Roll No…….. **Total No. of Printed Pages: 1**
Total No. of Questions: [09]

BCA (Semester – 2nd)
COMPUTER ORGANIZATION AND ARCHITECTURE
Subject Code: BCAP1207
Paper ID: [160107]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1 Attempt the following:
a. What is Von Neumann Architecture?
b. Define instruction. Give its format also.
c. What is the concept of I/O bus?
d. Why is DMA given priority over the CPU during memory transfer requests?
e. Briefly explain the arithmetic and shift operations.
f. Define interrupt cycle with the help of a flowchart.
g. What is difference between SIMD and MIMD?
h. What is difference between logical and physical addresses?
i. What is layered approach architecture?
j. What is hit ratio and miss ratio?

Section – B **(5 marks each)**

Q2 Write in detail about modes of I/O transfer.
Q3 Explain the bus structure in detail with neat diagram.
Q4 With a neat sketch explain the working principle of DMA.
Q5 Explain associative mapping technique used for cache memory mapping.
Q6 What is page fault? What does page fault signifies when occurred. Explain page replacement algorithms.

Section – C **(10 marks each)**

Q7 Draw a neat block diagram of memory hierarchy in a computer system. Compare the parameters size, speed and cost per bit in the hierarchy.
Q8 Explain the following mapping techniques used for cache mapping
i) Associative mapping
ii) Direct mapping
iii) Set-associative mapping cache
Q9 What is Addressing mode? Explain following addressing modes:
i. Direct addressing mode
ii. Indexed addressing mode
iii. Auto increment addressing mode
iv. Auto decrement addressing mode
v. Indirect addressing mode