

# Thapar Institute of Engineering & Technology, Patiala

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Code: UEC 301; Course Name: Analog Electronic Circuits

B.E (ECE/ENC) (IV-Sem), "Tutorial Sheet No. - 7"

- Q1. A multistage amplifier with four identical stages, each of which has a lower cutoff frequency 20 Hz and upper cut-off frequency of 20 kHz. Calculate the gain of the multistage amplifier at 7.5 Hz and at 200 kHz. Assume mid band voltage gain of each stage is 10.
- Q2. An amplifier consists of three identical stages in cascade, the bandwidth of overall amplifier extends from 20 Hz to 20 kHz. Calculate the bandwidth of individual stage.
- Q3. A multistage amplifier consist of three stages. The voltage gain of the stages are 30, 50 and 80. Calculate the overall voltage gain in dB.
- Q4. An RC coupled amplifier has a voltage gain of 100 in the frequency range of 400 Hz to 25 kHz on either side of these frequencys, the gain falls so that it is reduced by 3 dB at 80 Hz and 40 kHz. Calculate gain in dB at cut-off frequencies and also construct a plot frequency response curve.
- Q5. It is desired to have a low 3- dB frequency of not more than 10 Hz for an RC- coupled amplifier for which  $R_y = 1 K$ . What minimum value of coupling capacitance is required if (a) FETs with  $R_g = 1 M$  are used; (b) transistors with  $R_i = 1 K$  and  $1/h_{oe} = 40 K$  are used?