B.Sc. - I New CBCS Pattern Semester-II

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

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

Time : Three Hours * 6 5 5 9 * Max. Marks : 50

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

Either:

1. a) Explain the construction and working of N channel junction field effect transistor. **7+3**
Differentiate between FET and BJT.

OR

b) Explain the construction and working of DE MOSFET. **6+4**
Explain JFET as a amplifier.

Either:

2. a) Explain the Class A, Class B and Class C amplifier with respect to conduction of current with suitable diagram. **6+4**
Draw the circuit diagram of direct coupled amplifier and explain its working.

OR

b) Explain the construction and working of transformer coupled amplifier. **5+5**
What is feedback? Explain positive and negative feedback.

Either:

3. a) Draw the circuit diagram of difference amplifier and explain its working. **7+3**
State the advantages of difference amplifier.

OR

b) Differentiate between direct couple (DC) amplifier and operational amplifier. **4+6**
Explain the need of dual power supply to difference amplifier.

Either:

4. a) Explain the op-amp as an inverting amplifier with suitable diagram. **6+4**
Explain the concept of virtual ground in op-amp.

OR

b) Draw the circuit diagram of op-amp as an adder and explain. Derive the expression for its output voltage. **4+6**
Explain the working of zero crossing detector with suitable diagram.

5. Attempt **any ten** of the followings. **10x1**

a) State the advantages of FET.

b) Differentiate between FET and MOSFET.

c) Draw the symbol of UJT.

d) State the advantages of transformer coupled amplifier.

e) State advantages of negative feedback?

f) Draw the frequency response of RC coupled amplifier.

g) What is operational amplifier?

h) Give any four ideal characteristics of op-amp.

i) Define CMRR.

j) What is unity gain amplifier?

k) Draw the circuit diagram of integrator using op-amp.

l) State the applications of op- amp?

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