

Roll No

EX-405 (Old)

B.E. IV Semester

Examination, December 2016

Electronic Devices and Circuits-II

Time : Three Hours

Maximum Marks : 70

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

Unit-I

1. a) What is an Op-Amp? List the ideal characteristics of an Op-Amp.
b) What is the expression for the gain of an inverting feedback amplifier?
c) What are the main requirements of an ideal integrator?
d) Draw the circuit of a logarithmic amplifier and derive the expression for its output voltage. Show how temperature compensation is provided in this amplifier.

OR

Draw the circuit of an adder-subtractor using a simple Op-Amp and derive the expression for its output voltage.

Unit-II

2. a) What are Active Filters? What are their main advantages?
b) Explain what are switched capacitor filters?
c) What are the basic building blocks of IC 555 timer?
d) Draw the circuit of the monostable multivibrator using IC 555 timer and explain its working. Derive the expression for its gate width. Draw the waveforms.

EX-405 (Old)

PTO

[2]

OR

Explain the building blocks of IC 565 Phase Locked Loop (PLL). What is the operating principle of PLL?

Unit-III

3. a) What is a Microphone? What are the different types of microphones?
b) What is noise figure and sensitivity of a microphone?
c) What are reverberations? What is fidelity?
d) What is crossover network type of loudspeaker? Draw its frequency characteristics?

OR

What is Sound Recording? Explain how sound is recorded using magnetic recording system?

Unit - IV

4. a) What are the limitations of the conventional microwave tubes?
b) What are Microwave Diodes? What is Schottky barrier?
c) What is a Pin Diode? What are its applications?
d) What is Gunn effect? Draw and explain Gunn diode oscillator circuit.

OR

What is Reflex klystron oscillator? What is its mode of oscillation? What do you mean by modulation of a Reflex klystron?

Unit - V

5. a) Define the terms :
i) Threshold voltage ii) Power dissipation
b) Which logic family has the highest fan-out and the least fan out?
c) What do you mean by noise margin and speed power product?
d) What is Totem-pole output? What are its advantages and disadvantages?

OR

With the help of diagrams explain CMOS inverter and its working?

EX-405 (Old)