Code No: 133AQ **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year I Semester Examinations, February - 2024

ELECTRONIC CIRCUITS

(Electrical and Electronics Engineering)

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 are difference amplifiers and write their use?	[2]
b)	List the benefits of h-Parameters.	[3]
c)	Compare negative feedback and positive feedback and their uses.	[2]
d)	Discuss how does negative feedback reduce distortion in an amplifier.	[3]
e)	What is cross-over distortion?	[2]
f)	Why even harmonics are cancelled out in Push Pull Amplifiers?	[3]
g)	What are the applications of clamping circuit?	[2]
h)	Discuss about the double ended clipping.	[3]
i)	What is an electronic switch?	[2]
j)	Name the methods of triggering in multi vibrators? Distinguish between them.	[3]

PART – B

(50 Marks)

2.a) Sketch the circuit of a CB amplifier. Derive the expression for the voltage gain at low Frequencies.

b) Draw the circuit diagram of Emitter follower and derive the equation for Voltage and current gains. [5+5]

OR

3.a) Analyze the effect of coupling and Bypass capacitors on low-frequency response of JFET amplifier.

b) What is mean by square wave testing? Elaborate. [5+5]

4.a) With relevant information explain how the negative feedback improves stability, reduce noise and Increase input impedance.

b) With a neat sketch, explain the working of a Colpitt's oscillator. [5+5]

OR

5.a) Discuss the classification of amplifiers based on feedback and write the effect of Feedback on Amplifier characteristics.

b) Design a Hartley oscillator circuit with specified frequency and component values. [5+5]

6.a) Define thermal resistance. Explain the thermal electrical analogy related to a transistor with heat sink.

b) Explain and analyze a transformer coupled class A power amplifier and also define the total harmonic distortion with three point method. [5+5]

OR

7.a) Discuss the operation of complementary symmetry class B power 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]

8.a) With the help of a neat circuit diagram and waveforms explain the working of a transistor clipper.

b) Explain the response of an RC high -pass filter to behave as a good differentiator. [5+5]

OR

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

10.a) Draw and explain the Monostable multivibrator circuit along with its waveforms.

b) What is mean by Triggering? Discuss different Triggering methods. [5+5]

OR

11. 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]

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