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

Question Paper Code: 41434

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Third Semester

Electronics and Communication Engineering

14UEC304 - ELECTRONIC CIRCUITS

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What happens to I_{co} for every $10^{o}C$ rise in temperature?

   (a) doubles (b) remains same (c) reduces (d) triples

2. The disadvantage of voltage divider bias is that it has

   (a) high stability factor (b) low base current
   (c) many resistors (d) none of these

3. If the differential voltage gain and common mode voltage gain of a differential amplifier are 48*dB* and 2*dB* respectively, then common mode rejection ratio is

   (a) 24*dB* (b) 25*dB* (c) 46*dB* (d) 50*dB*

4. The main characteristics of a Darlington Amplifier are

   (a) High input impedance, high output impedance and high current gain
   (b) Low input impedance, low output impedance and low voltage gain
   (c) High input impedance, low output impedance and high current gain
   (d) Low input impedance, low output impedance and high current gain

5. A multistage amplifier with common emitter as the first stage and common base as the second stage is

   (a) Cascade (b) Cascode
   (c) Darlington connection (d) Direct coupling

6. In the DC equivalent circuit of a transistor amplifier, the capacitors are considered

(a) short (b) open (c) partially short (d) none of these

7. Where the Q-point located in Class-B amplifier?

(a) at cut off (b) at saturation region
(c) at the center of dc load line (d) below cut off region

8. Class C amplifiers are used as

(a) AF amplifiers (b) detectors (c) R.F. amplifiers (d) none of these

9. The basic purpose of applying negative voltage feedback is to

(a) increase voltage gain (b) reduce distortion
(c) keep the temperature within limits (d) none of these

10. What happened to noise with negative feedback?

(a) increases (b) decreases
(c) no change (d) increases then decreases

PART - B (5 x 2 = 10 Marks)

11. What is thermal run away?

12. Why common emitter configuration is mostly used?

13. Write the reason for drop in gain at low and high frequency.

14. How are amplifiers are classified based on the biasing condition?

15. List out the applications of tuned amplifier.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) What is mean by self-bias? Write the advantage of self-biasing circuits. (6)

(ii) How will you provide the bias compensation for the variations in current and discuss in detail. (10)

Or

(b) Briefly explain the various methods of MOSFET biasing. (16)

17. (a) (i) Draw the circuit diagram of CB amplifier and explain its working. (6)

(ii) Explain in details of AC equivalent circuit of a CB amplifier using h-parameter model and r_e model and derive the equation for input impedance, output impedance, voltage gain and current gain. (10)

Or

(b) Briefly explain the differential amplifier, also derive CMRR. (16)

18. (a) Analyze the FET models at high frequencies. (16)

Or

(b) Draw the hybrid π model BJT amplifier, also derive the expression for short circuit current gain. (16)

19. (a) Briefly explain complementary push pull Class-B amplifier, also derive its efficiency. (16)

Or

(b) Discuss and explain the methods of evaluating second and total harmonic distortion. (16)

20. (a) (i) Enumerate the effects of negative feedback on the various characteristics of the amplifier. (10)

(ii) Explain the steps to identify the feedback topology and feedback factor for analyzing the feedback amplifier. (6)

Or

(b) Explain class-C tuned amplifier and derive its efficiency. (16)