B 2171

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fourth Semester

Electrical and Electronics Engineering

EC 254 — ELECTRONIC CIRCUITS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you understand by biasing?

2. What are the advantages of using Darlington connection?

3. What are the important features of a differential amplifier?

4. What are tuned amplifiers?

5. Why do you prefer negative feed back in amplifiers?

6. What are the advantages of using crystal oscillators?

7. Draw the integrator circuit and explain its operation.

8. Differentiate between astable multivibrator and Schmitt trigger circuits.

9. A zener diode is operated at 10 mA current and 20 V supply voltage. The zener break down voltage is 5 V. Calculate its current limiting resistor value.

10. What are the advantages of using switched mode power supply?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw the circuit of a common emitter amplifier and explain its operation. (10)

(ii) What type of biasing is selected in your circuit? Why? (3)

(iii) Draw the frequency response characteristic curve and explain. (3)

Or

(b) (i) Explain class A, class B and class C operation of amplifiers. (6)

(ii) Draw a class B amplifier circuit and analyse its complete features. (10)

12. (a) (i) Draw the circuit of a differential amplifier circuit and explain its operation for common mode signal and differential mode signal. (12)

(ii) What are the advantages of using FET input stage? (4)

Or

(b) (i) What are the classification of tuned amplifiers? (4)

(ii) Draw the circuit of a tuned amplifier and explain its operation, frequency response, gain and bandwidth. (12)

13. (a) (i) In a negative voltage feedback amplifier the gain without feed back is 50 and 10% of the output is feedback to the input. Calculate its gain with feed back. (4)

(ii) Explain the circuit of a negative voltage shunt feedback amplifier and explain the changes in its gain, bandwidth, distortion, input resistance and output resistance. (12)

Or

(b) (i) What are the conditions for oscillations? Explain. (4)

(ii) Draw the circuit of wien bridge oscillator and explain its operation. (12)

14. (a) Draw the circuit of astable multivibrator and explain its operation with necessary wave forms. (16)

Or

(b) Explain the following with an example.

(i) Integrator. (4)

(ii) Differentiator. (4)

(iii) Slicer. (4)

(iv) Clamper. (4)

15. (a) Draw the circuit of a full wave rectifier with a capacitive filter and explain its operation with necessary waveforms. (16)

Or

(b) Explain the design procedure of a transistor series voltage regulator. (16)
