

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (OLD) - EXAMINATION – SUMMER 2018

Subject Code: 130701

Date: 21/05/2018

Subject Name: Digital Logic Design

Time: 10:30 AM to 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Write a brief note on Gray codes. Also discuss methods for conversion from gray to binary code and vice versa. **07**
(b) Explain $(r-1)$'s complement with example in detail. **07**
- Q.2** (a) Explain with neat logic diagram and truth table of the functioning of basic logic gates. **07**
(b) Simplify : 1. $A'B + A'BC' + A'BCD + A'BC'D'E$ **07**
2. $(P+Q+R)(P' + Q' + R')P$
- OR**
- (b) Express the Boolean function $F=A+B'C$ a sum of min terms and in product of max terms. **07**
- Q.3** (a) Using K-map find the Boolean function and its complement for the following: **07**
 $F(A,B,C,D) = \sum(1,2,3,4,6,8,9,10,11,12,14)$
(b) Explain Design Procedure for Combinational Circuit & Difference between Combinational Circuit & Sequential Circuit. **07**
- OR**
- Q.3** (a) Construct 4*16 Decoder with help of 2*4 Decoder. **07**
(b) State & explain Demorgan's theorem **07**
- Q.4** (a) Design and Implement a Mod-10 asynchronous counter with T FF. **07**
(b) What is the difference between serial and parallel transfer? What types of registers are used in each case? **07**
- OR**
- Q.4** (a) Write a note on Binary Ripple Counter. **07**
(b) Explain D type positive edge triggered flip flop. **07**
- Q.5** (a) Explain different types of random access memories. **07**
(b) Explain arithmetic micro operations with the help of a block diagram **07**
- OR**
- Q.5** (a) Distinguish between micro program control and hard-wired control. **07**
(b) Explain Johnson Counters. **07**
