

Code No.: EC404PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II-B.TECH-II-Semester End Examinations (Supply) - February- 2023
ELECTRONIC CIRCUIT ANALYSIS
(ECE)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) What are the advantages of transformer coupling? [2M]
- b) Define f_{α} and f_{β} of BJT at high frequencies. [2M]
- c) Draw the block diagrams of various negative feedback amplifiers. [2M]
- d) Define sensitivity and de-sensitivity factors for negative feedback amplifiers. [2M]
- e) Define the frequency and amplitude stability of oscillators. [2M]
- f) Compare RC-phase shift and Wein bridge oscillators. [2M]
- g) What are the merits of complementary symmetry amplifier? [2M]
- h) What is quality factor of tuned amplifier? [2M]
- i) What is meant by Schmitt trigger? [2M]
- j) What are general features of time base signals? [2M]

PART-B

(50 Marks)

2. Derive the overall current gain and output impedance of BJT Darlington pair. [10M]
- OR**
3. Derive the gain bandwidth product of transistor at high frequencies. [10M]
4. Derive the Voltage gain, Output resistance and input resistance with feedback for voltage shunt negative feedback amplifier with the help of block diagram and equivalent circuit. [10M]
- OR**
- 5.a) What is the effect of negative feedback on noise, distortion, gain, lower cut-off frequency and upper cut-off frequency? [5M]
- b) Compute the voltage gain, input resistance and output resistance with feedback if $A_v=100$, $R_i=2K\Omega$, $R_o=3K\Omega$ and $\beta=0.2$ for voltage shunt negative feedback amplifier. [5M]
6. Draw the circuit diagram of RC-Phase shift oscillator and derive the expression for frequency of oscillations. [10M]
- OR**
7. Draw the circuit diagram of Hartley oscillator and derive the expression for frequency of oscillations. [10M]
8. Explain the operation of Class-B push-pull transformer coupled power amplifier with neat sketch and derive its conversion efficiency. [10M]
- OR**
9. Discuss about the frequency response of single -tuned amplifier in detail. [10M]
10. Explain the operation of collector coupled Monostable multivibrator with the help of neat waveforms. [10M]
- OR**
11. Discuss about the working of Transistor Current Time Base Generator. [10M]
