

B.Sc.- II (CBCS Pattern) Sem-III
USELT05 - Electronics Paper-I : Power Amplifier, Oscillators and Power Supplies

P. Pages : 2

Time : Three Hours



GUG/W/22/11604

Max. Marks : 50

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

Either

1. a) What is Power Amplifier? Differentiate between power transistor and ordinary transistor. Explain the working of push pull power Amplifier. Obtain the expression for efficiency. **10**

OR

- b) Explain construction and working of complimentary symmetry power Amplifier. State its advantages. Define Distortion in power Amplifier. **10**

Either

2. a) What is the difference between oscillator and Amplifier. Explain the construction and working of Wein bridge oscillator. State its Advantages and disadvantages. **10**

OR

- b) Explain construction and working of Colpitt's Oscillator'. **10**
A Wein bridge oscillator is used for operation of $f_0 = 10\text{KHz}$. If the value of R is $100\text{K}\Omega$. Find the value of capacitor C.

Either

3. a) What is unregulated power supply? State its drawbacks. Define load regulation and line regulation. Draw the diagram and explain the working of Zener diode shunt regulator. **10**

OR

- b) With circuit diagram explain the working of transistor series voltage regulator. Differentiate between series type and shunt type regulator. **10**

Either

4. a) State the advantages of three terminal IC voltage regulator. Draw functional block diagram of LM 317 IC voltage regulator and Explain its working. **10**

OR

- b) Draw and explain functional block diagram of IC 78XX. Draw a diagram of dual power supply using IC 78XX and IC79XX **10**

5. Attempt **any ten** of the followings.

10

- a) Differentiate between voltage and Power Amplifier.
- b) State the advantages of transformer coupled class Amplifier.
- c) What is crossover distortion in push pull Amplifier?
- d) State Barkhausen criterion for oscillator.
- e) State the advantages of phase shift oscillator.
- f) State the equation of frequency in Hartley oscillator.
- g) State the limitation of Zener diode shunt Regulator.
- h) Define regulation.
- i) State the advantages of series pass regulator.
- j) What is short circuit protection?
- k) Draw pin configuration of IC 79XX
- l) State the features of LM317
