

Roll No

EC - 404**B.E. IV Semester**

Examination, June 2015

Electronics Circuits**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 factors are to be consider for selecting the operating point Q for an amplifier?
- b) Define load line and stability of biasing circuit.
- c) State Miller effect.
- d) With the help of low frequency model of CB transistor, Explain its working.

OR

Determine the DC Bias voltage V_{CE} and the current I_C for the voltage divider configuration of figure. 1.

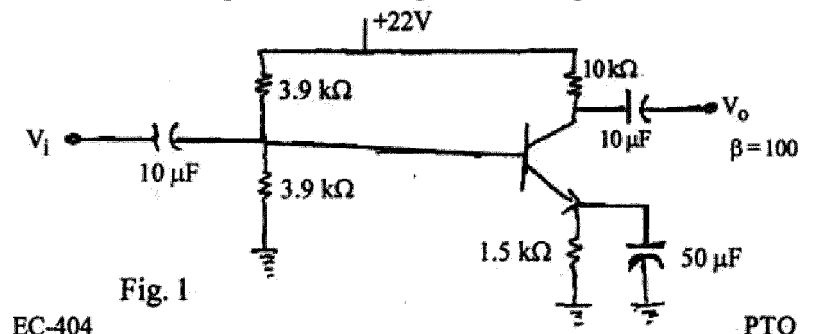


Fig. 1

EC-404

PTO

Unit - II

2. a) What do you understand by condition of sustained oscillation?
- b) An amplifier has a gain of 4×10^{-5} without feedback, determine the gain if negative feedback is applied, given $\beta = 0.04$.
- c) What is oscillators? What is Barkhausen criteria for oscillators? How its use in it.
- d) Explain the working of negative resistance oscillator with the help of diagram.

OR

Explain how to obtain frequency response of a voltage shunt feedback amplifier using feedback concept.

Unit - III

3. a) What do you understand by Q-factor of tuned amplifier?
- b) Define the conversion efficiency (η) of a power stage. Also write a mathematical expression for it.
- c) Explain the origin of crossover distortion. Suggest a method to minimize it.
- d) For a class B amplifier, using a supply of $V_{CC} = 60V$ and driving a load of 32Ω , determine the maximum input power, output power, and transistor dissipation.

OR

Using two complementary silicon transistors, draw a single class B push pull amplifier circuit which does not use an output transformer.

Unit - IV

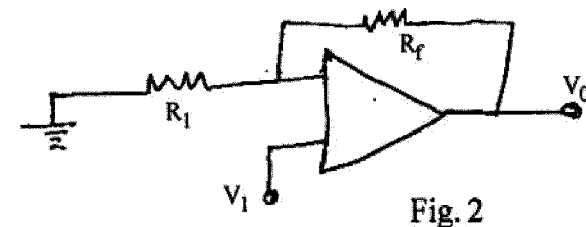
4. a) Define current mirror, common and differential mode gain.
- b) Discuss the effect of cascading on bandwidth of amplifier.
- c) Explain Darlington pair method with the help of diagram.
- d) Explain the performance of RC and direct coupled amplifier.

OR

Explain Boot strapping technique and level shifter.

Unit - V

5. a) What do you understand by virtual ground?
- b) What is Slew Rate? Give its importance?
- c) Determine the voltage gain for circuit show in figure 2.



Given $R_f = 900\text{ k}\Omega$, $R_1 = 20\text{ k}\Omega$.

- d) With the help of diagram explain Schmitt Trigger.

OR

Explain voltage to current and current to voltage converter with the help of diagram.
