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TCS–402/TIT–402

B. Tech. (CSE/IT) (Fourth Semester)
End Semester EXAMINATION, 2014

COMPUTER ORGANIZATION

Time : Three Hours] [*Maximum Marks : 100*

Note : (i) This question paper contains two Sections : Section A (Part I and II) and Section B.

(ii) Answer all questions in Section A (Part I) briefly in not more than 50 words. Each question carries 2 marks.

(iii) Answer any *four* questions from Section A (Part II). Each question carries 6 marks.

(iv) Answer any *four* questions from Section B. Each question carries 14 marks.

Section—A

Part—I

2 each

1. Attempt all questions briefly in not more than 50 words :

(i) Differentiate between macro-operation and micro-operation.

(ii) What is control function ?

(iii) Define computer organization.

(iv) Describe various types of Interrupts.

(v) Explain virtual memory concept.

(vi) What is pipelining ?

(vii) Define hit and miss ratio.

(viii) What is the difference between direct and indirect address instruction ? Explain with example.

(ix) Describe the various functional units of a computer.

(x) Why Input-Output interface is required ? Explain.

Part—II 6 each

2. Write short notes on any *four* of the following :

(a) What is cache coherence ?

(b) What is the difference between Static RAM and Dynamic RAM ?

(c) What are the differences between Hardwired C. U. and Micro-programmed C. U. ?

(d) Explain serial communication protocol 'RS 232'.

(e) Distinguish between a memory word and a control word.

(f) What are the characteristics of multiprocessors ?

Section—B 14 (7+7) each

Note : Attempt any *four* questions.

3. (a) Draw the block diagram of Hardwired Control Unit. Also draw the timing diagram of the statement :

$$D_4T_5 : SC \leftarrow 0$$

(b) Draw and discuss the various stages of memory hierarchy for the computer system.

4. (a) Find the value of $(-13) \times (+9)$ using Booth algorithm to multiply two signed 2's complement numbers.

(b) What is the use of stack in a computer ? What are the basic operations performed over stack ?

5. (a) An instruction is stored at location 300 with its address field at location 301. The address field has the value 400. A processor register has the value 200. Evaluate effective address if the addressing mode of the instruction is :

(i) direct

(ii) immediate

(iii) relative

(iv) register indirect

(v) index with R1 as the index register.

(b) What are instruction pipeline conflicts ? Explain.

6. (a) Draw the flowchart of instruction cycle and explain each step.

(b) Differentiate between Memory reference, Register reference and I/O instructions.

7. (a) Draw the block diagram of Addition and Subtraction of signed magnitude operands and explain it.

(b) Explain Daisy Chaining Priority Interrupt.

8. (a) (i) How many 128×8 RAM chips are required to provide a memory capacity of 2048 bytes ?

(ii) How many lines of the address bus must be used to access 2048 bytes of Memory ? How many of these lines will be common to all chips ?

(iii) How many lines must be decoded for chip select ? Specify the size of the decoders.

(b) Discuss the complete working of DMA by putting all the resources such as CPU, RAM and I/O together.

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DESIGN A

Time : Three Hou

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1. Attempt a words :

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(ii) Ca

(iii) De

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