

**M.C.A. SEM - II (CHOICE BASED CREDIT SYSTEM 2011 &  
2012 COURSE ) : WINTER - 2017**

**SUBJECT – COMPUTER ARCHITECTURE**

Day: **Thursday**  
Date: **09/11/2017**

Time: **10.00 AM TO 01.00 PM**  
Max. Marks: 100

**W-2017-1690**

**N.B.:**

- 1) Attempt **ANY FOUR** questions from Section-I and **ANY TWO** questions from Section -II
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.

**SECTION - I**

- Q.1** What do you mean by combinational circuit? Discuss half adder and full adder in detail. [15]
- Q.2** Explain Arithmetic logic shift unit with the help of circuit diagram. [15]
- Q.3** What is the importance of Interrupt in computer system? Explain interrupt cycle with the help of flowchart. [15]
- Q.4** Differentiate between: [15]
- a) RISC and CISC
  - b) Hardwired control unit and microprogrammed control unit.
  - c) SRAM and DRAM
- Q.5** Discuss the various mapping schemes used in cache design. [15]
- Q.6** Write short notes on **ANY TWO** of the following: [15]
- a) Asynchronous data transfer
  - b) Arithmetic pipeline
  - c) Characteristics of multiprocessor

**SECTION – II**

- Q.7** a) Solve the following expression using stack: [10]  
 $[(3*4) + 7] + [(2+3) * 7]$
- b) Solve the following. [10]
- i) Find 2's complement : 10100010
  - ii)  $10101010 - 01010101$
- Q.8** a) i) Show that:  $(A+B)(A+C) = A+BC$  [05]  
ii) Simplify the expression using Boolean algebra:  $AB+A(B+C)+B(B+C)$  [05]
- b) Simplify using K map. [10]  
 $F(A,B,C,D) = \sum (0,2,4,5,6,7,8,10,13,15)$
- Q.9** A sequential circuits has two D flip flop A and B, two inputs x and y and one output z. The flip flop input equation and circuit output are as follows: [20]  
 $D_A = x'y' + x'A$   
 $D_B = xB + x'A$   
 $Z = x'y'$
- 1) Draw the logic diagram of the circuit.
  - 2) Tabulate the state table.
  - 3) Draw the state diagram.