Total No. of Printed Pages:3

F.E. Semester-II (Revised Course 2007-2008)
EXAMINATION Nov/Dec 2019
Basic Electronic Engineering

[Duration : Three Hours] **[Total Marks : 100]**

Instructions:
1. Attempt any five questions choosing at least one question from each module.
2. Assume suitable data only if necessary

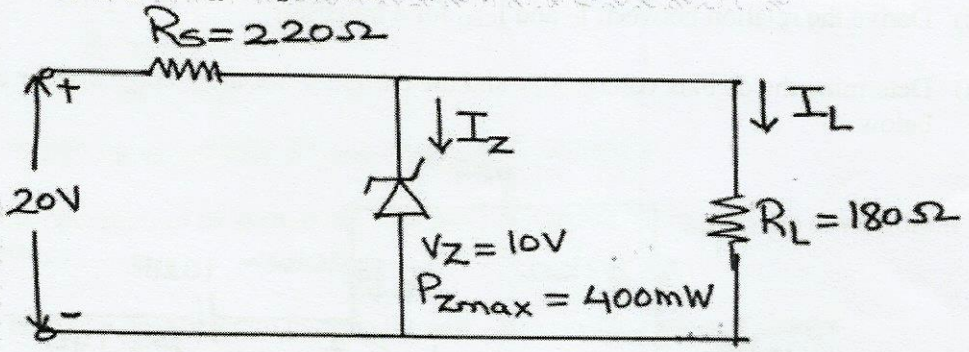
Module I

Q.1 a) Define and explain static and average resistance of a diode with the help of a diagram. **(4)**

b) Draw and explain center tapped full wave Rectifier circuit and derive the expression for ratio of rectification **(10)**

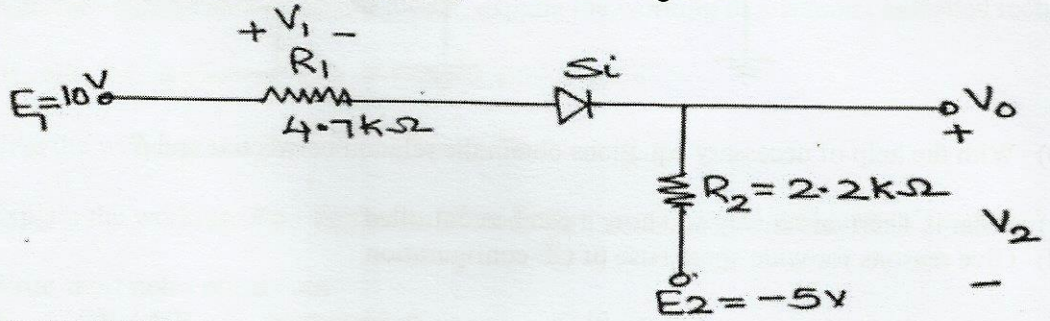
c) What is an ideal diode? Sketch the characteristics of an ideal diode. **(6)**

Q.2 a) Determine V_L, I_L,I_Z and I_R if R_L=180Ω. **(4)**

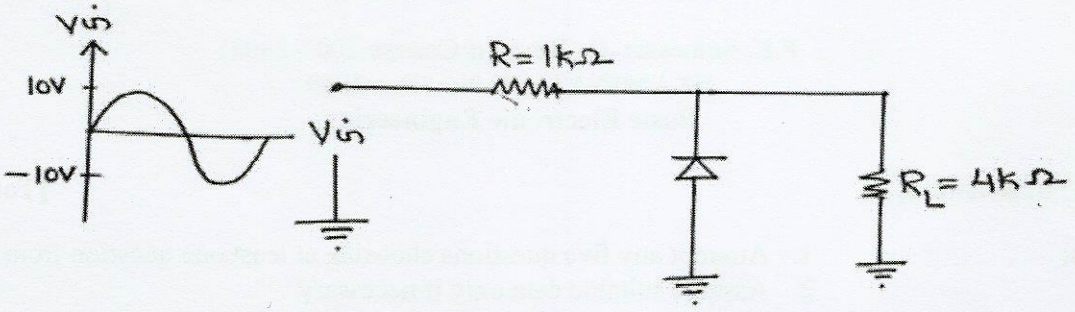


b) Why is a filter required in a dc power supply? Draw the circuit of a C filter and explain the output waveform **(6)**

c) Determine I,V1,V2 and Vo for the network shown in fig below **(5)**



d) What is the peak output voltage of the circuit in fig below **(5)**



Module II

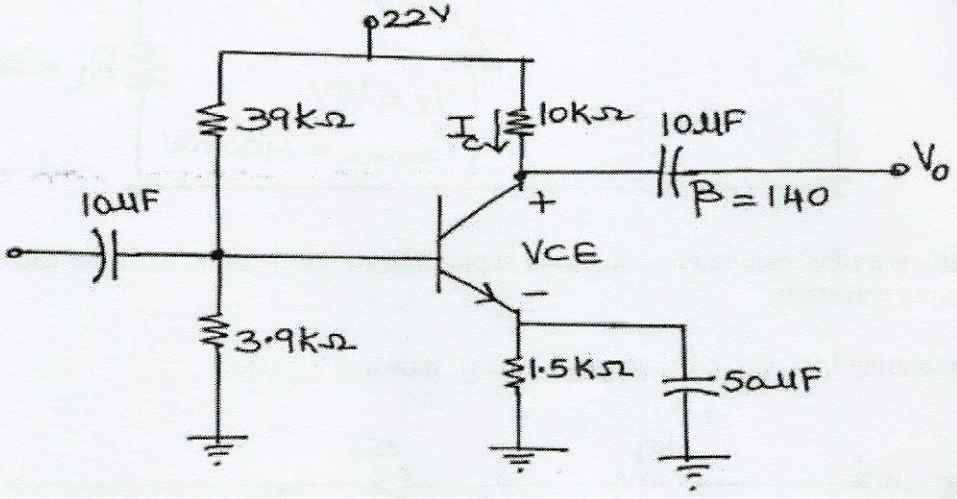
Q.3 a) Compare the Biasing methods. Which is the best biasing technique? Explain any one biasing technique. **(6)**

b) Explain how Transistor can be used as an amplifier **(5)**

c) Explain CE configuration of an NPN transistor. Draw the input and output characteristics **(6)**

d) Derive the relation between I_C and I_{CEO} for a transistor **(3)**

Q.4 a) Determine the dc bias voltage V_{CE} and the current I_C for the voltage divider configuration of fig below **(8)**



b) With the help of necessary equations obtain the relation between α and β. **(4)**

c) What is Thermal runway and how it can be controlled **(4)**

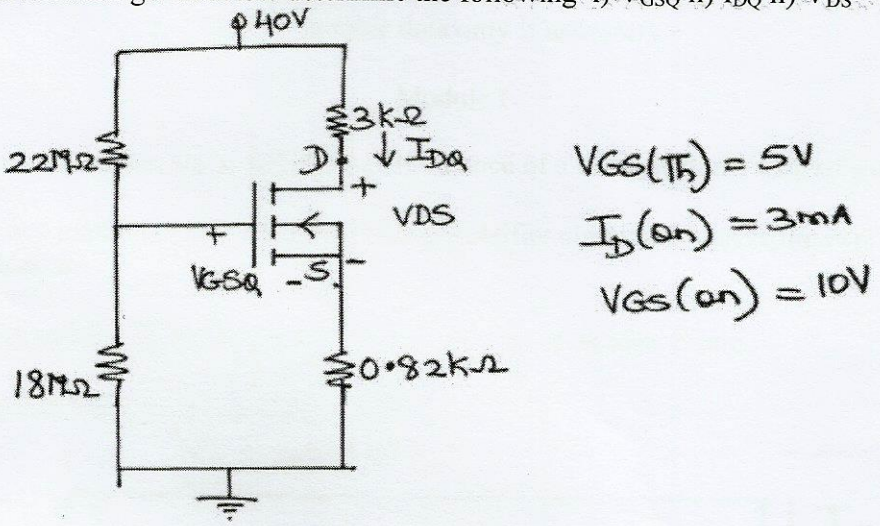
d) Give reasons for wide spread use of CE configuration **(4)**

MODULE III

Q.5 a) With the help of neat diagram explain how Complementary MOSFET can be used as an Inverter **(6)**

b) Explain the working of a n-channel JFET. Draw the transfer characteristics and output characteristics. **(8)**

c) For the network given below determine the following i) V_{GSQ} ii) I_{DQ} ii) V_{DS} **(6)**



Q.6 a) Explain the biasing circuit of an Enhancement mode MOSFET. **(6)**

b) Explain the operation of an n-channel depletion type MOSFET. Sketch the device drain characteristics **(8)**

c) With the help of a neat diagram explain the self –bias configuration of a JFET **(6)**

Module IV

Q.7 a) Explain the working and use of solar cell **(6)**

b) With the help of a two transistor model, explain the working of a silicon controlled rectifier **(6)**

c) Describe the various methods of Transistor fabrication **(8)**

Q.8 a) Give the working and characteristics of SCR. **(8)**

b) Explain the working of an oscillator. What is the significance of Barkhausen's criteria? **(8)**

c) Write short notes on any one **(4)**
i) OP-AMP ii) Photoconductive cell iii) IR Emitter