S.D.E.

B.C.A. (2004 COURSE SEM- II : WINTER - 2017

SUBJECT : DIGITAL COMPUTER DESIGN AND COMPUTER ORGANIZATION

Day : **Tuesday**   Time : **02.00 PM TO 05.00 PM**
Date : 12/12/2017   **W-2017-4153**   Max. Marks : 80

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.

SECTION – I

Q. 1   Differentiate between: **(10)**

   a) Digital computers and Analog computers

   b) Hardwired control unit and Micro-programmed control unit

Q. 2   Discuss the full adder with help of circuit diagram and truth table.   **(10)**

Q. 3   What is decoder? Explain the functioning of 3 to 8 line decoder.   **(10)**

Q. 4   Why register transfer is essential? Explain register transfer with help of   **(10)**
register transfer language.

Q. 5   Give basic computer instruction formats with examples.   **(10)**

Q. 6   Explain the terms: **(10)**
   a) Assembler
   b) Program interrupt
   c) Subroutines

Q7   Write short notes on **ANY TWO** of the following: **(10)**
   a) Program loop
   b) Design of basic computer
   c) Memory unit

SECTION - II

Q. 8   **a)** Simplify using Boolean algebra: **(08)**

   i) $\left(BC' + A'D \right) \left(AB' + CD' \right)$

   ii) $A'B + ABC' + ABC$

   b) Simplify using K map.   **(07)**
   $F(A,B,C)=\sum(0,2,3,4,6)$

Q. 9   Explain the working of 4 bit binary counter using circuit diagram.   **(15)**

Q. 10   Draw the block diagram of 4 bit arithmetic circuit and explain it with function   **(15)**
table.

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