B.C.A. SEM–II (CBCS 2018 Course) : SUMMER - 2019

SUBJECT: COMPUTER ORGANIZATION AND ARCHITECTURE

Day: Monday
Date: 15/04/2019

S-2019-2053

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

1) Q 4 from Section-I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section-I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section-II.
4) All question CARRY EQUAL marks.
5) Answers to Both the sections to be written in SAME answer books.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) Draw the Half adder and full adder circuit and explain its functioning.
b) What are the special registers in a typical computer? Give their purposes.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) What is hard-wired control unit? How is it different from micro-programmed control unit?
b) Discuss any two mapping techniques used in cache memories with their relative merits and demerits.

Q.3) Explain the following: (6 Marks X 2 = 12)

a) Describe the functioning of 4 bit binary counter with help of diagram.
b) With a neat diagram explain the working of DMA.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Number systems
b) Multiplexer
c) Types of Interrupt
d) Control word
e) Daisy chaining priority interrupt

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)

The sequential circuit has two D flip flops A and B, two inputs x and y and one output z. The flip flop input equations and circuit output is as follows.

$D_A = x'B + yA$

$D_B = x + y'A$

$z = y'B + x'y$

a) Draw logic diagram.
b) Tabulate state table.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Draw the circuit diagram and tabulate the truth table.

(BC' + A'D) (AB + CD')

b) Solve the following.
   a. 10000010 - 01010101 using 2's complement method.
   b. 110 *110

Q.7) Explain the following: (12 Marks X 1 = 12)

Explain the functioning of 4 bit arithmetic circuit with help of diagram.

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