R18

Code No: 154AW

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, April/May - 2023
ELECTRONIC CIRCUIT ANALYSIS
(Common to ECE, EIE, ECM)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a) What is the purpose of coupling a device? [2]
b) Write the advantages and disadvantages of transformer coupled amplifier. [3]
c) What are the disadvantages of positive feedback? [2]
d) If the input impedance and voltage gain of an open loop voltage series feedback amplifier are $3K\Omega$ & 100, and the feedback factor is $\frac{1}{50}$. Find the input impedance of closed loop configuration. [3]
e) What are the components of a practical oscillator? [2]
f) List out the factors that change the oscillator frequency. [3]
g) Classify the power amplifiers based on mode of operation. [2]
h) What is meant by dead band? Explain. [3]
i) What are the applications of bistable multivibrator? [2]
j) What are the advantages of boot strap time base generator? [3]

PART – B

(50 Marks)

2. Draw and explain the operation of Darlington amplifier and derive equation for its input impedance. [10]

OR

3.a) Define unity gain frequency. Obtain the necessary relation using transistor frequency response.
b) Draw the hybrid π- model for CE amplifier and define all terms. [5+5]

4.a) Discuss the amplifier characteristics that get affected by negative feedback.
b) Draw the voltage series feedback amplifier and explain its operations. [5+5]

OR

5. Draw and explain the four topologies of feedback amplifiers. [10]

6. Derive the expression for frequency of oscillations of Wein bridge oscillator. [10]

OR

7. Draw and explain the operation of Hartley oscillator. [10]

8.a) Explain the operation of transformer coupled class A power amplifier with a neat diagram.
b) What is cross-over distortion? How to overcome it? [5+5]

OR

9.a) What are the tuned circuits? Discuss the characteristics of tuned circuits.
b) Write the advantages of stagger tuned amplifier. [6+4]

10. Explain the construction of monostable multivibrator and compare its performance with other multipliers. [10]

OR

11.a) Discuss operation of miller sweep generator.
b) How to improve the linearity in time base generators? [5+5]

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