

I.M.C.A. SEM-II (2014 COURSE) CBCS : SUMMER - 2018

SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE

Day : Tuesday
Date : 24/04/2018

S-2018-1752

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)₂
 - b) (10010₂ * (011)₂
 - 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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