

S.E.C (Inst) SEM-III choice Based Q. P. Code : 37822

28/11/18  
1/2

[Time: Three Hours]

[Marks:80]

- N.B:
1. Question.No.1 is compulsory.
  2. Attempt any three questions from remaining five questions.
  3. Assume suitable data wherever necessary.

Q.1 Attempt any four questions.

- Compare CB, CE and CC configuration.
- How FET is employed as voltage control resistor?
- For the series diode configuration of Fig. 1, determine  $V_D$ ,  $V_R$ , and  $I_D$ .

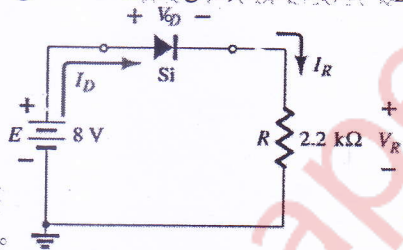


Fig. 1

- What are the characteristics of Ideal op-amp?
- Cross over distortion is behavior is characteristic of class A power. State true or False with reason.

Q.2 a) Determine  $V_o$  for the network of Fig. 2 for the input indicated.

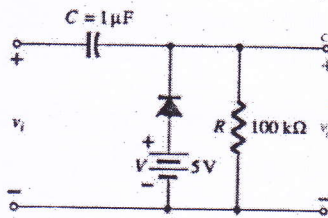
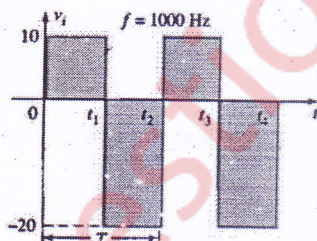


Fig. 2

- For the Zener diode network (Fig. 3), determine  $V_L$ ,  $V_R$ ,  $I_Z$  and  $P_Z$ . Consider supply voltage of 16V, Zener voltage of 10V, series resistance of 10KΩ and load resistance of 3KΩ.

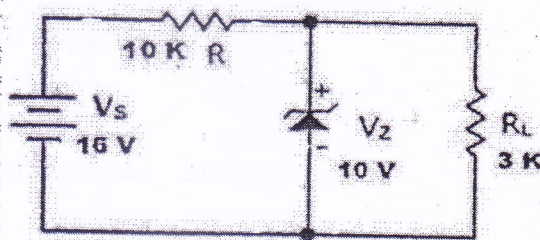


Fig. 3

- Explain the working of Bridge rectifier with neat circuit and waveforms.



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Q.3 a) Determine the following parameters for the fixed-bias configuration of Fig. 4. 10

- $I_{BQ}$  and  $I_{CQ}$
- $V_{CEQ}$
- $V_B$  and  $V_C$
- $V_{BC}$

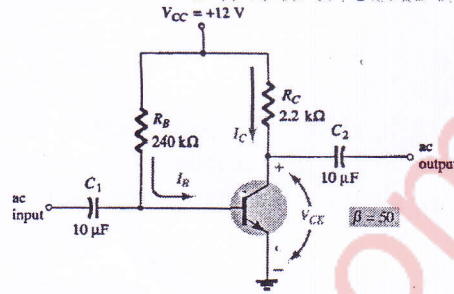


Fig.4

b) Derive the expression of stability factor for a voltage divider biasing network. 10

Q.4 a) Determine the following parameters for the network of Fig.5. 10

- I.  $V_{GSQ}$
- II.  $I_{DQ}$
- III.  $V_{DS}$
- IV.  $V_S$
- V.  $V_G$
- VI.  $V_D$

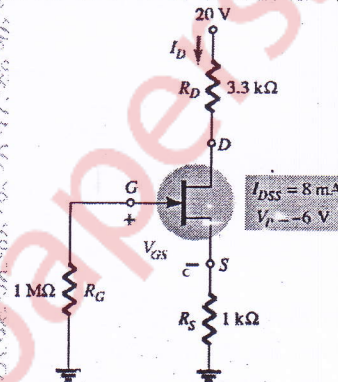


Fig.5

b) Explain with a neat diagram a transformer coupled audio power amplifier. 10

Q.5 a) Draw and explain working of Schmitt trigger (inverting and non-inverting configuration) with input and output waveforms. 10

b) Derive the expression for the instrumentation amplifier. Calculate the gain of fig.6. 10

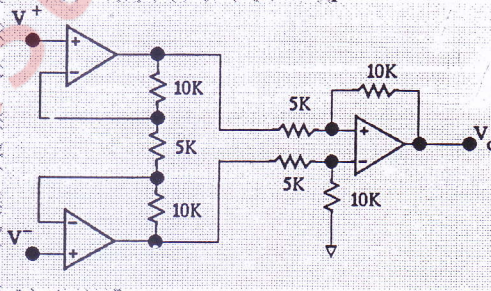


Fig. 6

Q.6 a) Draw and explain series voltage regulator. 10

b) Draw the circuit and find the frequency of oscillation for Wein bridge oscillator. 10

Explain its operation

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