

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. THIRD SEMESTER EXAMINATION, DECEMBER 2011

SECOND YEAR

ELECTRONICS (General)

Date : 24/12/2011

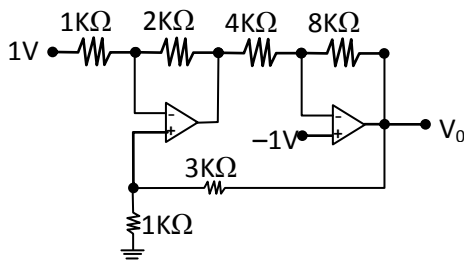
Time : 10.30am – 12.30 pm

Paper : III

Full Marks : 50

Answer **any five** questions:

1. a) Explain with the help of a block diagram the working principle of a feedback amplifier. Find an expression for the voltage gain with feedback.
b) What are different topologies of feedback? (3+3)+4
2. a) State the 'Barkhausen Criterion' for oscillation.
b) Distinguish between class A, B, C and AB amplifiers.
c) What is a power transistor? 3+5+2
3. a) With a circuit diagram explain the operation of a crystal oscillator. Calculate the frequency of oscillation.
b) What is the advantage of crystal oscillator? (4+4)+2
4. a) What is negative resistance?
b) How can the negative resistance be attained with feedback?
c) Mention any three advantages of negative feedback.
d) How are oscillations initiated in an electronic oscillator? 2+3+3+2
5. a) What are the offset current and voltage of an OP-AMP?
b) State the characteristics of an ideal OP-AMP. (2+2)+6
6. a) With reference to an inverting amplifier using OP-AMP, explain the concept of virtual ground.
b) Calculate the output voltage from the following circuit. 4+6



7. a) Explain the term 'Loop Gain' of a feedback amplifier.
b) Where is positive feedback used and why?
c) What is the source of AC power output of an oscillator?
d) State three advantages of Integrated Circuit. 2+(2+1)+2+3