STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
TELANGANA
DIPLOMA EXAMINATION (C-18) , C-18-REGULAR-FEB-2021
SEMESTER III , SEMESTER END EXAM

18EE-305C
Electronic Circuits

6339

Exam Date: 25-02-2021
Duration: 3 Hours [09:30 AM To 12:30 PM]

Session: FN
[Total Marks: 60]

PART-A

Instructions: 1. Answer any **TWELVE** questions 12 X 1 = 12
2. Each question carries **ONE** mark

1. Define Peak Inverse Voltage of a diode
2. What is meant by clipper?
3. State why FETs are called unipolar devices ?
4. Define mutual or transfer characteristics of JFET
5. What is the need for stabilizaion?
6. Define the operating point.
7. Define faithful amplification.
8. Define decibel gain of an amplifier.
9. Expand the term MOSFET.
10. What is stablization and what are different types of stabilization methods?
11. What is an Operational Amplifier?
12. Define pinch off voltage of JFET
13. Draw the Pin Configuration of IC 741
14. Draw the Circuit symbol of OP-AMP
15. List any two applications of RC phase shift oscillators.
16. Mention the effect of negative feedback on Input impedance.

PART-B

Instructions: 1. Answer any **SIX** questions 6 X 3 = 18
2. Each question carries **THREE** marks

17(a). State the working of Unbiased series positive clipper with the help of circuit diagram and wave forms.

—— OR ——

17(b). Draw the circuit and waveforms of full-wave Bridge rectifier for a Resistive load.

18(a). Define the terms (i) source (ii) Drain and (iii) Gate in JFET

—— OR ——

18(b). Give the classification of MOSFETs and draw their symbols

19(a). Why CE configuration is widely used in amplifiers

—— OR ——

19(b). List any three advantages of Potential Divider method of biasing.

20(a). Distinguish between voltage amplifiers and power amplifiers in any three aspects.

—— OR ——

20(b). State the need for a power amplifier

21(a). State the need of a filter in a rectifier based DC power supply.

—— OR ——

21(b). Explain the use of Op-Amp as Sign Changer or Inverter

22(a). Define stablility factor and derive an expression for stability factor.

—— OR ——

22(b). Draw the circuit diagram of Hartley Oscillator.

23(a). What are the Limitations of Open loop configuration of Opamp

—— OR ——

23(b). Determine the output voltage of an Inverting Amplifier of R_1 = 100 OHM, R_F = 220 OHM, and V_{in} = 0.8 V. Determine the required value of feedback resistor for the output voltage three times the input voltage

24(a). State the effect of negative feedback on Band width of an amplifier.

—— OR ——

24(b). Explain Positive feedback.

PART-C

Instructions: 1. Answer any **SIX** questions 6 X 5 = 30
2. Each question carries **FIVE** marks

25(a). Explain the operation of Half-wave rectifier circuit with waveforms for a resistive load.

----- OR ----

25(b). Explain the operation of full-wave center-tapped rectifier circuit with waveforms for a resistive load.

26(a). Compare FET and BJT in any 5 aspects.

----- OR ----

26(b). List any five applications of JFET

27(a). (a) Define operating point -1 mark

(b) show the operating point on output charateristics of transistor - 2 marks

(c) List the reasons for instability in operating point - 2 marks

----- OR ----

27(b). a) Define the stabization - 2 marks

b) Explain how the different factors effect the stabilization- 3 marks

28(a). Explain practical CE amplifier with the help of circuit diagram.

----- OR ----

28(b). Explain the working principle of complimentary push-pull power amplifier with the help of a crcuit diagram.

29(a). Design a voltage regulator circuit using zener diode for load voltage 5.1 V and load current variations of 10-100 mA. The input voltage is 15 V. Minimum and maximum zener diode currents are 1mA and 178mA respectively.

----- OR ----

29(b). Explain the working of Op-Amp as Comparator

30(a). Explain the concept of DC load line and draw the DC load line on output charateristics of CE configuration?

----- OR ----

30(b). List any 2 applications each of (i)RC oscillators (ii) LC oscillators (iii) Crystal oscillators and (iv)UJT Relaxation oscillators.

31(a). Determine the Output Voltage when a sine wave of 5Khz and 1V peak is

applied at input of an integrator circuit using an Op-Amp. The circuit components are R_1 = 10kohm, C_f = 10nF. Also Draw the wave form of output voltage .

----- OR ----

31(b). Explain the working of Differential Amplifier with Circuit Diagram

32(a). Draw and explain the block diagram of feed back amplifier.

----- OR ----

32(b). Explain the working of Colpitts Oscillator.