

Course: B. Tech.

Branch: Electronics & Computer

Semester: III

Subject Code & Name: BTECPC302 Electronics Devices & Circuits

Max Marks: 60

Date:11-03-2023

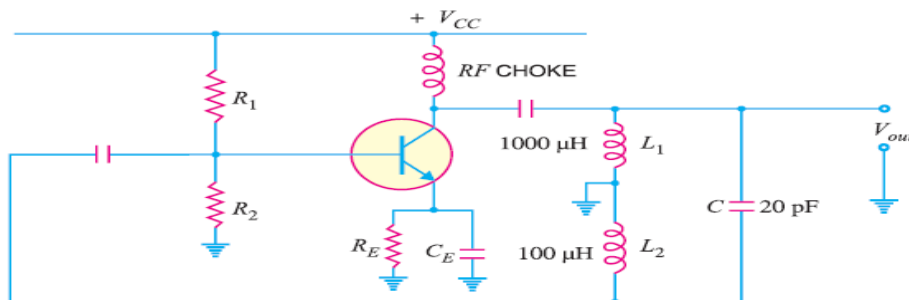
Duration: 3 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

- Q. 1 Solve Any Two of the following.** **12**
- A) Explain Construction and working of N channel FET. **BT2** **6**
- B) Explain Construction and working of P channel E MOSFET. **BT2** **6**
- C) Explain FET Configurations (CS/CD/CG) and their Comparison. **BT2** **6**
- Q.2 Solve Any Two of the following.** **12**
- A) Derive expression of voltage gain of ideal Non- inverting amplifier **BT3** **6**
- B) Derive the expression for Summing amplifier **BT3** **6**
- C) Explain OP-AMP integrator circuit working with expression of output voltage & input output waveform **BT2** **6**
- Q. 3 Solve Any Two of the following.** **12**
- A) Calculate the (i) operating frequency and (ii) feedback fraction for Hartley oscillator shown in Fig. . The mutual inductance between the coils, $M = 20 \mu\text{H}$. **BT3** **6**



- B) Explain Construction working of wien-bridge oscillator. Mention the expression for output frequency. **BT2** **6**
- C) Explain Various feedback topologies used in amplifiers with neat diagrams **BT2** **6**

Q.4 Solve Any Two of the following.		12
A) Draw construction & working of series voltage regulator using transistor.	BT 1 & 2	6
B) Explain IC voltage regulator with circuit diagram & working	BT2	6
C) Design a voltage regulator for output voltage of +7 volts , I _L = 100mA using IC LM317	BT3	6

Q. 5 Solve Any Two of the following.		12
A) Explain construction & Working of any one displacement measurement transducer.	BT2	6
B) Which transducers are used for temperature measurement? Explain construction and working any one temperature transducer.	BT 1 & 2	6
C) Explain construction and working any one pressure transducer.	BT2	6

***** End *****