

F.Y.B.Sc. (With Credits)-Regular-Semester 2012 Sem I
E-01-Electronics-I : Paper-I
(Basic Electronics and Semiconductor Devices)

P. Pages : 2

Time : Three Hours



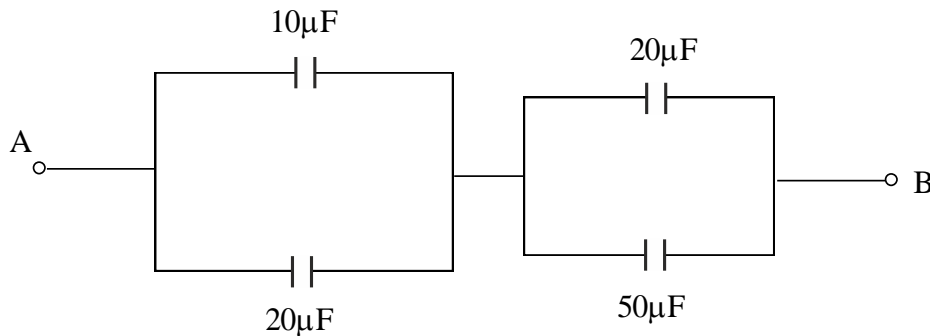
GUG/S/16/3307

Max. Marks : 50

- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw neat diagram wherever necessary.
 3. Use of log table/calculator is permissible.

1. Either:

- a) Explain the construction and working of rheostat. **5**
- b) Find equivalent capacitance across terminals A and B. **5**



OR

- c) Explain the construction and working of autotransformer. **5**
- d) Explain the construction of ceramic capacitor. Give their advantages. **5**

2. Either:

- a) What is rectifier ? Explain working of a full wave rectifier. Draw its input output waveform. **5**
- b) Explain the avalanche and Zener breakdown mechanism. **5**

OR

- c) Discuss the working of PN junction in forward bias mode with its characteristics. **5**
- d) Explain diffusion and transition capacitance of a PN junction diode. **5**

3. Either:

- a) What is BJT ? Explain the construction of PNP and NPN transistor with labelled diagram. **5**
- b) Differentiate between CE and CB configurations. **5**

OR

- c) Explain the action of CB amplifier with suitable diagram. **5**
- d) Explain dc load line for CE mode in BJT. State the importance of load line. **5**

4. Either:

- a) Explain the construction and working of N-channel depletion MOSFET. **5**
- b) Define parameters of the FET and obtain the relation between them. **5**

OR

- c) Explain the working of TRIAC and draw its V-I characteristics. **5**
- d) Explain the working of SCR by drawing its two-transistor equivalent circuit. **5**

- 5.** a) Explain the concept of self and mutual inductance. **2½**
- b) Differentiate between intrinsic and extrinsic semiconductor. **2½**
- c) Define α (Alpha) and β (Beta) of a transistor and obtain the relation between them. **2½**
- d) Differentiate between BJT and FET. **2½**
