

Roll No

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

Examination, December 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 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.

1. a) Write the characteristics of ideal op-amp.
- b) Determine the output voltage of an op-amp for the input voltages of $V_{i1}=150 \mu V$, $V_{i2}=140 \mu V$. The amplifier has a differential gain of $A_d=4000$ and the value of CMRR is 10^5 .
- c) Describe integrator circuit using op-amp.
- d) Define the following terms in connections with an op-amp
 - i) CMRR
 - ii) Input offset voltage
 - iii) Output offset voltage
 - iv) Slew rate

OR

Explain the operation of square wave generator using op-amp with capacitor and output voltage waveforms. How can you obtain a symmetrical square-wave?

2. a) Draw the circuit diagram of first-order active low-pass filter and give the relation of cut off frequency.

rgpvonline.com

- b) What are the advantages of higher-order filters as compared to low-order filters?
- c) Draw the circuit diagram of second-order high pass filter and find its lower-cut off frequency.
- d) Sketch the circuit of a 555 timer connected as an astable multivibrator to operate at 350 kHz. Determine the value of C, needed using $R_A=R_B=7.5 K\Omega$

OR

Explain phase locked loop. rgpvonline.com

3. a) Define and explain what is meant by the "ACOUSTICS"?
- b) Define Noise figure.
- c) What are acoustic factors in studio design?
- d) Write short note on loudspeaker cabinets.

OR

Explain the factors considered in building design.

4. a) Explain Travelling Wave Tube (TWT).
- b) Explain Manley Row relations.
- c) Describe the avalanche effect.
- d) Write a short note on GUN diode.

OR

Explain the working of Klystron amplifier. Also derive an expression for the efficiency of a reflex Klystron.

5. a) Draw the NAND gate using DTL logic family.
- b) Define rise time and fall time.
- c) Explain the purpose of the totem pole output stage used in a TTL gate.
- d) Write short note on FET and MOS switches.

OR

Compare DTL, ECL, TTL with their characteristics.

rgpvonline.com