B.C.A. SEM–II (2014 Course) CBCS : SUMMER - 2019
SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE

Day : Monday   **S-2019-2063**   Time : 10.00 AM TO 01.00 PM
Date : 15/04/2019   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 SAME answer book.

SECTION - I

Q.1 Draw the block diagram of computer and explain each component in detail. **(15)**

Q.2 Explain 2 to 4 line decoder with NAND gates in detail. **(15)**

Q.3 Explain memory reference instruction with examples. **(15)**

Q.4 Describe Stack organization in brief. **(15)**

Q.5 Explain DMA based data transfer technique for I/O devices. **(15)**

Q.6 Discuss the structure of associative memory with help of a diagram. **(15)**

Q.7 Write a short note on any **TWO** of the following: **(15)**
  a) RISC
  b) Program loops
  c) Register transfer language

SECTION - II

Q.8 Solve the following: **(20)**
  a) Find 2's complement of : $(01010111)_2$
  b) $(1010100)_2 - (1010100)_2$
  c) $(01011)_2 * (101)_2$
  d) Convert the expression in proper notation and solve it with stack :
      $[(3+4)*(7+2)]*(9 + 4)$
  e) Show that : $A + A'B + A'B' = 1$

Q.9 What do you mean by sequential circuits? Explain any sequential circuit with help of circuit diagram, State table and state diagram. **(20)**

Q.10 **a)** Solve using Boolean algebra: **(10)**
    i) $(BC' + A'D)(AB' + CD')$
    ii) $A'B + ABC' + ABC$

  b) Solve using K-map: **(10)**
    i) $F(A, B, C) = \sum (0, 2, 3, 4, 6)$
    ii) $F(A,B,C,D) = \sum (0, 1, 2, 4, 5, 7, 11, 15)$

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