

Enrollment No: _____

Exam Seat No: _____

C. U. SHAH UNIVERSITY

Winter Examination-2022

Subject Name : Analog Electronics Circuits

Subject Code : 4TE03AEC1

Branch: B.Tech (Electrical)

Semester: 3

Date: 10/01/2023

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
-

Q-1 Attempt the following questions: (14)

- a) The rectification is a process of converting _____.(Fill the blank).
- (a) Alternating current into direct quantity
 - (b) Alternating voltage into direct quantity
 - (c) Alternating current or voltage into direct quantity
 - (d) None of the above.
- b) _____ rectifiers are full-wave rectifiers.(Fill the blank).
- (a) Bridge
 - (b) Center-tapped
 - (c) Both a and b
 - (d) None of the above.
- c) Define f_{β} .
- d) What is the utility of transconductance parameter?
- e) Define offset error voltage for an op-amp.
- f) Draw circuit of Harley oscillator.
- g) Draw symbol of n-channel JFET.
- h) Oscillators are using positive feedback. (YES/NO)
- i) Define CMMR of an op-amp.
- j) What is bootstrapping?
- k) Enlist various topologies of negative feedback amplifiers.
- l) Draw circuit diagram of a full-bridge rectifier.
- m) Sketch pin diagram of 741 IC.
- n) Sketch only the diagram of non-inverting amplifier using op-amp.



Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions (14)**
- A Why voltage regulation is needed? With help of block diagram explain the series regulator. **07**
- B Explain in detail switch mode power supply. **07**
- Q-3 Attempt all questions (14)**
- A Explain the high frequency model of BJT with necessary diagram. **07**
- B Where tuned amplifier is used? Discuss the same. **07**
- Q-4 Attempt all questions (14)**
- A Discuss the general characteristics of negative feedback amplifiers. **07**
- B Define Power Amplifier. Discuss the class AB operation of a power amplifier. **07**
- Q-5 Attempt all questions (14)**
- A What is/are the General condition(s) of Oscillation? Analyse the working of a sinusoidal oscillator. **07**
- B Explain functioning of the astable multi-vibrator. **07**
- Q-6 Attempt all questions (14)**
- A Discuss various types of biasing of BJT. **07**
- B Explain three pin positive and negative voltage IC. **07**
- Q-7 Attempt all questions (14)**
- A Analyse UJT as saw tooth generator with necessary diagrams. **07**
- B Discuss the voltage and current gains, input and output impedance of a feedback amplifier. **07**
- Q-8 Attempt all questions (14)**
- A Explain the gain and bandwidth of a cascade amplifier. **07**
- B Discuss the basic inverting amplifier using op-amp. **07**

