

D 1818

(2 pages)

Name.....

Reg. No.....

THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION

DECEMBER 2004

EC-2K/PT-2K-304 – BASIC ELECTRONICS

(New Scheme)

Time : Three Hours

Maximum : 100 Marks

- I. (a) State and Explain Child-Langmuir law.
(b) Explain the principles of secondary Emission.
(c) Draw a CRC filter circuit write its ripple factor expression. Explain the filter action.
(d) Define and explain :
(i) Ripple factor, (ii) Rectification efficiency, (iii) PIV.
(e) What are dc restorers ? Write their types. Mention the potential applications of dc restorers.
(f) Draw the block diagram of a controlled transistor regulator. Explain its advantages.
(g) Draw the hybrid π model of CE configuration BJT. Define the parameters of the circuit.
(h) Explain the advantages of hybrid parameters applied to transistors.
(8 × 5 = 40 marks)
- II. (a) (i) Explain the construction of pn junction diodes. (8 marks)
(ii) Explain in detail the V-I characteristics of diodes. State the potential applications of pn junction diodes. (7 marks)
- Or
- (b) Derive Richardson's equation. (15 marks)
- III. (a) Write short notes on :
(i) Types of transformers. (8 marks)
(ii) M-phase rectifiers. (7 marks)
- Or
- (b) Draw a neat circuit diagram of a bridge rectifier and explain its principle of operation with neat waveforms. Derive expressions for ripple factor and rectification efficiency. (15 marks)
- IV. (a) (i) Show and explain Zener diode as a voltage regulator. (8 marks)
(ii) Draw a neat circuit diagram of voltage tripler. Explain its principle of operation. (7 marks)

Turn over



Or

(b) Explain the following diode circuits.

(i) Clamper.

(ii) Limiter.

(8 + 7 = 15 marks)

V. (a) Draw the n-parameter equivalent circuit of common base configuration transistor. Derive expressions for voltage gain, current gain, Input and Output Impedances. (15 marks)

Or

(b) Write technical notes on :

(i) Effect of temperature on MOSFET model parameters.

(8 marks)

(ii) Equivalent circuit of CD configuration MOSFET.

(7 marks)