

003 : Analog Electronic Circuits

P. Pages : 2

Time : Three Hours



GUG/W/22/13854

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) With neat circuit diagram and waveforms explain- 8
i) Clipper
ii) Clamper

- b) Explain BJT as a switch state its advantages. 8

OR

2. a) With suitable diagram explain current mirror circuit. 8

- b) Define α , β of transistor. Express the relationship between them. 8

3. a) Draw the basic structure of N-channel enhancement MOSFET. Also draw the drain and transfer characteristics. MOSFET. 8

- b) Explain any one biasing circuit for enhancement type MOSFET. 8

OR

4. a) Explain MOSFET as a common source amplifier. 8

- b) Write short note on high freq. equivalent circuit of MOSFET. Also give the relations for gain, input and output impedances, transconductance. 8

5. a) With neat block diagram explain the internal structure of operational amplifier. Give the significance of each stage. 8

- b) Draw and explain the operation of class-B power amplifier. 8

OR

6. a) Define the terms given below. Also give ideal & typical values for IC741C. 8
i) Input Bias current
ii) CMRR
iii) PSRR
iv) Bandwidth

- b) Explain the operation of dual input balanced output differential amplifier. 8

7. a) Write a short note on Instrumentation amplifier constructed using three op-amp stages. Derive the expression for its gain. **8**
- b) Explain the working of non-inverting amplifier with neat waveforms. Also derive the gain equation of non-inverting amplifier. **8**

OR

8. a) Write a short note on lead-compensator using an op-amp. **8**
- b) Explain any one analog to digital conversion technique. **8**
9. a) Explain precision full wave rectifier with neat circuit diagram. Also derive its output for both positive and negative half cycles of applied input. **8**
- b) Write a short note on square wave generator using op-amp. **8**

OR

10. a) Explain working of Hysteretic comparator with input output waveforms. **8**
- b) Explain the working of noninverting zero crossing Detector with neat circuit diagram and waveforms. **8**
