Code No. : 5137/O

FACULTY OF ENGINEERING
B.E. 2/4 (ECE) II Semester (Old) Examination, May/June 2012
ANALOG ELECTRONIC CIRCUITS

Time : 3 Hours] [Max. Marks : 75

Note : *Answer **all** questions from Part **A**. Answer **any five** Questions from Part **B**.*

PART – A **(25 Marks)**

1. Draw FET high frequency equivalent circuit. **2**
2. What is an amplifier ? What are the various types of amplifiers. **3**
3. Describe the advantages of the push pull amplifier configurations. **3**
4. Why are power transistor provided with heat sinks. **2**
5. How does negative feedback reduce distortion in an amplifier. **3**
6. An amplifier has a gain of 300. When a negative feedback is applied the gain is reduced to 240. Find the feedback ratio. **2**
7. Discuss the effect of "Q" on bandwidth of a tuned amplifier. **2**
8. Distinguish between single tuned, double tuned and stagger tuned amplifier. **3**
9. Draw the equivalent circuit of a quartz crystal and what is the advantages feature of a crystal oscillator ? **3**
10. A colpitts oscillator C1 = 0.16 μF C = 15.8 MH and its frequency of oscillation is 10 KHz. Calculate the value of capacitor C2. **2**

PART – B **(50 Marks)**

11. a) Describe in detail about the low frequency response of CE amplifier by device drive the necessary mathematical relations. **8**
    b) Discuss the effect of bypass and coupling capacitance. **2**

12. a) What are advantages of transformer coupled amplifier over R-C coupled amplifier. 3

    b) The gain of RC coupled 2 stage FET amplifier falls by 90% of the midband value at 400 KHz. If gm of each FET is 10 mA/v and total output capacitance for each stage is 20 PF. Calculate the R_L required and mid band gain. 7

13. a) Explain the principle of operation of class - D amplifier and also derive an expression for its power ratios 7

    b) What is cross over distortion ? How it can be minimised ? 3

14. a) Draw the circuit for current series amplifier and the expressions for A_V, B, R_i R_o for the circuit. 8

    b) Explain the effect of negative feedback on the bandwidth. 2

15. Explain the principle of operation of double tuned amplifier obtain an equation for its gain bandwidth product. 10

16. Derive the expression for the frequency of oscillation and the minimum gain required for sustained oscillations of RC phase shift oscillator and compare RC and LC oscillators. 10

17. Write a short notes on : (5x2=10)

    a) Class 'C' power amplifier

    b) Neutralization.
