

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Civil Engg.) / (CSE) / (EE) / (ECE) (Sem.-6)

**ANALOG CIRCUITS**

Subject Code : BTEC-401-18

M.Code : 79303

Date of Examination : 15-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**1. Write briefly :**

- a) Why emitter is always forward biased?
- b) Define beta of a transistor. What will be the maximum value of beta at high frequencies?
- c) What is the difference between a voltage amplifier and a power amplifier?
- d) What is meant by Load Line of a transistor?
- e) What is an oscillator?
- f) What is cross over distortion?
- g) How power amplifier differs from a voltage amplifier?
- h) What is Zener breakdown?
- i) What is derating curve of power amplifier?
- j) What is drift in dc amplifiers?

## SECTION-B

2. What is FET? Explain its working with diagram.
3. Differentiate AC and DC Load line. Drive the load line equation of BJT in  $C_e$  configuration.
4. Describe the operation of Class AB push-pull amplifier using one diode.
5. What is Barkhausen criterion for oscillations?
6. Explain stabilization of gain with negative feedback.

## SECTION-C

7. Compare the characteristics of transistor amplifier in the three possible configurations.
8. For a transformer coupled class A amplifier, derive the expression for the following :
  - a)  $I_{CQ}$  and  $V_{CEQ}$
  - b) AC output power  $P_{ac}$
  - c) DC output power  $P_{dc}$
  - d) % Efficiency
  - e) Maximum efficiency.
9. Write short note on the following :
  - a) Emitter Follower
  - b) Colpitt oscillator.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**