

B.TECH. SEM -IV BIO MEDICAL 2014 COURSE (CBCS) :

SUMMER - 2018

SUBJECT: DIGITAL LOGIC CIRCUITS

Day: **Saturday**
Date: **09/06/2018**

S-2018-2313

Time: **10.00 AM TO 01.00 PM**
Max Marks. 60

N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Assume suitable data , if necessary.
 - 4) Draw neat diagram **WHEREVER** necessary.
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- Q.1 a)** i) Perform $(-4)_{10} - (-8)_{10}$ using 1's complement method. **(06)**
ii) Perform the following subtraction using both 1's and 2's complement method.
 $(11010)_2 - (10000)_2$
iii) Perform the following subtraction using 1's complement method.
 $(0011.1001)_2 - (0001.1110)_2$
- b)** What do you mean by sign magnitude form of representation? **(04)**
- OR**
- Q.1** Define the following terms: **(10)**
i) Canonical form ii) Standard form iii) SOP form iv) POS form
v) Minterm & Maxterm
- Q.2 a)** Compare Multiplexer & Demultiplexer. **(06)**
b) Compare Encoder & Decoder. State application of each. **(04)**
- OR**
- Q.2 a)** Describe the Look ahead carry generator with the help of diagram. **(06)**
b) Give a brief note on Parity checker. **(04)**
- Q.3** Describe the following interfacing with the help of diagram. **(10)**
i) TTL gate driving CMOS gate
ii) CMOS gate driving TTL gate
- OR**
- Q.3 a)** Compare CMOS & TTL. **(06)**
b) What do you mean by tristate logic? **(04)**
- Q.4** Define the following term related to state machine. **(10)**
i) State Table ii) State Diagram iii) State Assignment
iv) State Transition v) State Reduction

(P.T.O)

OR

- Q.4** Define the following terms related to sequential logic circuits. **(10)**
i) Present State ii) Next state iii) Clock Signal
iv) Flip flop v) latch

- Q.5** Design a Mod-3 asynchronous counter using a 2-bit ripple counter. **(10)**

OR

- Q.5** Design a 4-bit binary UP/DOWN ripple counter with a control for UP/DOWN counting. Also draw timing diagram. **(10)**

- Q.6** What are the basic configuration of the three PLDs? **(10)**

OR

- Q.6** Discuss various types of read-only memories. **(10)**

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