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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, December – 2020

(Fifth Semester)

BCSPC 5020 / BITPC 5020

COMPUTER ORGANISATION AND ARCHITECTURE

(CSE & IT)

Time: 2 hrs

Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)**(1 x 10 = 10 Marks)**Q.1. Answer ALL questions

- a. The organization and interconnection of the various components of a computer system is
- (i) Graphics (ii) Networks
(iii) Designing (iv) Architecture
- b. First generation computers are characterised by
- (i) Mini-computers (ii) Vaccum tubes
(iii) Transistors (iv) Magnetic tape
- c. In a memory mapped I/O system, which of the following will not be there?
- (i) IN (ii) STA
(iii) LDA (iv) ADD
- d. A pipeline is like
- (i) House pipeline (ii) A gas line
(iii) An automobile assembly line (iv) Both (i) and (ii)
- e. Data hazards occurs when _____
- (i) Some functional unit is not fully pipelined (ii) Pipelines changes the order of read/write access to operands
(iii) Machine size is limited (iv) Greater performace loss
- f. A stack is
- (i) A 16-bit memory address stored in the program counter (ii) A 16-bit register in the microprocessor
(iii) A set of memory locations in R/WM (iv) An 8-bit register in the microprocessor
- g. Cache memory is
- (i) permanent storage (ii) greater capacity than RAM
(iii) faster to access than RAM (iv) faster to access than CPU registers
- h. The datapath for the MIPS architecture has instruction set of
- (i) 128 bits (ii) 32 bits
(iii) 6 bits (iii) 8 bits
- i. In floating point representation the mantissa contains
- (i) 24-31 bits (ii) 25-32 bits
(iii) 26-31 bits (iv) 26-32 bits
- j. A digital circuit that generates the arithmetic sum of two binary number of any length is
- (i) Multiplier (ii) Binary Adder-Subtractor unit
(ii) Binary Incrementer (iii) Multiplexer

PART – B: (Short Answer Questions)

(2 x 5 = 10 Marks)

Q.2. Answer ALL questions

- a. What are the characteristics of RISC?
- b. What is virtual memory?
- c. What is the Flynn's classification of computers?
- d. Subtract $1010100 - 1000011$ using 2's complement.
- e. Explain cache memory system.

PART – C: (Long Answer Questions)

(6 x 5 = 30 Marks)

Answer ANY FIVE questions

Marks

3. Discuss about Booth's multiplication algorithm (6)
4. Draw and explain addition and subtraction of floating point numbers (6)
5. What is the difference between memory mapped I/O and I/O mapped IO? state the advantages and disadvantages. (6)
6. Draw the hierarchy of memory. Why memory hierarchy is important in computer system? (6)
7. Elaborate functional units of a computer (6)
8. Differentiate RISC and CISC. (6)
9. Differentiate between static RAM and dynamic RAM. (6)
10. Explain pipelining and its factors. Mention advantages and disadvantages of pipelining. (6)

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