

M.C.A. Sem - I (Old Course) : SUMMER - 2019
SUBJECT : COMPUTER ORGANIZATION AND ARCHITECTURE

Day : Friday
Date : 03/05/2019

S-2019-5251

Time : 10.00 AM TO 1.00 PM
Max. Marks : 80.

N.B.:

- 1) Solve any **FIVE** questions from Section-I and any **TWO** questions from Section-II.
 - 2) Both the sections should be written in the **SAME** answer book.
 - 3) Figures to the **RIGHT** indicate full marks.
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SECTION-I

- Q.1** What is combinational circuit? Explain in detail full adder with the help of circuit diagram and truth table. (10)
- Q.2** Discuss the instruction cycle with the help of flowchart. (10)
- Q.3** Describe the stack organization in detail. Give its applications. (10)
- Q.4** Explain asynchronous data transfer with the help of suitable diagrams. (10)
- Q.5** What is associative memory? Give the needs and also mention importance in computer organization. (10)
- Q.6** Differentiate between: (10)
- a) Hardwired control unit and micro-programmed control unit.
 - b) Analog computer and digital computer.
- Q.7** Write short notes on any **TWO** of the following: (10)
- a) Multiplexer
 - b) IOP
 - c) Virtual memory

SECTION-II

- Q.8** a) Simplify the following and draw the circuit diagram and truth table. (10)
 $(BC' + A'D) (AB' + CD')$
- b) Show that: (05)
 $A + A'B + A'B' = 1.$
- Q.9** A 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 outputs are as follows: (15)
- $$D_A = xy + xB$$
- $$D_B = x'B + x'y'$$
- $$z = xB$$
- a) Draw the logic diagrams of the circuit.
 - b) Tabulate the state table.
- Q.10** a) Solve the following: (10)
- i) Find 2' complement of 1001010.
 - ii) $1011001 - 0011001$
 - iii) $001101 * 101$
- b) Give the RISC characteristics. (05)

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