17CS/IS34

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Third Semester B.E. Degree Examination, Dec.2019/Jan.2020
Computer Organization

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a. With a neat block diagram discuss the basic operational concept of a computer.   **(08 Marks)**
    b. What is performance measurement? Explain overall SPEC rating for computer.   **(06 Marks)**
    c. Explain Big-Endian, Little-Endian and assignment byte addressability.   **(06 Marks)**

OR

2   a. What is an addressing mode? Explain any three addressing modes with example.   **(08 Marks)**
    b. Draw single bus structure, discuss about memory mapped I/O.   **(06 Marks)**
    c. What is stack and queue? Write the line of code to implement the same.   **(06 Marks)**

Module-2

3   a. Define bus arbitration. Briefly explain the two approaches of bus arbitration.   **(10 Marks)**
    b. Explain the following with respect to USB: i) USB Architecture   ii) USB Protocols.   **(10 Marks)**

OR

4   a. With a neat block diagram, explain the general 8 bit parallel processing.   **(08 Marks)**
    b. With a block diagram, explain how the keyboard interfaced to processor.   **(06 Marks)**
    c. Explain PCI bus.   **(06 Marks)**

Module-3

5   a. What is 'Locality of Reference'? Explain Direct mapping technique and set-associative mapping technique.   **(10 Marks)**
    b. What is asynchronous DRAM? With a neat diagram explain the internal organization of a $2M \times 8$ dynamic memory chip.   **(10 Marks)**

OR

6   a. What is virtual memory? With a diagram explain how virtual memory address translation take place.   **(10 Marks)**
    b. Write a note on:
       i)   Magnetic disk principles
       ii) Magnetic tape system.   **(10 Marks)**

Module-4

7   a. Explain with a neat block diagram, 4-bit carry look ahead adder.   **(08 Marks)**
    b. Perform following operations on the 5-bit signed numbers using 2's complement representation system. Also indicate whether overflow has occurred.
       i) (-9) + (-7)   ii) (+7) – (-8).   **(04 Marks)**
    c. Explain the concept of carry save addition for the multiplication operations, $M \times Q = P$ for 4-bit operands with diagram and suitable example.   **(08 Marks)**

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OR

8 a. With a neat diagram, explain IEEE standard for floating point numbers.   (06 Marks)
  b. Perform multiplication for -13 and +09 using Booth's Algorithm.   (06 Marks)
  c. With a neat block diagram, explain circuit arrangement for binary division.   (08 Marks)

Module-5

9 a. What is pipelining? Explain the basic concept of pipeline performance with neat sketch.   (08 Marks)

  b. Explain with neat diagram, micro-programmed control method for design of control unit and write the micro-routine for the instruction branch < 0.   (08 Marks)
  c. Differentiate between hardwired and micro programmed control unit.   (04 Marks)

OR

10 a. Briefly explain the block diagram of camera.   (10 Marks)
  b. With a neat diagram, explain the structure of general purpose multiprocessors.   (10 Marks)

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