

Question Paper

Exam Date & Time: 09-Jul-2022 (09:30 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

II SEMESTER B.Sc.(Applied Sciences) in Engg.

END SEMESTER THEORY EXAMINATION- MAY/JUNE-2022

COMPUTER ORGANIZATION AND ARCHITECTURE [ICS 123]

Marks: 50

Duration: 180 mins.

Answer ALL questions

Missing data may be suitably assumed

- 1) Explain the different types of computers. (2)
 - A)
 - B) Explain the following addressing modes with an example for each. (3)
 - i. Index mode
 - ii. Auto increment mode
 - iii. Indirect mode
 - C) Write a RISC program find the number of words in an array excluding the last word assuming that the last word of the array is 9999. Assume that the word length is 16 bits. Store the result in the memory location named LENGTH. (5)
- 2) Add and subtract the two numbers 1100000.101 and 1100.001 using add/subtract rule. Represent the sum and the difference in IEEE 32-bit floating point representation. (5)
 - A)
 - B) Explain any two ways of representing a signed integer. (2)
 - C) Differentiate two types of shared memory multiprocessors with a neat diagram for each. (3)
- 3) Explain the special control unit provided to transfer a block of data directly between an I/O device and the main memory, without continuous intervention by the processor. (3)
 - A)
 - B) Explain the sequence of events involved in handling an interrupt request from multiple devices. (2)
 - C) Consider a long sequence of accesses to a disk with an average seek time (5)