

B.TECH SEM – V (2007 COURSE) (BIOMEDICAL ENGG.) :
SUMMER - 2018

SUBJECT: DIGITAL ELECTRONICS

Day: **Monday**
Date: **21/05/2018**

S-2018-2689

Time: **10.00 AM TO 01.00 PM**
Max. Marks: 80

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.
- 4) Use of non-programmable **CALCULATOR** is allowed.
- 5) Assume suitable data if necessary.

SECTION – I

- Q.1**
- a) Compare SRAM and DRAM. [05]
 - b) Write a short note on burst code. [05]
 - c) Convert the given function in to the standard SOP form: [04]
 $Y = AB + \overline{AC} + ABD + \overline{ABCD}$.
- Q.2**
- a) Draw and explain 2 input TTL NAND gate circuit. [07]
 - b) Perform the following: [06]
 - i) $3 - 6$ ii) $-3 - 6$ iii) $-5 + 6$Use 2's complement method.
- Q.3**
- a) A receiver received the following hamming code 0011100101101 with odd parity. Find the error in the received code and give the corrected data. [07]
 - b) State the properties and application of following digital codes: [06]
 - i) BCD code ii) Excess-3 code iii) Gray code
- Q.4**
- a) State and prove De-morgans theorem. [06]
 - b) Minimize the given expression by Kmap and realize the circuit by NAND gates only: [07]
 $(A, B, C, D) = \sum m (0, 1, 6, 9, 10, 15) + d (2, 3, 7, 8)$.

SECTION – II

- Q.5**
- a) Briefly describe the binary serial adder. [05]
 - b) Explain the different triggering methods used in flip-flops. [05]
 - c) Write a note on ASM. [04]
- Q.6**
- a) Design a Binary to Gray code converter and implement it using a suitable logic gates. [07]
 - b) Compare the following: [06]
 - i) Multiplexer and Demultiplexer
 - ii) Encoder and Decoder
- Q.7**
- a) Describe the operation of 4-bit bidirectional shift register with neat diagram. [07]
 - b) Explain the pseudo Random binary sequence generator with example. [06]
- Q.8**
- a) Write a short note on RTL notations. [06]
 - b) Explain the different techniques of circuit realization in ASM. [07]

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