CSE/IT 222 (R-15)

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II/IV B.Tech. DEGREE EXAMINATIONS, APRIL/MAY- 2019

Second Semester

CSE/IT

COMPUTER ORGANIZATION AND ARCHITECTURE

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **6X2=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) Define Instruction cycle
   b) Define register and counter
   c) Define and give a brief on purpose of Priority Interrupts
   d) Thrashing
   e) Set Associate mapping
   f) Important features of Linear pipeline processors

UNIT-I

2. Give a brief on Register transfer language, its characteristics. Explain different Arithmetic and Logic micro operations with suitable example for each.

(OR)

3. a) Explain few RTL statement for branching with their actual functioning.
   b) Give the design of Accumulator logic and explain.

UNIT-II

4. a) Multiply 10111 with 10011 using booths algorithm.
   b) Explain general register and stack organizations.

(OR)

5. a) Give a brief on Hardwired and Microprogrammed control. “Hardwired control unit is faster than Microprogrammed control unit”. Justify this statement.
   b) Mention the characteristics of RISC.

P.T.O

UNIT-III

6. a) What is a virtual memory technique? Explain different virtual memory techniques

   b) Explain how the technique of paging can be implemented.

(OR)

7. Write short notes on the following

   a) DMA Controller b) I O P c) I/O Devices

UNIT-IV

8. a) What is pipeline? Give the detailed picture of pipeline.

   b) Explain pipeline for floating point addition and subtraction

(OR)

9. a) Explain four segment pipelining.

   b) Explain characteristic features of SIMD and MIMD processors in detail.

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Second Semester

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COMPUTER ORGANIZATION & ARCHITECTURE

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **6X2=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) What Sign magnitude representation? Give an example?
   b) What is parity? Give its significance?
   c) What is addressing mode? List any four Addressing modes?
   d) Compare characteristic features of RISC and CISC?
   e) Draw the circuit diagram and Truth table for half adder?
   f) What is the use of priority interrupt?

UNIT-I

2. a) Explain the memory reference instructions? Give examples?
   b) List and explain the shift micro operations?

(OR)

3. a) What is instruction cycle? Briefly explain with the help of state diagram?
   b) Briefly explain the arithmetic logic shift unit.

UNIT-II

4. a) Design carry look ahead adder and explain its function.
   b) Derive and explain an algorithm for adding and subtracting 2 floating point binary numbers.

(OR)

5. Explain general register and stack organizations with suitable example for each. Give applications of stack organization.

P.T.O

UNIT-III

6. a) How data transfers can be controlled using handshaking technique? Explain.

   b) With a neat sketch explain the working principle of DMA.

(OR)

7. Give a brief on memory hierarchy. What is a mapping function? What are the ways the cache can be mapped? Explain in detail.

UNIT-IV

8. a) What is parallel processing? Explain any parallel processing mechanism.

   b) Give arithmetic pipeline design and explain.

(OR)

9. Explain the principle of computer arithmetic and explain static arithmetic and multi-functional arithmetic pipelines.