B.Sc.-II (CBCS Pattern) Semester - III

USELT05 - Electronics Paper-I : Power Amplifier, Oscillators and Power Supplies

P. Pages : 2 **GUG/S/23/11604**

Time : Three Hours * 1 7 3 5 * Max. Marks : 50

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

Either:

1. a) Differentiate between power amplifier and voltage amplifier. **4+6**

Explain the transformer coupled class A power amplifier with suitable circuit diagram. Derive the expression for its efficiency.

OR

b) Draw the circuit diagram of class B push pull amplifier and explain its working. **6+4**

Explain the working of complementary symmetry amplifier.

Either:

2. a) Explain the working of phase shift oscillator with suitable diagram. **4+6**

Explain the construction and working of Wein bridge oscillator.

OR

b) Draw the circuit diagram of Colpitt's oscillator and explain its working. **5+5**

Explain the working of L-C oscillator circuit with suitable circuit diagram.

Either:

3. a) Draw the block diagram of unregulated DC power supply and explain each block. **5+5**

Explain Zener diode as a voltage regulator with suitable circuit diagram.

OR

b) Explain the working of series pass regulator with suitable circuit diagram. **6+4**

Differentiate between series and shunt type regulator.

Either:

4. a) Draw the functional block diagram of IC LM317 and explain the function of each block. **7+3**

State the advantages of three terminal voltage regulator.

OR

b) Draw the circuit diagram of regulated +5V power supply using IC78XX and explain its working. **5+5**

Draw the circuit diagram of dual power supply of 12V using IC78XX and IC79XX and explain it.

5. Solve **any ten** of the followings: **1x10**

a) What is power transistor?

b) What is efficiency of amplifier

c) State disadvantages of class A amplifier with resistive load?

d) What is oscillator?

e) State Barkhausen Criterions for oscillation.

f) State applications of oscillator.

g) State the disadvantages of DC unregulated power supply?

h) What is DC regulated power supply?

i) Define line regulation.

j) State the specification of IC LM 317

k) What is dual power supply?

l) Draw the pin configuration of IC 79XX?

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