

# SYMBIOSIS INTERNATIONAL UNIVERSITY

(Established under Section 3 of UGC 'ACT, 1956 vide notification No. F.9-12/2001 - U.3 of the Government of India )

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Institute: (0701) SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Programme: (070121) B.TECH  
Computer Science , Information Technology

Batch: 2013-17

Semester: III

Course: Computer Organization

Course Code: 0701210304CS , 0701210304IT

Date: 18/12/2014

Maximum Marks: 60

Day: Thursday

Time: 01:30 pm - 04:00 pm

## Instructions:

1. All the questions in 'PART A' are compulsory.
2. Draw diagrams and state assumptions wherever necessary.

## PART A

- Q.1
- a. Explain the need for Memory Hierarchy. 3
  - b. Describe the various User Inaccessible Registers. 3
  - c. Distinguish between Direct and Indirect Addressing Mode with help of an example. How many memory references are needed to fetch the operand in each case? 3
  - d. Define an Interrupt and explain. 3
  - e. What is a Dual-Bus structure? 3

## PART B

- Q.2
- a. Consider the memory system, in which Cache access time is 100 nanoseconds and Main memory access time is 1200 nanoseconds. If we would like to have effective (average) memory access time to be or more than 20% higher than cache access time, then estimate the Cache Hit ratio. 8
  - b. Describe in detail Interconnection Structures with proper diagrams. 7

Q.2

Choose the right option for the following

2

1. Advantages of pass by reference is
  - a) Modifying original values
  - b) Returning multiple values
  - c) Both a) and b)
  
2. What term is used to describe the internal representation of an object that is hidden from view outside the object definition
  - a) Encapsulation
  - b) Polymorphism
  - c) Inheritance
  
3. Global variables can be access
  - a) Anywhere in the code except inside function after its declaration
  - b) Anywhere in the code even inside function after its declaration
  - c) Nowhere in the code
  
4. For automatic objects, constructors and destructors are called each time the objects
  - a) Enter and leave space
  - b) are constructed
  - c) are destroyed

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Q.3

- a. Can we overload the Square function using following two function definitions? Justify. 2
  1. `int Square(int value);`
  2. `float Square(int value);`
  
- b. Write a C++ code to overload - - operator. 3
  
- c. How are data and functions organized in an Object oriented programming paradigm? Explain. 3