

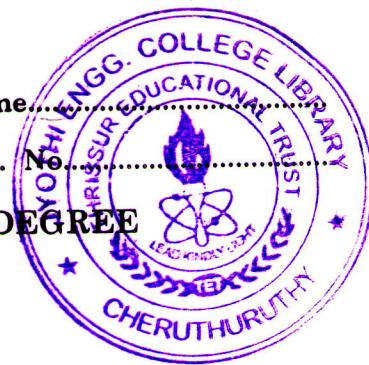
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Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2007**

**Electronics and Communication Engineering
EC 2K/PT 2K 304—BASIC ELECTRONICS**



Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) A tungsten filament consists of a cylindrical cathode 5 cm long and 0.01 cm in diameter. If the operating temperature is 2500°K, find the emission current. Given $A = 60.2 \times 10^4 \text{ A/m}^2 \text{ } ^\circ\text{K}^2$, $\phi = 4.517 \text{ eV}$.
- (b) What is meant by secondary emission ?
- (c) How many bands are seen on a standard resistor ? What does each band signify ? How is the value of a resistor calculated from the colour code ?
- (d) What is the drawback of C filter ? How is it minimized in LC filter-?
- (e) Write the limitations of zener regulator.
- (f) Write short notes on voltage multiplier.
- (g) Write the effect of temperature on BJT model parameters.
- (h) Draw the h -parameter equivalent circuit of CC configuration.

(8 × 5 = 40 marks)

- II. (a) Discuss the construction, operation and characteristics of vacuum diode. (15 marks)

Or

- (b) Discuss the dynamic characteristics and applications of triode. (15 marks)

- III. (a) Write short notes on the following :—

- (i) RF chokes. (5 marks)
- (ii) Transformers. (5 marks)
- (iii) Different types of capacitors. (5 marks)

Or

- (b) Discuss the analysis and design of half wave rectifier circuit. (15 marks)

- IV. (a) Construct diode clipping and damping circuits. (15 marks)

Or

- (b) Discuss the operation of emitter follower output regulator. (15 marks)

- V. (a) Discuss the high frequency small signal model of BJT configuration. (15 marks)

Or

- (b) Derive the small signal high frequency model of a MOSFET in CS and CD configurations. (15 marks)

[4 × 15 = 60 marks]