

**S.D.E.**

**B.C.A. (2004 COURSE SEM- II : SUMMER - 2018**

**SUBJECT : DIGITAL COMPUTER DESIGN AND COMPUTER ORGANIZATION**

Day : **Monday**

Date : **28/05/2018**

**S-2018-4344**

Time : **10.00 AM TO 1.00 PM**

Max. Marks : 80

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**N. B. :**

- 1) Attempt **ANY FIVE** questions from Section – I and attempt **ANY TWO** questions from Section – II.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Answers to both the sections should be written in the **SEPARATE** answer books.
  - 4) Draw neat diagram **WHEREVER** necessary.
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**SECTION – I**

- Q. 1** What is combinational circuit? Discuss half adder in detail. **(10)**
- Q. 2** Explain the need of various types of memories required in computer system. **(10)**
- Q. 3** Draw the block diagram of 4 bit arithmetic circuit and give the functioning of it with help of function table. **(10)**
- Q. 4** Differentiate between: **(10)**
- a) Hardwired control unit and Micro-programmed control unit
  - b) Analog computers and Digital computers
- Q. 5** What is an assembly language? Give the advantages and disadvantages of it. Also explain the role of assembler. **(10)**
- Q. 6** Explain instruction cycle in detail with help of flowchart. **(10)**
- Q7** Write short notes on **ANY TWO** of the following: **(10)**
- a) Design of Accumulator
  - b) Input output programming
  - c) Logic gates

**SECTION - II**

- Q. 8** Explain the functioning of 4 bit bidirectional shift register with parallel load using circuit diagram and function table. **(15)**
- Q. 9** Discuss the working of control unit of basic computer with help of block diagram. **(15)**
- Q. 10** Draw the logic diagram and list the truth table for the Boolean functions given below: **(15)**
- a)  $F = xy'z + x'y'z + xyz.$
  - b)  $F = x \oplus y \oplus z.$

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