NG2-126

December-2015

BCA, Sem.-III

CC-201 : Computer Organisation & Advanced Microprocessors

Time : 3 Hours]   **[Max. Marks : 70**

1.   (a)   What is the function of a device controller ? Explain different secitons of a basic device controller.   **7**

              OR

        (i)   Explain CPU states.   **4**

        (ii)   Explain all types of bus cycle.   **3**

    (b)   (i)   Explain the CPU-Memory communication during the read operation.   **4**

        (ii)   Explain the role of AC, PC & IR registers of CPU.   **3**

              OR

        (i)   Explain instruction cycle steps.   **4**

        (ii)   Explain stored program concept.   **3**

2.   (a)   (i)   Draw the symbol and truth table for X-NOR gate & NAND gate.   **4**

        (ii)   Explain normalization with example.   **3**

              OR

        (i)   Explain half adder and full adder with symbol and truth table.   **4**

        (ii)   Draw the symbol and truth table for multiplexer & encoder.   **3**

    (b)   Explain 1's & 2's complement methods of representing fixed point numbers.   **7**

              OR

    Draw the symbol & truth table for NOT & OR gate, RS & JK flip-flop.   **7**

3.   (a)   Explain set associative mapping in detail.   **7**

              OR

        (i)   Explain memory parameters.   **4**

        (ii)   Explain EEPROM & PROM.   **3**

    (b)   Attempt the following :

        (i)   Explain cache coherence.   **4**

        (ii)   Explain any three types of cache replacement algorithms.   **3**

              OR

        (i)   What is cache memory ? Explain cache hit & miss.   **4**

        (ii)   Explain cache write back policy.   **3**

4. (a) Answer the following :

      (i) Explain features of Atom & Tablet processors. **4**

      (ii) Explain scalar & super scalar processors. **3**

      OR

      What is interrupt ? Explain any three types of it. **7**

   (b) Answer the following :

      (i) Write note on Vector processors & Array processors. **4**

      (ii) Explain immediate & direct addressing modes of 8086 microprocessor. **3**

      OR

      (i) Explain BIU & EU. **4**

      (ii) Explain single chip microcontroller. **3**

5. Attempt the following : **14**

   (i) _____ is an example of status signal. (SET/RESET/ERROR)

   (ii) The output of AND gate is 1, only when all inputs are same. (True/False)

   (iii) Draw the memory classification diagram.

   (iv) List the operating modes of 8086 microprocessor.

   (v) Define : Duty Cycle.

   (vi) Draw the symbol of T flip-flop.

   (vii) Define : Virtual memory.

   (viii) RISC stands for _____

   (ix) In sign magnitude form of fixed point number representation, _____ bit is used as sign bit to represent negative number. (0/1/–1)

   (x) DRAM loses its contents in a short time even though power is on. (True/False)

   (xi) The microprocessor is also known as _____. (CPU/Brain of the computer/heart of the computer/All)

   (xii) Which is fastest in speed ? (Register/Cache memory/Main memory)

   (xiii) A notation used to specify the micro operation transfer between the register is known as Register Transfer Language. (True/False)

   (xiv) In ____ mapping, a given block of main memory is mapped to a specific line in a cache memory. (Direct/Associative/Set Associative)

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