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

USELT03 - Electronics Paper-I
(Unipolar Devices and Linear Integrated Circuits)

P. Pages : 2 **GUG/S/23/11578**

Time : Three Hours * 1 7 0 9 * Max. Marks : 50

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

Either:

1. a) Explain Construction and working of N-channel JFET. **5**

b) Draw I-V Characteristics of JFET and explain. **5**

OR

c) Explain construction and working of MOSFET. **5**

d) State the advantages and disadvantages of MOSFET. **5**

Either:

2. a) Explain the construction of transformer coupled amplifier with suitable diagram. **5**

b) Explain Concept of feedback. What is positive and negative feedback? State advantages of negative feedback. **5**

OR

c) Explain construction of two stage RC coupled amplifier. **5**

d) Differentiate between Class A, and B amplifiers. **5**

Either:

3. a) Explain construction and working of difference amplifier. **5**

b) Explain the needs of two power supplies in difference amplifier. **5**

OR

c) Draw the block diagram of Op-amp (IC 741) and explain the function of each block in it. **6**

d) Define **4**
i) CMRR
ii) Slew rate.

Either:

4. a) Explain Op-amp as an inverting amplifier. **5**

b) In Op-amp as an inverting amplifier if Ri = 10 Kohm and Rf = 100 Kohm then find the feedback gain of amplifier. **5**

OR

c) Explain Op-amp as in Integrator. **5**

d) Explain Op-amp as a differentiator. **5**

5. Attempt **any ten** of the followings. **10**

a) What is Pinch off voltage?

b) Draw symbol of MOSFET.

c) Define drain resistance.

d) Define frequency response in amplifier.

e) State advantage of positive feedback.

f) State advantage of Class C amplifier.

g) Define input offset current in Op-amp.

h) Define open loop gain in Op-amp.

i) Define common mode gain.

j) What is virtual ground?

k) Write the formula for gain with feedback in non-inverting amplifier.

l) If input voltage in unity gain amplifier is 10 V then what will be the Output voltage?

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