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B.Tech. Examination, 2016

(Fourth Semester)

(CS & IT Branches)

Q10/10

Paper - III

COMPUTER ORGANIZATION

Time Allowed : Three Hours

Maximum Marks : 100

Q10/10
Q10/10

Note : Attempt any five questions. All questions carry equal marks.

- Q. 1.** (a) What is overflow ? Discuss the differences among positive overflow exponents overflow and significand overflow. 10
(b) Represent the following decimal number in IEEE standard floating point format : 10
(i) -1.75
(ii) 21
- Q. 2.** (a) Discuss the bus arbitration. 10
(b) Explain the Booth's multiplication method and use this method to multiply decimal number -23 and 9. Discuss the advantages of using this method. 10
- Q. 3.** Write short note on the following :
(a) Direct addressing 10
(b) Displacement addressing 10

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P.T.O.

(2)

- Q. 4. (a) Discuss the generations of computer system. 10
(b) What is memory transfer? What are different registers associated for this purpose? 10
- Q. 5. What is the benefits of using a multiple bus architecture compared to a single bus architecture? 20
- Q. 6. (a) Write a program to evaluate the arithmetic statement using a general computer with three, two, one and zero address instruction format: 10
$$X = A - B + C * (D * E - F)$$

(b) What do you mean by hardwired control unit? Give various methods to design hardwired control unit. Describe one of the design method for hardwired control unit with suitable diagram. 10
- Q. 7. (a) With the help of block diagram, discuss working of direct memory access (DMA). Also explain the features of IOP. 10
(b) What is dairy chaining and parallel bus arbitration? Explain with neat diagram. 10
- Q. 8. Write short notes on the following (any four): 20
(a) Interleaved Memory
(b) Associated Memory
(c) Interrupt
(d) Organization of 2D & 2½ D
(e) RISC and CISC
(f) Memory hierarchy

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B.Tech. Examination, 2015

(Fourth Semester)

(CS & IT Branches)

Paper - III

COMPUTER ORGANIZATION

Time Allowed : Three Hours

Maximum Marks : 100

Note : Attempt any five questions. All questions carry
equal marks.

Q. 1. (a) What is register transfer language ? Explain

micro-operaton and its type.

10

(b) What is hamming code ? If the 7-bit hamming

code 1011011 is received at the receiver.

(2)

Assuming even parity, check whether the code

is correct or not. If not, find out the correct

data.

10

Q. 2. (a) Show the step by step multiplication process

using booth algorithm when the binary

numbers $(+15) \times (+13)$ are multiplied.

Assume 5-bit registers that hold signed

numbers.

10

(b) What do you mean by hardwired control unit ?

Give various methods to design hardwired

control unit. Describe one of the design

(3)

methods for hardwired control unit with
suitable diagram. 10

Q. 3. (a) What is the significance of addressing
modes ? Describe various addressing
modes with suitable examples. 10

(b) Write a program to evaluate the arithmetic
statement using a general computer with
three, two, one and zero address instruction

format :

$$X = A - B + C * (D * E - F)$$

10

(4)

Q. 4. (a) With the help of block diagram, discuss

working of direct memory access (DMA). Also

explain the features of IOP.

10

(b) A block set associative cache consists of a

total of 64 blocks divided into 4 block sets.

The main memory contains 4096 blocks, each

consisting of 128 words :

10

(i) how many bits are there in a main memory

address.

(ii) how many bits are there in each of TAG,

SET and word field.

(5)

Q. 5. (a) What are the microprogram sequencing, wide branch addressing and prefetching micro-instruction. **10**

(b) What is dairy chaining and parallel bus arbitration ? Explain with neat diagram. **10**

Q. 6. (a) Explain pipelining with the help of example. **10**
(b) Explain following replacement algorithm with example : **10**

(i) FIFO

(ii) LRU

Q. 7. Write short notes on the following : **4×5=20**

(a) Memory hierarchy

P.T.O.

(6)

(b) SRAM and DRAM

(c) RISC and CISC

(d) Virtual memory

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B.Tech. Examination, 2014

(Fourth Semester)

(CS & IT Branches)

Paper - III

COMPUTER ORGANIZATION

Time Allowed : Three Hours

Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

- Q. 1.** (a) What is Computer Architecture ? Write the differences between Computer Organization and Computer Architecture. 10
- (b) What do you mean by floating point representation ? Explain the double precision format. 10
- Q. 2.** (a) How is error correction different from error detection ? Write a note on "Hamming distance and error detection". 10
- (b) Explain the method of decoding 2's complement numbers. 10

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(2)

- Q. 3.** (a) Explain various addressing modes with suitable examples. 10
(b) Explain pipelining with the help of an example. 10
- Q. 4.** (a) What are the basic differences between a branch instruction, a call subroutine instruction and program interrupt ? 10
(b) Explain with a neat block diagram, the hardware component needed for connecting a keyboard to a processor. 10
- Q. 5.** (a) Draw and explain the flowchart for execution of a complete instruction in a basic computer. 10
(b) Discuss the required hardware, hardware algorithm for Booth Multiplication. 10
- Q. 6.** (a) Which type of I/O devices are interfaced through DMA ? Explain the bus-arbitration process used for DMA. 10
(b) Write the differences between hardwired control and Microprogrammed control. 10
- Q. 7.** Write short notes on following : 4×5=20
(a) RAM vs ROM
(b) Virtual Memory
(c) Serial communication
(d) Memory Hierarchy