

R16

Code No: 133AQ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, April/May - 2018

ELECTRONIC CIRCUITS

(Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 75

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

Part A is compulsory which carries 25 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**(25 Marks)**

- 1.a) Define the Difference amplifiers and write their use. [2]
- b) Explain the characteristics of a CB amplifier. [3]
- c) Compare negative feedback and positive feedback and their uses. [2]
- d) Mention the requirements for amplitude Stability of Oscillators. [3]
- e) Write about the cross over distortion in power amplifiers circuit. [2]
- f) Why even harmonics are cancelled out in Push Pull Amplifiers. [3]
- g) What are the constituents of signal Comparators? [2]
- h) State the Clamping Circuit Theorem. [3]
- i) Write the importance of time base circuits and their use. [2]
- j) Explain the operation of a diode as a switch. [3]

PART-B**(50 Marks)**

- 2.a) Mention the significance of Gain-Bandwidth product of amplifiers.
 - b) An amplifier consists of 3 identical stages in cascade. The bandwidth of overall amplifier extends from 20 Hz to 20 kHz. Calculate the bandwidth of individual stage. [5+5]
- OR**
3. Discuss the classification of amplifiers, and for a single stage CE amplifier with $R_S = 1K$, $R_1 = 50 K$, $R_2 = 2 K$, $R_C = 1K$, $R_L = 1.2K$, $h_{fe} = 50$, $h_{ie} = 1.1K$, $h_{re} = h_{oe} = 0$; Find A_v , R_i , R_o , A_v and power gain. [10]
 4. Discuss the classification of amplifiers based on feedback and write the Effect of Feedback on Amplifier characteristics. [10]
- OR**
5. Discuss the operation of Wein Bridge oscillator and derive the expression for the frequency of oscillations. [10]
 - 6.a) Discuss the drawback of class B amplifier and how do you overcome using Class AB amplifier.
 - b) Write a short note on Thermal Runway. [5+5]
- OR**
- 7.a) Discuss the operation of Transformer Coupled class-A Amplifier with a diagram.
 - b) Mention the importance of the position of operating point on output signal swing in class A amplifier and prove that its conversion efficiency is 25%. [5+5]

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8. Sketch the response of RC High pass circuit for exponential input and Ramp input and derive the output equations for the above inputs. [10]

OR

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- 9.a) Explain the operation of a negative peak clamper circuit with its diagram.
b) Distinguish between the Diode Clippers and Transistor Clippers with their merits. [5+5]

10. Describe the switching times of BJT by considering the charge distribution across the base region. Explain this for cut off, active and saturation regions. [10]

OR

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11. Differentiate the principle of operation of a mono-stable Multivibrator and derive an expression for pulse width of it. [10]

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