

D 51430

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Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2008**

EC 2K / PT 2K 304 – BASIC ELECTRONICS

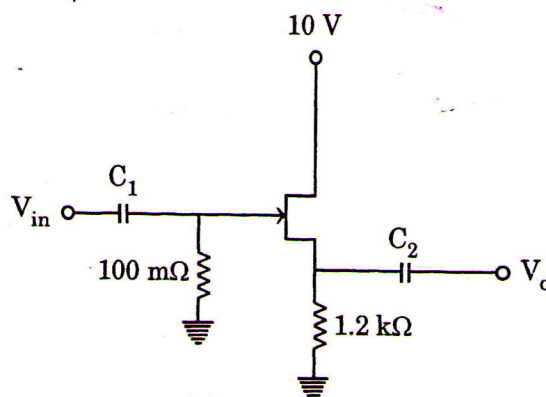
Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

1. (a) State Richardson equation and explain its significance.
- (b) Define Amplification factor, Plate Resistance, Transconductance with expressions.
- (c) Draw the circuit of bridge rectifier and explain its operation.
- (d) For an LC filter, determine the expression for ripple factor.
- (e) Draw the various equivalent models for a Diode and explain.
- (f) Explain a voltage doubler circuit.
- (g) Draw the approximate h -parameter model of CE transistor configuration driven by a voltage source with zero resistance (R_s).
- (h) For the CS MOSFET amplifier given below, determine its voltage gain and output resistance.
Assume $g_m = 4500 \mu S$.



(8 × 5 = 40 marks)

Part B

2. (a) Explain the three types of Emissions and their governing equations.
Or
- (b) Discuss the working of Pentode tube and its application as amplifier.

Turn over

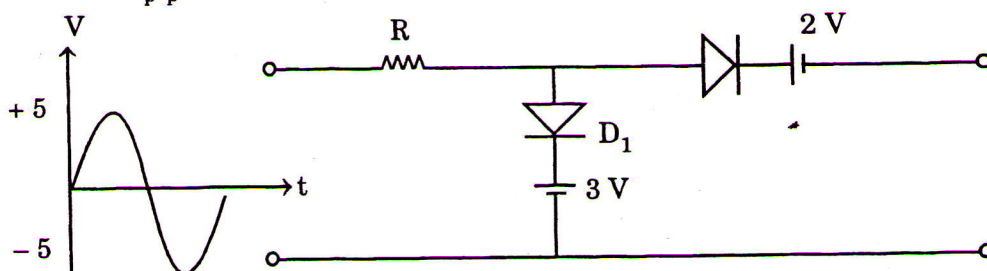
3. (a) Explain:

- (i) Classification of Resistors.
- (ii) Factors affecting the capacitance.
- (iii) Chokes.

Or

(b) An AC supply of 200 V is applied to a half wave rectifier having transformer turns ratio of 10:1 and Load $R_L = 1 \text{ k}\Omega$. Find, I_{dc} , V_{dc} , η , γ , PIV and TUF.

4. (a) (i) For the biased clipper shown sketch the output waveform if input voltage is sinusoidal with 10 V_{p-p} .



(ii) Explain the working of Zener diode voltage regulator and obtain expressions for S_{V1} and R_o .

(5 + 10 = 15 marks)

Or

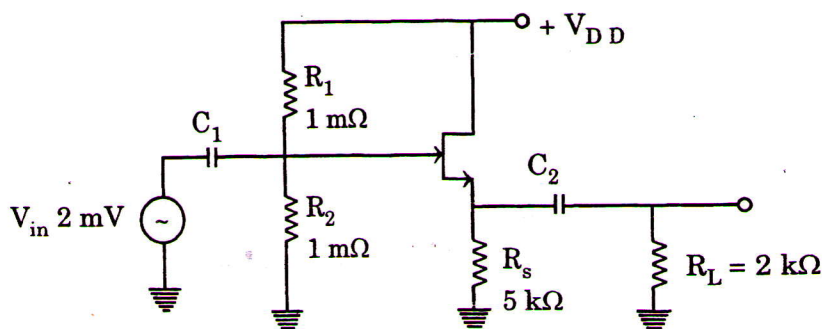
- (b) (i) With the help of circuit discuss short circuit protection mechanisms in voltage regulators.
- (ii) State the drawbacks of Zener voltage regulators.

(10 + 5 = 15 marks)

5. (a) Develop low frequency equivalent circuit for a basic common collector amplifier and derive relations for current gain, voltage gain, input resistance in terms of h -parameters. Make suitable assumptions. Also justify the name "Emitter Follower".

Or

(b) Find the voltage gain and R_i for the source follower shown:



(15 marks)

[4 × 15 = 60 marks]