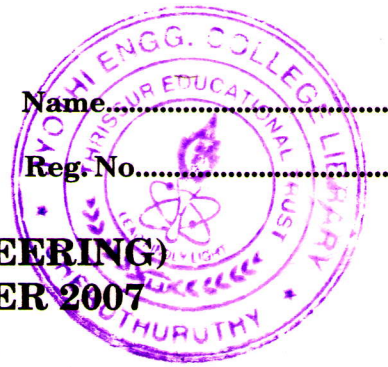


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**THIRD SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, DECEMBER 2007**

Electrical and Electronics Engineering

EE 2K 304 – ELECTRONICS – I

Time : Three Hours

Maximum : 100 Marks

- I. (a) What are the current components and configurations of BJT. Obtain the relation among the current components.
(b) State and explain drift and diffusion current components. Obtain the equations for them.
(c) Explain the procedure to draw d.c. load line.
(d) Write the types of clippers. Draw neat sketches for them.
(e) What is the need for bias stability for BJT ? Explain it.
(f) Explain the fixed biasing method of FET with a neat circuit diagram.
(g) State 'Gain bandwidth product'. What is its significance ?
(h) What is CMRR ? Explain. Derive an expression for CMRR in terms of input and output voltages.
(8 × 5 = 40 marks)
- II. (a) Draw neat sketches for MOSFET construction and explain. Also explain its characteristics in detail.
Or
(b) Write notes on : (i) RATING of BJT ; (ii) P-N junction as a rectifier.
- III. (a) Draw a neat circuit diagram of diode half wave rectifier and explain its principle of operation. Derive expressions for rectifier efficiency and ripple factor.
Or
(b) (i) What is the need for filters in rectifiers? Explain.
(ii) Draw a neat circuit diagram of positive and negative clamper and explain.
- IV. (a) (i) Explain about operating point of a BJT.
(ii) Explain the function of BJT as an amplifier with a neat circuit diagram.
Or
(b) Draw a neat circuit diagram of Class-B push-pull amplifier. Explain its principle of operation. Derive its efficiency value.
- V. (a) (i) Write a detailed note on 'Selection of coupling and by pass capacitors.'
(ii) State and explain Miller effect.
Or
(b) Write technical notes on :
(i) FET at high frequencies.
(ii) Differential amplifiers.

[4 × 15 = 60 marks]