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T 3216

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Third Semester

Electronics and Instrumentation Engineering

EC 1261 — ELECTRONIC CIRCUITS

(Common to Instrumentation and Control Engineering)

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the fixed and self bias circuit of BJT.
2. Draw the h-parameter equivalent circuit of a Common-emitter transistor.
3. What is CMRR?
4. Draw a tuned circuit.
5. Define feedback factor.
6. What are the conditions of oscillation in sinusoidal oscillators.
7. What is time constant in a RC circuit?
8. What is a clipper?
9. Define peak inverse voltage of a rectifier.
10. Draw the functional block diagram of SMPS.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Derive the expressions for the input resistance, voltage gain, current gain, and output admittance of a transistor amplifier in terms of h-parameters. (8)

- (ii) Explain about Cascode and Darlington connections. (8)

Or

- (b) (i) Explain the operation of the transformer coupled power amplifier. (8)

- (ii) Explain the operation of the Class-B push pull power amplifier. (8)

12. (a) Explain in detail about the operation of the Emitter coupled differential amplifier.

Or

- (b) Explain the operation of the single and double tuned amplifiers.

13. (a) With topologies compare the performance of voltage/current of the series and shunt feedback amplifiers.

Or

- (b) Explain the operation of the Wein-bridge oscillators. What are the advantages of crystal oscillators?

14. (a) (i) Explain with circuit diagram and waveforms positive and negative Clamper circuits. (8)

- (ii) Explain the operation of a UJT saw tooth oscillator. (8)

Or

- (b) Explain the operation of a monostable multivibrator circuit.

15. (a) Explain in detail about the operation of the Half wave rectifier, full wave rectifier and Bridge rectifiers.

Or

- (b) (i) Compare the ripple factor for the inductor filter and capacitor filter. (4)
- (ii) Explain the operation of the series voltage regulators. (12)
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