Roll No .....

CS/IT - 304

B.E. III Semester

Examination, June 2015

Electronics Devices and Circuit

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) Draw V-I characteristic of P-N junction silicon diode.

   b) Explain the diode current equation.

   c) For a CE circuit shown in figure (1) Calculate the values of I_B, I_C, I_E, and V_{CE}. Assume $\beta = 50$ and neglet V_{BE}.

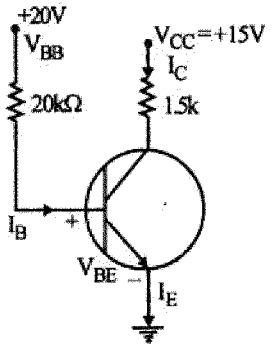

Fig. 1

d) Explain how zener diode working as a Voltage Regulator.

OR

For the circuit shown in figure (2) determine V_L,V_R,I_Z and P_2.

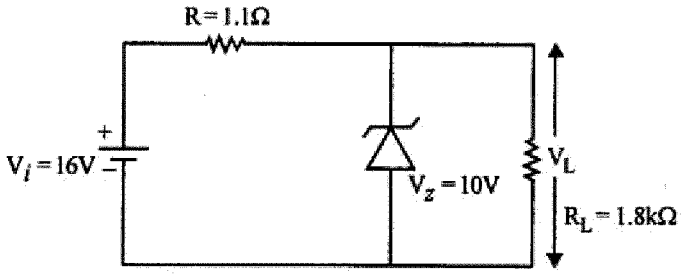

Fig. 2

2. a) Explain advantages of a Negative feedback in an amplifiers.
   b) Explain the Barkhausen criterion for oscillators.
   c) Draw the circuit diagram of Hartley oscillator.
   d) Explain the Wien's bridge oscillator using BJT. For this circuit calculate the frequency of oscillation.

   OR

   Discuss Class-B power amplifiers and calculate its overall efficiency.

3. a) In which region Transistor is working as a switch explain.
   b) Explain how diode is used as cllipers.
   c) What are multivibrators?
   d) Draw and explain the working of bistable multivibrator.

   OR

   Draw the circuit of a differential amplifiers and explain its operations.

4. a) Explain the characteristics of an ideal Op-Amp.
   b) What do you mean by virtual ground?
   c) Draw the circuit diagram of Op-Amp in inverted mode and write the formula for inverting amplifier.
   d) Explain with diagram how an operational amplifier can be used as an differentiator.

   OR

   Write a short notes on Schmitt trigger circuit.

5. a) Draw the block diagram of a Regulated Power Supply.
   b) Can diode be used as a Voltage Regulator?
   c) Draw the block diagram of SMPS.
   d) Explain fold back current limiting circuit.

   OR

   Explain the working of Series Regulator.

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