1903000203020091
EXAMINATION NOVEMBER 2024
BACHELOR OF SCIENCE (NON-NEP) (THIRD SEMESTER)
ELECTRONICS PAPER - III
ELECTRONIC CIRCUITS AND APPLICATION

[Time: As Per Schedule] **[Max. Marks: 50]**

Instructions:

1. **1. Fill up strictly the following details on your answer book**

a. Name of the Examination : **BACHELOR OF SCIENCE (NON-NEP) (THIRD SEMESTER)**

b. Name of the Subject : **ELECTRONICS PAPER – III ELECTRONIC CIRCUITS AND APPLICATION**

c. Subject Code No : **1903000203020091**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

Student's Signature

Q.1 Write the answer briefly **8**

1. What are the causes of instability of operating point?
2. Draw the approximate hybrid equivalent circuit for a transistor
3. What is the use of emitter follower?
4. Draw the diagram of fixed bias circuit

Q.2

A Derive the expression for operating point of the emitter bias circuit **7**

B Design emitter bias circuit for I_{CQ} =2mA,Vcc = 20v, β = 150 and Vce = 10v **7**

OR

A Explain how will you calculate h-parameters from the characteristics of transistor **7**

B Using the approximate hybrid model of CC amplifier, prove that its voltage gain is approximately unity. **7**

Q.3

A Derive the amplifier equations for, A_V , A_i and R_I in terms of h-parameters **7**

B Explain briefly Bias compensation techniques **7**

OR

	A	Derive the expression for stability factor in potential divider bias circuit	**7**
	B	Explain the effect of emitter bypass capacitor on low frequency response.	**7**
Q.4	A	By drawing the schematic and ac equivalent diagram of two stage RC coupled amplifier, prove that the voltage gain in the mid frequency range is a constant.	**7**
	B	Draw the complete frequency and phase response of R C coupled amplifier.	**7**

OR

	A	Analyze qualitatively the collector to base bias circuit	**7**
	B	In an RC coupled amplifier, R_c= 6.8kΩ, effective load after the coupling capacitor is 1kΩ, h_{ie} =0.9kΩ, h_{fe}= 36, C_{sh} = 1520pF & C_c = 1 μF. Find the mid frequency gain and bandwidth of the amplifier.	**7**

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