SE Sem III KT 'C' scheme Winter 2025

24.11.2025

[Time: 3 Hours] [Total Marks: 80]

Instructions:

1. Question No: 1 is compulsory.
2. Answer any three from the remaining five questions.

(5 x 4)

1

a) Explain the working of full wave bridge rectifier circuit with neat waveforms.

b) Interpret the V-I characteristics of MOSFET.

c) Draw and explain the frequency response of BJT amplifiers.

d) Illustrate the working of Schottky diode with its applications.

2 a) Illustrate with a neat figure, derive the expression of output voltage of subtractor circuit using op-amp. (10)

b) Draw the hybrid equivalent model of voltage divider bias CE amplifier and derive the expression for voltage gain. (10)

3 a) Illustrate any three biasing circuits employed in MOSFET amplifiers. (10)

b) Explain the working of Astable multivibrator using IC555. (10)

4 a) Illustrate the procedure to find I_{CQ} and V_{CEQ} for an emitter bias BJT Amplifier with an example. (10)

b) Illustrate the working MOSFET CS amplifier. Derive the expression of voltage gain. (10)

5 a) Explain the construction and working of optoisolators. (10)

b) Explain the working of op-amp as instrumentation amplifier. (10)

6 Write short notes: (20)

1) LED and Zener diodes.

2) Inverting and Non-inverting amplifier using op-amp.

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