



## Analog Electronics (Old-1999)

P. Pages : 3

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. All questions are compulsory.
5. Solve **any two** from each question.
6. Each question carry equal marks.
7. Assume suitable data wherever required.
8. Non programmable calculators are allowed.
9. Draw neat diagram wherever required.

### UNIT – I

1. a) With suitable example classify the electrical network. also classify the sources used in electrical network. **10**
- b) Find out the current  $I_1$ ,  $I_2$ ,  $I_3$  in the circuit shown in fig. 1 by selecting suitable theorem. Justify the selection of theorem. **10**

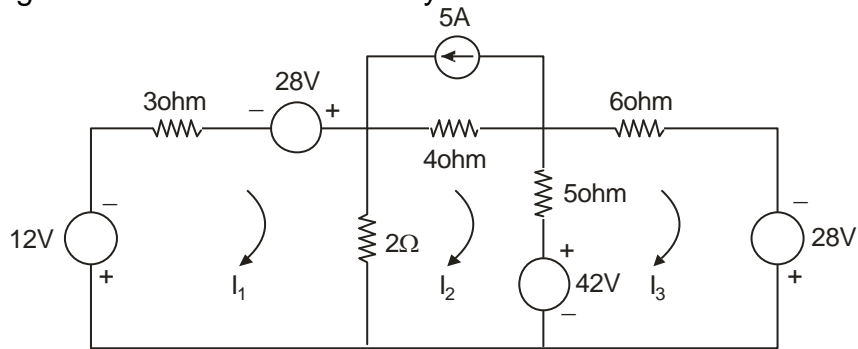


Fig. 1

- c) Calculate the power dissipated in the circuit shown in fig. 2. **10**

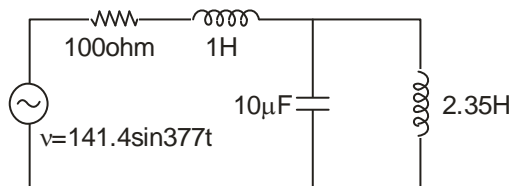
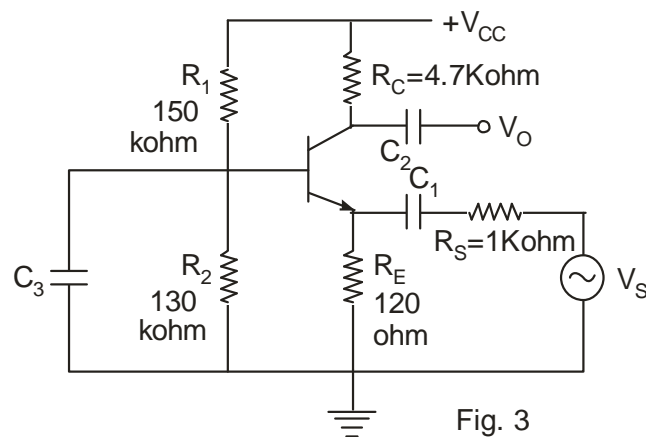


Fig. 2

## UNIT – II

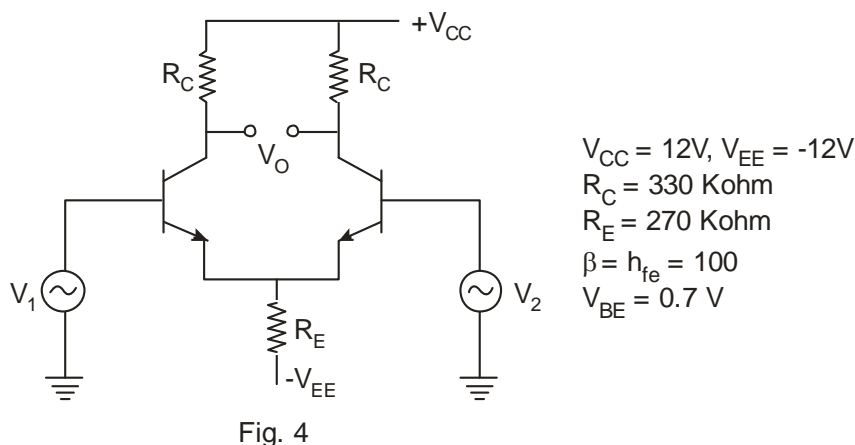
2. a) Draw only Exact h-model for  $C_B$ ,  $C_E$ , &  $C_C$  configuration for single stage BJT amplifier. Write down the equivalent h-parameters for  $C_B$ , &  $C_C$  in terms of  $C_E$  h-parameter. **10**
- b) Draw the single state  $C_E$  BJT amplifier circuit with Emitter resistance Bypass. Use voltage divider biasing. AC source with internal resistance  $R_S$  and load resistance  $R_L$  connected. Draw equivalent a.c. circuit using approximate h-model. Give only equation  $A_{VS}$ ,  $A_{IS}$ ,  $A_I$ ,  $A_V$  and overall input and output resistance. **10**
- c) Identify the configuration of amplifier shown in fig. 3 and find overall voltage gain, overall current gain, total input and output resistance. Select appropriate h-model. **10**



## UNIT – III

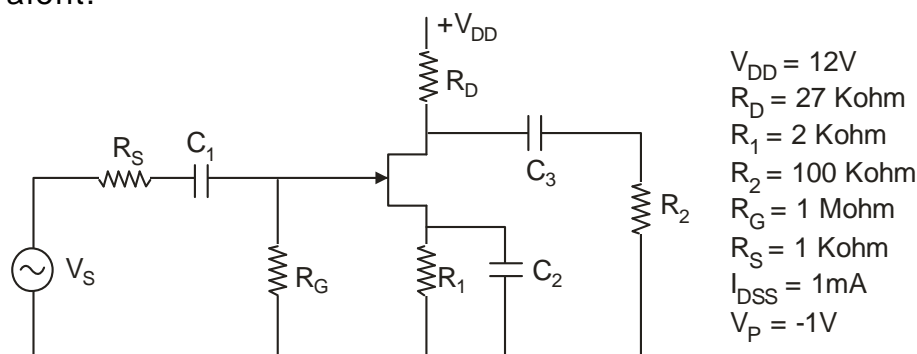
3. a) What do you mean by cascading of amplifier. Give the reason for the need of multistage amplifier. What are the method of coupling the amplifier. Draw circuit diag. for two stage  $C_E$ - $C_C$  amplifier. **10**
- b) What are the two method used in laboratory to find bandwidth of BJT amplifier. Explain the method used to find bandwidth of amplifier by square wave. **10**

- c) Find Q-point and differential mode gain of differential amplifier shown in fig. 4. Also calculate I/P and O/P resistance. 10



### UNIT – IV

4. a) What are the different biasing method used for FET calculate the operating point of the FET amplifier shown in fig. 5. Draw DC equivalent. 10



- b) What is the significance of the negative feedback. Draw the block diag. of all the topology of negative feedback. Suggest the topology to be used for high input and low output resistance. 10
- c) Draw and explain the oscillator circuit for low frequency output which work on bridge principle. Give the equation for frequency. 10

### UNIT – V

5. a) Explain the regulated power supply. What are the parameters that describes the performance of the regulated power supply. Draw the circuit diag. of Zener shunt regulator. 10
- b) With the block diag. Explain the working of switch mode power supply. 10
- c) With the circuit diagram. Explain the working of transistorise series regulator. 10

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