

Roll No

EX - 405**B.E. IV Semester**

Examination, June 2015

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 question 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.

1. a) Explain Op-amp inverting amplifier.
- b) Explain Op-amp summing amplifier.
- c) Explain the Op-amp differential amplifier.
- d) Discuss the frequency compensation techniques.

OR

Design a square wave generator for $f_o = 1$ kHz using Op-amp and a d.c. supply voltage of ± 12 V.

2. a) Draw the circuit diagram of first order active high pass filter and give the relation of its cutoff frequency.
- b) What are the application of phase locked loop?
- c) Design a first order low-pass filter for a high cutoff frequency of 2 kHz and pass band gain of 2.

- d) Draw the circuit diagram of a monostable multivibrator using 555-timer and determine its frequency.

OR

Explain Astable multivibrator and its applications.

3. a) What is a precision diode? Explain with suitable example?
- b) What is reverberation?
- c) Explain sound behavior in enclosed space.
- d) What are the different sound absorption materials in acoustic design? Explain in brief their selection criteria.

OR

Explain the different types of sound recording.

4. a) What are the limitations of conventional tubes at microwave frequencies?
- b) Explain the operation of Ruby laser.
- c) Explain two-valley model theory of Gunn effect.
- d) What are avalanche transit time devices? Explain the operation and construction of IMPATT TRAPATT.

OR

Explain the bunching process in the two cavity klystron amplifier. Also derive an expression for the efficiency of a two cavity klystron amplifier.

5. a) What are the important features of digital IC families?
- b) What are the characteristics of MOS logic families?
- c) How a transistor can be used as a switch?
- d) Explain the transfer characteristics of ECL logic families.

OR

Explain interfacing BIT and CMOS gates.
