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

Question Paper Code: 41344

B.E. / B.Tech. DEGREE EXAMINATION, MAY 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. The most stable biasing technique used is the

   (a) Voltage divider bias (b) Base bias
   (c) Emitter bias (d) Collector bias

2. The primary function of the bias circuit is to

   (a) hold the circuit stable at V_{CC}
   (b) hold the circuit stable at v_{in}
   (c) ensure proper gain is achieved
   (d) hold the circuit stable at the designed Q-point

3. The phase difference between the output and input voltages of a Common Emitter (CE) amplifier is

   (a) 180˚ (b) 0˚ (c) 90˚ (d) 270˚

4. The final stage of multistage amplifier uses

   (a) RC coupling (b) Transformer coupling
   (c) Direct coupling (d) impedance coupling

5. An amplifier receives 0.1 *W* of input signal and delivers 15 *W* of signal power. What is the power gain in *db*?

(a) 21.8*db* (b) 14.6*db* (c) 9.5*db* (d) 17.4*db*

6. In a class B push-pull amplifier, the transistors are biased slightly above cutoff to avoid

(a) crossover distortion (b) unusually high efficiency
(c) negative feedback (d) a low input impedance

7. The maximum collector efficiency of class B operation is

(a) 50% (b) 90% (c) 60.5% (d) 78.5%

8. Class A power amplifier is sometimes called as

(a) symmetrical (b) single-ended (c) reciprocating (d) differential

9. A tuned amplifier is used in _____application.

(a) radio frequency (b) low frequency
(c) audio frequency (d) none of the above

10. When transistors are used in digital circuits they usually operate in the

(a) active region (b) breakdown region
(c) saturation and cutoff regions (d) linear region

PART - B (5 x 2 = 10 Marks)

11. Give the advantages of self-biasing.

12. Draw the circuit diagram of emitter coupled differential amplifier

13. What is a multistage amplifiers? Discuss the low frequency response of an amplifier.

14. Draw a voltage series feedback circuit and mention its significance.

15. What is meant by heat sink?

PART - C (5 x 16 = 80 Marks)

16. (a) What is meant by transistor biasing? Describe various methods used for transistor biasing? State the advantages of voltage divider bias. (16)

Or

(b) Write short notes on

(i) Operating point (8)

(ii) Stabilization of operating point (8)

17. (a) (i) Explain the three types of gain in Common Emitter (CE) amplifier in detail. (10)

(ii) What are the various types of single stage amplifier? (6)

Or

(b) Discuss in detail about the Darlington pair connection. (16)

18. (a) (i) What are the steps analyzed to carry out the upper cut off frequency of Bipolar Junction Transistor (BJT) amplifier. (10)

(ii) Discuss about the various waveforms of frequency response amplifier. (6)

Or

(b) (i) Discuss the rise time and relationship between cutoff frequency. (8)

(ii) Derive an expression for frequency response of multistage amplifier. (8)

19. (a) (i) With a neat circuit diagram explain the operation of pushpull amplifier. (8)

(ii) The class B push pull amplifier has an efficiency of 60% and each transistor has a rating of 2.5*W*. Find AC output power and DC output power. (8)

Or

(b) (i) Explain the working and draw the circuit diagram of transformer coupled amplifier with its frequency response curve. (10)

(ii) Discuss the working of class C amplifier with its circuit diagram. (6)

20. (a) (i) Derive the Nyquist criteria for stability of feedback amplifiers. (8)

(ii) What is negative feedback? Explain its various types of negative feedback with its gain. (8)

Or

(b) (i) Explain the operation of a tuned amplifier circuit with suitable diagram. (8)

(ii) Explain the operation of class C tuned amplifier. (8)