Seat No. : _____

N31-103

December-2014

B.Sc., Sem.-III

ELE-201 : Electronics

Time : 3 Hours] **[Max. Marks : 70**

Instructions : (1) **All** questions carry equal marks.

(2) Symbols have their usual meanings.

(3) Numbers on right side of questions indicate marks.

1. Draw an approximate 'High frequency' model for determination of the short circuit and derive the formula for CE current gain. What is β-cut off frequency and what is α-cut off frequency ? Explain. **14**

OR

Discuss the effect of emitter bypass capacitor on low frequency response in CE transistor amplifier.

2. Give the types of feed back. Why negative feed-back is used in Amplifier ? Explain. Also explain the effect of negative feed-back is band width and input resistance. **14**

OR

Define types of negative feed back. Draw neat and clean diagram of current series negative feed back and explain. Derive the formulas for input and output resistance.

3. Draw the diagrams for the effect of reverse bias on the width of the channel and explain the operation of FET. Discuss the effect of V_{DS} on channel conductivity using N-channel FET with a simplified model. **14**

OR

Explain enhancement type and depletion type MOSFET with characteristics and transfer curve. Also give symbols of both types of MOSFET.

4. Draw neat and clean diagram and wave form of full wave rectifier with L–C Filter. Derive the formula for ripple factor. **14**

OR

Explain working of Zener diode shunt regulator and deduce optimum value of current limiting resistor.

5. Give the answer in short : **14**

(1) What is pinch off voltage ?

(2) Give full form of MOSFET.

(3) On which factors channel conductivity of FET depends ?

(4) What is base spreading resistance ?

(5) What is virtual base ?

(6) What is the reason for reduction of low frequency voltage gain of amplifier ?

(7) What happened when bypass capacitor is opened ?

(8) Define line regulation.

(9) Give the equation of ripple in capacitor filter.

(10) Write the formula for voltage regulation.

(11) Give the types of voltage regulation.

(12) Define feed back factor.

(13) Give disadvantage of negative feed back.

(14) If the load is low, which type of filter circuit is preferable ?
