. [3]
- i) What are conditions for incoherence? [2]
- j) What are CISC characteristics? [3]

PART – B**(50 Marks)**

- 2.a) Explain about computer design and architecture.
 - b) What are computer registers? Explain. [5+5]
- OR**
- 3.a) Discuss about shift microoperations in detail.
 - b) List and explain about memory-reference instructions. [5+5]
- 4.a) What are shift instructions? Explain with suitable examples.
 - b) Define control memory. Explain. [5+5]
- OR**
- 5.a) Explain about microinstruction format in detail.
 - b) What are RISC instructions? Explain. [5+5]
- 6.a) Discuss about complements in data representation.
 - b) Explain decimal arithmetic operations with examples. [5+5]
- OR**
- 7.a) Describe fixed-point representation in detail.
 - b) Discuss about division algorithms with examples. [5+5]

- 8.a) Explain hardware organization and match logic of associative memory.
b) What are various modes of transfer? Explain. [5+5]

OR

9. Discuss about direct mapping and set associative mapping. [10]

10. Explain the following:
a) Interprocessor arbitration
b) Four-segment instruction pipeline. [5+5]

OR

11. Explain the following:
a) Interprocess communication and synchronization
b) Array processors. [5+5]

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Used papers 2023