

**B.C.A. SEM-II (2014 COURSE) CBCS : SUMMER - 2018**

**SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE**

Day : **Tuesday**  
Date : **24/04/2018**

**S-2018-1698**

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

**N.B.**

- 1) Answer any **FOUR** questions from Section – I and any **TWO** questions from Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

**SECTION - I**

- Q.1** Explain the functioning of binary counter with help of a circuit diagram. (15)
- Q.2** Explain the instruction cycle with help of a flowchart. (15)
- Q.3** Explain the concept of virtual memory in detail. With the help of example give the process of converting virtual address into physical address. (15)
- Q.4** Discuss various addressing modes with help of suitable examples of each. (15)
- Q.5** Differentiate between: (15)
- a) Digital computer and Analog computer
  - b) RISC and CISC
- Q.6** With a proper diagram explain Daisy chaining priority interrupt in detail. (15)
- Q.7** Write short note on any **TWO** of the following: (15)
- a) Program control
  - b) Decoders
  - c) Machine language

**SECTION - II**

- Q.8** Solve the following: (20)
- a) Find 2's complement : (01010101)<sub>2</sub>
  - b) (10010<sub>2</sub> \* (011)<sub>2</sub>
  - c) Convert the expression in proper notation and solve it with stack:  
[(3+4+5)\*(2+3)]\*(3-1)
  - d) Simplify using K map:  $F(A,B,C) = \sum(1,2,3,6,7)$
  - e) Prove that :  $AB+ABC+AB+ABC=B+AC$
- Q.9** A sequential circuit has two D flip-flops, A and B, one inputs x and one output z. The flip-flop input equations and circuit output is as follows: (20)
- $$D_A = x' + A$$
- $$D_B = B' + x A$$
- $$Z = x' + A' B'$$
- Draw the logic diagram, State table and state diagram.
- Q.10** Explain the functioning of 4 bit Arithmetic circuit with help of a circuit diagram in detail. (20)

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