Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – SUMMER • 2014

Subject Code: 130902 Date: 26-05-2014

Subject Name: Analog and Digital Electronics

Time: 02.30 pm - 05.00 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) What do you understand by the equivalent circuit of an Op-amp and also explain ideal voltage transfer curve with neat sketch. (07)

(b) Explain the use of op-amp as a zero crossing detector with neat sketch. (07)

Q-2 (a) Explain DeMorgan's Theorem with necessary truth table (07)

(b) Write short note on R-S flip flop. (07)

OR

(b)) Write short note on J-K flip flop. (07)

Q-3 (a) With suitable example explain binary addition, subtraction, division and multiplication. (07)

(b) Explain astable mode of operation of 555 timer. (07)

OR

Q-3 (a) Convert the following decimal numbers to binary. (07)

(i) 23 (ii) 13

(b) Convert hexadecimal number 3C to its decimal equivalent. (07)

Q-4 (a) Draw circuit diagram of the full adder, write equations and also draw truth table and Explain it. (07)

(b) Since sign-magnitude numbers are fairly easy to understand, why has 2's complement System becomes so widespread? (07)

OR

Q-4 (a) Convert the following binary numbers to decimal numbers. (07)

(i) 00111
(ii) 11001
(iii) 10110
(iv) 11110

(b) Explain Analog to Digital Converter. (07)

Q-5 (a) Define encoders, decoders, multiplexer and de-multiplexer Give application of Each. (07)

(b) Define Register. Give its classifications. Explain any one classification. (07)

OR

Q-5 (a) What is schmittz'trigger? Explain in detail. (07)

(b) Write short note on D-flip-flop. (07)

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