Reg. No. : | | | | | | | | | | |

Question Paper Code: 31044

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2015.

Third Semester

Electronics and Communication Engineering

01UEC304 - ELECTRONIC CIRCUITS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What are the techniques used to stabilizing the Q-point of a transistor?
2. What are the advantages of self bias?
3. State Miller's theorem.
4. Compare Darlington connection and bootstrapping methods.
5. Give reasons of the drop in gain at the low frequency region and high frequency region.
6. Give the expression for higher cutoff frequency of multistage amplifier.
7. List the merits of complementary symmetry over push-pull configuration.
8. Compare voltage amplifiers and power amplifiers.
9. What are the advantages of negative feedback?
10. Give an important application of negative current feedback circuit.

PART - B (5 x 16 = 80 Marks)

11. (a) What is meant by transistor biasing? State different types of transistor biasing and derive an expression for stability factor of fixed bias circuit. (16)

Or

(b) Explain the following bias compensation techniques. (16)

(i) Diode compensation.

(ii) Thermistor and Sensistor compensation.

12. (a) Draw the small signal hybrid equivalent circuit of BJT and derive the expression for the following. (16)

(i) Input Impedance

(ii) Output Impedance

(iii) Voltage Gain

(iv) Current Gain.

Or

(b) Explain the D.C analysis of emitter coupled differential amplifier with a diagram having resistive load. (16)

13. (a) Explain in detail about low frequency response of BJT common emitter amplifier. (16)

Or

(b) Draw the equivalent circuit of common source FET amplifier at high frequencies and derive an expression for voltage gain, Input admittance and output admittance. (16)

14. (a) State the different types of distortion occurs in a amplifier and explain them. (16)

Or

(b) Explain the principles of operation of Class-D amplifier and also derive an expression for its power relations. (16)

15. (a) (i) Describe the principle of voltage shunt feedback amplifier and derive the necessary relation for its performance measures. (8)

(ii) Amplifier without feedback has an output voltage V_0 = 50V; with second harmonic distortion of 10% for input signal V_s=.0.5 volts. Calculate (a) the amount of feedback necessary to reduce distortion to 1% (b) the gain A_f (c) the new input voltage required to restore V_0 to 50 Volts with 1% distortion. (8)

Or

(b) (i) Draw the circuit of Class-C tuned amplifier and derive the efficiency and also mention its applications and advantages. (12)

(ii) Compare four types of negative feedback connections. (4)