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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Fourth Semester

(Regulation 2004)

Electrical and Electronics Engineering

EC 1261 — ELECTRONIC CIRCUITS

(Common to B.E. (Part — Time) Third Semester Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the fixed and self-bias circuits for a transistor amplifier.
2. What is conversion efficiency of a power amplifier?
3. Define common mode rejection ratio.
4. What is the Q-factor of a resonant circuit?
5. Define the term feedback of an amplifier.
6. What are the essential conditions for sustaining oscillations in an oscillator?
7. What is the time constant of a RC-circuit?
8. What are the various types of clipper and clamper circuits?
9. Derive the ripple factor of a Half-wave and Full-wave rectifier.
10. Draw the block diagram of a switched mode power supply.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Derive the expressions for the current gain, input impedance, voltage gain and output admittance of a transistor amplifier in terms of the h-parameters. (10)
- (ii) Explain about the operation of the common source FET-amplifier. (6)

Or

- (b) (i) Explain in detail about the operation of the class-B-push pull transformer coupled amplifier. (10)
- (ii) Explain about the Cascade and Darlington circuits. (6)
12. (a) (i) Explain about the operation of the Emitter-coupled differential amplifier. (12)
- (ii) Explain about the transfer characteristics of the differential amplifier. (4)

Or

- (b) Explain in detail about the operation of the Single-tuned and Double tuned amplifiers.
13. (a) Explain in detail about the operation of the voltage and current amplifiers with series and shunt feedback.

Or

- (b) (i) Explain about the Phase-shift and Wien bridge oscillators. (8)
- (ii) Explain about Hartley and Colpitts oscillators. (8)
14. (a) (i) Explain in detail about the operation of the various types of Multivibrators. (12)
- (ii) Explain about the different types of Clipper and Clamper circuits. (4)

Or

- (b) (i) Explain about Schmitt trigger. (6)
- (ii) Explain in detail about the operation of the UJT-based Saw tooth oscillator. (10)

15. (a) (i) Explain in detail about the operation of the Half-wave and Full-wave rectifiers. (12)
- (ii) Explain about the Bridge rectifier. (4)

Or

- (b) (i) Derive the ripple-factor for the Inductor and Capacitor filters. (8)
- (ii) Explain in detail about the operation of the series voltage regulator. (8)
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