SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[01]**
Total number of questions:06

B.Tech. || ECE || 4th Sem (RC/RP)
Linear Integrated Circuits
Subject Code: BTEC-403A (Paper ID: M/18)
2015 beth onwards)

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**

PART A (2×10)

Q. 1. Short-Answer Questions:

a) What do you mean by linear integrated circuits?
b) Draw the equivalent circuit and ideal voltage transfer curve of an op-amp.
c) Explain and draw voltage follower circuit using op-amp.
d) What is the frequency of oscillation of Wien Bridge Oscillator?
e) Draw the circuit diagram of All Pass Filters.
f) Define CMRR.
g) Name the different fixed voltage regulators and give the examples of each.
h) Explain the term virtual ground condition.
i) What is the open loop the bandwidth of 741C OP-AMP?
j) What are the limitations of a comparator?

PART B (8×5)

2.	Draw the circuit diagram of dual input unbalanced output differential amplifier and also find its voltage gain. OR What is a constant current bias? What is the purpose of it? Draw the diagram and explain it.	CO1
3.	Draw the diagram of voltage shunt feedback amplifier and find its close loop voltage gain. OR Define the following terms in relation to op-amp. i. Input offset voltage ii. Output offset voltage. iii. Slew rate iv. SVRR	CO2
4.	Explain the application of an op-amp as sample and hold circuit. OR Explain first order Low Pass Butterworth filter and design the same at cut off frequency of 1 KHz with a passband gain of 2	CO3
5.	Explain the application of 555 timer as a astable multivibrator. OR What is the principle of PLL. Discuss the application of PLL as FM detection.	CO4
6.	Draw and explain the circuit such that the output of an op-amp is equal to the sum of integrals of the individual inputs. i.e $V_o = \int V_{in1}\, dt + \int V_{in2}\, dt$ OR Explain the application of an op-amp as a differentiator.	CO3