GOVERNMENT COLLEGE OF ENGINEERING AMRAVATI
(An Autonomous Institute of Government of Maharashtra)
Department of Electronics and Telecommunication
Class Test II

Subject: ETU 501 Linear Integrated Circuits and Applications

Date: 19/09/2016

Marks: 15

SOLVE ANY THREE

Q1. Design a first order low pass Butterworth filter at a cut-off frequency of 2 KHz with pass band gain of 4. Plot the frequency response for this filter. Using frequency scaling technique convert the cut-off frequency of 2 KHz to 3.2 KHz. (5M)

Q2. What is frequency response; explain with the help of high frequency model of OP-AMP. Write observations made from same frequency response. (5 M)

Q3. Explain the need of frequency compensation. What is difference between compensated and non-compensated op-amp. (5 M)

Q4. Explain Pole-zero compensation technique. (5 M)

A) The output voltage V_0 of the circuit as shown in the figure 1, is given by expression $A_1V_1 + A_2V_2$. Where V_1 and V_2 are input voltages. Assuming ideal op-amp, find A_1 and A_2.   OR   3M

B)For the circuit shown in Fig. Q.2, show that-

i. $A_d = 1+ (R_f/R_1)$

ii. $R_{in1} \neq R_{in2}$

What is a drawback of this circuit? Suggest suitable circuit that overcomes the drawback.   3M
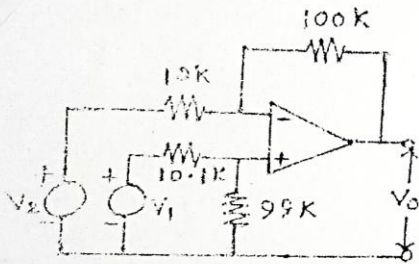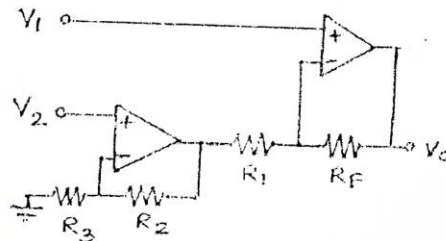

fig 1

Fig.2

C)(i) Write short note on "Bridge Amplifier"

(ii)Draw the waveform of input and output signal if 600µV peak to peak triangular wave signal is applied at the   input of an open loop op amp having gain = 100dB. Assume 100% output voltage swing.   4M

D)Draw a differential amplifier using an ideal op-amp. And derive the expression for the output voltage.   4M

E)State limitations of instrumentation amplifier using two op amps. How these limitations can be overcome?   4M