

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)

B.C.A. Sem-II : WINTER- 2022

SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE

Day : Thursday

Time : 02:00 PM-05:00 PM

Date : 8/12/2022

W-18759-2022

Max. Marks : 60

**N.B.:**

- 1) **Q. No. 4** from Section –I is **COMPULSORY**.
- 2) Answer any **TWO** questions from Questions **1, 2 & 3** in **Section –I**.
- 3) Answer any **TWO** questions from Questions **5, 6 & 7** in **Section –II**.
- 4) Figures to the right indicate **FULL** marks.
- 5) Answers to both the sections should be written in **SAME** answer book.

**SECTION-I**

- Q.1** a) With the help proper diagram discuss in detail Binary Counter. (06)  
b) What is Cache Memory? Explain set associative mapping method. (06)
- Q.2** a) Draw flow chart of Interrupt Cycle and explain step by step. (06)  
b) What are general purpose and special purpose Registers in computer. (06)
- Q.3** a) What is Combinational Circuit? Discuss in detail Full Adder. (06)  
b) What is DMA? Discuss direct memory access in detail. (06)
- Q.4** Write short notes on any **THREE** of the following: (12)
- a) RISC
  - b) Addressing Notes
  - c) Memory Management
  - d) Logic gates
  - e) Memory reference instructions

**SECTION-II**

- Q.5** a) Explain memory reference instructions: (06)  
i) LDA : load to AC  
ii) STA: store AC  
b) Simplify the following Boolean Function using K-map. (06)  
 $F(x, y, z) = \sum(0, 2, 3, 4, 6)$
- Q.6** Solve the following: (12)
- a) Draw the circuit diagram and tabulate the truth table.  
 $A'(A+B) + (B+A)(A+B')$
  - b)  $10010 * 011$
  - c) Simplify  $Z = A[B + C(AB + AC)]$
- Q.7** A sequential circuit with two D flip-flops A and B, two inputs x and y and one output Z is specified by the following input equations: (12)
- $$D_A = x'B + yA$$
- $$D_B = x + y'A$$
- $$Z = y'B + x'y$$
- i) Draw logic diagram
  - ii) Derive the state diagram
  - iii) Derive the state table

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