Code No: 153AC **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, October - 2020
ANALOG ELECTRONICS
(Electrical and Electronics Engineering)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Explain DC load line and Q point for any transistor configuration. Also state the necessity of biasing and list biasing methods for transistor.
b) Explain positive and negative clippers. [8+7]

2.a) Draw and explain output characteristics of CE configuration.
b) Explain with neat figures the function of a half wave rectifier. [7+8]

3.a) Explain the working of N-channel E-MOSFET.
b) Explain about MOSFET CG amplifier and derive the expression for gain, input impedance output impedance. [6+9]

4.a) Describe the small signal equivalent circuit of the MOSFET and determine the values of Small signal parameters.
b) Compare in detail about CD and CG amplifier. [9+6]

5.a) For a class B power amplifier using a supply voltage of V_{cc} = 12V, and driving a load of 80Ω, Determine the maximum load power, DC input power and collector efficiency.
b) Discuss the need for cascading amplifiers. [9+6]

6.a) Derive an equation for power output and conversion efficiency of a class A Direct coupled amplifier.
b) Define Coupling. Describe different types of coupling multistage amplifiers in detail. [8+7]

7.a) Explain current series feedback amplifier.
b) The RC network of a Wein bridge oscillator consists of resistors and capacitors of values R_1=R_2=220 kΩ and C_1=C_2=250 PF. Determine the frequency of oscillations. [10+5]

8.a) Discuss the functioning of a practical integrator and derive the necessary expression.
b) Derive the expression for voltage gain of a non-inverting amplifier. [8+7]

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