UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)
उत्तराखंड मुक्त विश्वविद्यालय, हल्द्वानी (नैनीताल)

MCA-11/PGDCA-11/MSC(IT)-12
1ST YEAR 2ND SEMESTER ASSIGNMENT

Last Date of Submission: 15 May, 2013

Course Title: Computer Organization & Architecture
Course Code: MCA-05/PGDCA-05/MSc(IT)-05
Year: 2012-13 **Maximum Marks: 40 Marks**

Section 'A'

Section 'A' contains 08 short answer type questions of 5 marks each. Learners are required to answers 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

1. Why are priorities being assigned to the external devices?
2. Discuss about the registers available in the CPU.
3. (a) Describe the methods for determining which I/O device has requested an interrupt.
   (b) Discuss memory hierarchy in detail.
4. (a) What is the function of cache memory? Explain the term cache hit and cache miss.
   (b) Discuss memory disk caching with level 1 and level 2 cache.
5. (a) Differentiate between associate mapping and set-associate mapping.
   (b) Differentiate between fixed-head systems and movable head-systems.
6. (a) What are the design element of a Bus and explain each design element in detail?
   (b) Discuss advantages and disadvantages of different addressing modes.
7. Give reasons why concept of multiprocessor architecture are still relevant today.
8. (a) Discuss significance of pipelining.
   (b) Explain pipeline hazard with the merits and demerits of pipelining.

Section 'B'

Section 'B' contains 04 long answer-type questions of 10 marks each. Learners are required to answers 02 questions only.

1. (a) Which kind of application is most suited for SISD class of multiprocessor architecture also explains two variant of SIMD class of multiprocessor architecture?

(b) State and explain the associated problems with the shared memory in shared memory variant of MIMD multiprocessor architecture.

2. (a) Draw a decimal to BCD encoder.

   (b) Draw a mod-8 counter and explain its working principle.

   (c) Draw a logic diagram with output wave form of a 4-bit Serial in -Parallel out shift register for an input of 1101. Explain its operation.

3. (a) Discuss about the hardwired implementation of the control unit.

   (b) Differentiate between hardwired and micro programmed implementation of the control unit.

4. What is pipelining? What are the types of pipelining? What is pipeline hazard? Write the merits and demerits of pipelining.

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