

This question paper contains 4 printed pages.

3285

Your Roll No. ....

B. Tech. (EEE) / I

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PAPER V— ADVANCED ELECTRONICS  
(EEE-105)

Time : 3 hours

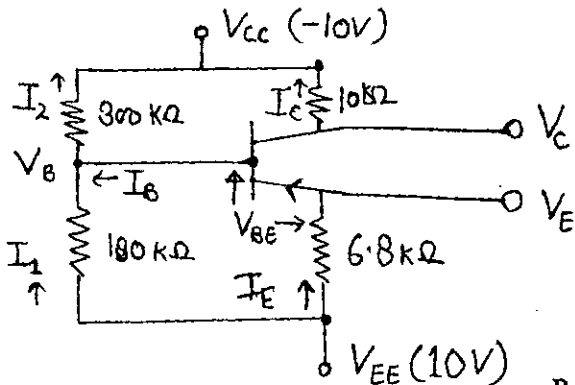
Maximum Marks : 70

(Write your Roll No. on the top immediately  
on receipt of this question paper.)

Answer any five questions.

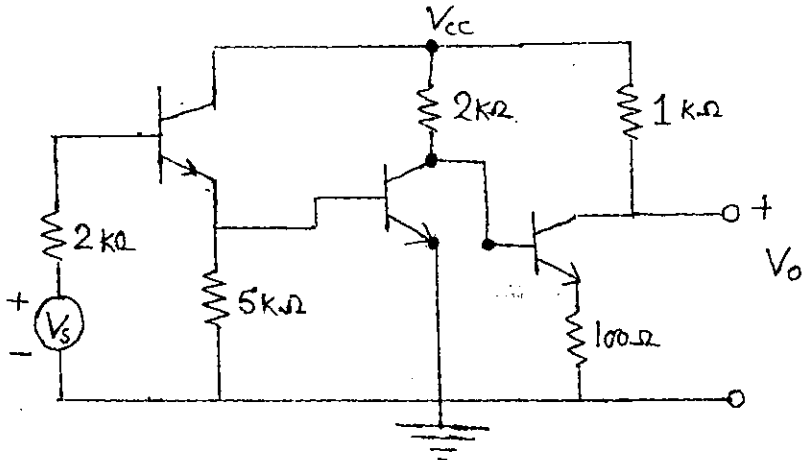
Assume suitable missing data, if any.

1. (a) Draw and explain Ebers-Moll model of PNP transistor. 4
- (b) Draw circuit diagram of *npn* transistor biased for CE configuration. Draw and explain its output characteristics showing all different regions. 6
- (c) Determine all voltages and currents in the circuit given below, with  $\beta_F = 100$ : 4

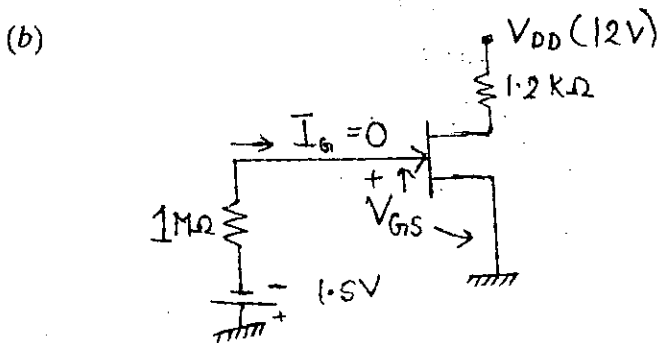


P. T. O.

2. (a) In the cascaded amplifier given below,  $r_{\pi}=0.5 \text{ k}\Omega$  for  $Q_1$  and  $Q_2$  and  $r_{\pi}=1 \text{ k}\Omega$  for  $Q_3$ ,  $\beta=100$  for all the transistors. Find overall voltage gain. 6



- (b) What are the important characteristics of JFET? 4
- (c) With the help of a diagram explain pinchoff voltage. What do you mean by stability factors  $S(I_{CO})$ ,  $S(V_{BE})$  and  $S(\beta)$ ? 4
3. (a) Compare a FET with a BJT 4



Given  $I_{DSS} = 12 \text{ mA}$ ,

$$V_p = -4 \text{ V}$$

- Determine Q-point. 5
- (c) Distinguish between Enhancement type and Depletion type MOSFET. 5
4. (a) Why is negative feedback preferred inspite of loss of gain? Compare it with respect to other parameters. 7
- (b) What are different types of feedback configurations? Explain with example. 7
5. (a) What are the problems associated with a basic integrator using Op Amp? How can it be sorted out using Lossy Integrator? 7
- (b) What are D.C. characteristics of an Op Amp? Explain. 7
6. (a) Explain Wein Bridge Oscillator and Colpitt Oscillator with suitable diagram. 7
- (b) Explain with neat block diagram the working of a Push-Pull Amplifier and state what are the advantages of the same. 7
7. Write short notes on any *two* of the following: