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Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2009**

Electrical and Electronics Engineering

EE 2K 304/PTEE 2K 106—ELECTRONICS—I

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) Show that $p-n$ junction can act as a rectifier.
(b) Explain the construction of PNP and NPN BJT.
(c) Draw a neat circuit diagram of a Half wave rectifier using a diode and explain its principle of operation.
(d) State clamping circuit theorem. Mention the applications of clampers.
(e) Differentiate Voltage amplifiers from Power amplifiers.
(f) Draw a neat circuit diagram of BJT amplifier. Explain it.
(g) Derive expressions for low frequency response of BJT with a neat circuit diagram.
(h) State and explain Miller effect.
- (8 × 5 = 40 marks)
- II. (a) (i) Differentiate JFET from MOSFET.
(ii) With a neat sketch of JFET cross section, explain the construction of JFET.
- Or*
- (b) (i) Explain the V-I characteristics of $p-n$ junction diode with a neat sketch.
(ii) Obtain the relationship among the current components of BJT.
- III. (a) Draw a neat circuit diagram of full wave bridge rectifier and explain its principle of operation. Derive its efficiency and ripple factor.
- Or*
- (b) Give an account on :
- 1 LC filters for rectifiers.
 - 2 Two level clippers.

Turn over

IV. (a) (i) Draw a BJT Emitter follower circuit. Explain its principle of operation in detail.

(ii) Explain about :

1 Heat sink.

2 Faithful amplification.

Or

(b) Draw a neat circuit diagram of class 'B' push pull power amplifier. Explain its principle of power amplification. Derive an expression for its efficiency.

V. (a) Briefly discuss on selection of coupling and bypass capacitors for BJT amplifier.

Or

(b) (i) Explain the significance of CMRR. Derive an expression for CMRR.

(ii) Explain the types of differential amplifiers.

[4 × 15 = 60 marks]