

Total No. of Printed Pages:2

S.E. (Computer) (Semester- III) (Revised Course 2007-08)

EXAMINATION MAY/JUNE 2019

Integrated Electronics

[Duration : Three Hours]

[Max.Marks : 100]

Instructions:

- 1) Attempt **any five** choosing at least **one** from **each** module.
- 2) Draw neat diagrams if required.
- 3) Assume suitable data if necessary.
- 4) Write description for the questions based on the marks allotted.

MODULE - I

- Q.1
- a) What are the characteristics of an ideal op-amp? Explain how the characteristics of a practical op-amp differ from those. **06**
 - b) With a neat circuit diagram describe the operation of a non-inverting op-amp summer with 2 inputs. **06**
 - c) Write a note on frequency response of an op-amp. **04**
 - d) Draw the block schematic of an op-amp and briefly describe the operation of each block. **04**
- Q.2
- a) Draw and explain integrator circuit and draw necessary waveforms. **06**
 - b) Draw and explain block diagram of a instrumentation system and name any two instrumentation op-amp IC's. **07**
 - c) What is feedback? List 2 types of feedback. Which type is used in linear applications? Give block diagram representation of current series and voltage shunt feedback. **07**

MODULE - II

- Q.3
- a) Explain the working and applications of a free running multivibrator. **08**
 - b) Explain the application of IC 723 regulator. **08**
 - c) Describe in detail any two applications of PLL. **04**
- Q.4
- a) Draw the block diagram and explain the basic operation of a phase locked loop. **08**
 - b) Give pin description of LM 105 with its block diagram. **08**
 - c) With the help of a diagram explain briefly series voltage regulator. **04**

MODULE - III

- Q.5
- a) Explain with a neat diagram working of CMOS NAND Gate. List some characteristics of CMOS circuit. **06**
 - b) Explain the working of DTL Gate. Draw necessary diagram. How is it different from Modified DTL Gate? Explain. **08**
 - c) State some advantages and disadvantages of a RTL Gate. **06**
- Q.6
- a) Draw a neat diagram of 3-input HTL NAND gate driving N similar gates. Explain the working operation of the circuit. Describe its various characteristics, which are related to its better performance. **08**

- b) Explain the working TTL Gate with neat diagram. 06
c) Explain Propagation time delay and noise margin w.r.t. digital logic. 06

MODULE – IV

- Q.7 a) Explain with neat diagrams, Dual-slope A/D Converter. Why such a converter is used in digital voltmeters. 08
b) Draw the circuit of an 8 bit R-2R binary ladder. Explain its working as a digital to analog converter. If the logic levels are given by 5V and 0V for logic one and logic zero respectively. Calculate the output voltage when the input is 00100000? 08
c) Define the following terms: 04
i. Monotonicity
ii. Settling time
- Q.8 a) Explain voltage to frequency converter and derive the necessary expressions. 06
b) Explain some of the specifications of D/A Converter. 06
c) Describe weighted resistor D/A Converter with circuit diagram and give uses of A/D and D/A converters. 08