

C 3236

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

NOVEMBER/DECEMBER 2008.

Third Semester

(Regulation 2004)

Electronics and Communication Engineering

EC 1203 – ELECTRONIC CIRCUITS – I

(Common to B.E. (Part-Time) Second 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.
2. What is the need for biasing?
3. Define the various h-parameters for a common emitter transistor.
4. Define CMRR in a differential amplifier.
5. What is bandwidth of an amplifier?
6. What is rise time?
7. What is conversion efficiency in a power amplifier?
8. What is cross-over distortion?
9. Derive the ripple factor for a Half-wave and Full-wave rectifier.
10. Draw the block diagram of a Switched Mode Power Supply.

PART B--(5 × 10 = 80 marks)

11. (a) Derive the expression for all the stability factors.
(or)
11. (b) (i) Explain about the common source self bias and voltage divider bias for FET. (10)
11. (b) (ii) Show how a FET can be used as a voltage variable resistor. (6)

12. (a) Derive the current gain, input impedance, voltage gain and output admittance of a transistor amplifier in terms of h-parameters.
- (or)
12. (b) Explain the operation of the emitter coupled differential amplifier with constant current load to improve stability.
13. (a) Explain in detail about the low frequency and high frequency response of an amplifier.
- (or)
13. (b) Draw the hybrid - π common emitter transistor model for a transistor at high frequencies and derive the values of all the components in terms of h-parameters.
14. (a) Explain in detail about the operation of a transformer coupled power amplifier.
- (or)
14. (b) Explain in detail about the operation of a class-B push-pull power amplifier.
15. (a) Explain in detail about the operation of the following type of filters and derive the ripple factor for all
- (i) C-filter
 - (ii) L-filter
 - (iii) L-C filter
 - (iv) C-L-C filter.
- (or)
15. (b) Explain in detail the operation of the electronic voltage regulators.