Programme: BE	Sem: I Sec: J to R CIE: Test 2	Max Marks: 30
Term:8/8/16 to 17/12/16	Course: Basic Electronics Code: EC101	Time: 1 Hr date:12/11/2016

Portions for Test: L13 to L27; Instructions to Candidates: Answer any TWO full Questions

Sl#	Question	Marks	Bloom's Level, and co's
1a)	Define and explain the following (i) CMRR (ii) virtual ground (iii)Input Offset Voltage	5	L1, CO2
1b)	A voltage divider bias circuit has V_{CC}=18 volts, R_1=33 k ohms, R_2=12kohms, R_C=1kohms ,R_E=1.2Kohms ,h_{FE}=50, given V_{BE}=0.7 volts, using find V_E,I_C,V_{CE} and V_C. Draw the DC load line and locate the Q point.	7	L3, CO2
1c)	Perform the following (show the steps) i) $(10.35)_8$ = $(?)_{10}$ = $(?)_2$ = $(?)_{16}$	3	L3, CO3
2a)	With neat circuit diagram explain Base Bias method and derive the expression for operating point.	5	L2, CO2
2b)	Design an inverting scaling Adder circuit using an op-amp to give the output voltage Vo= - ($6V_1$+$4V_2$+$15V_3$). Sketch the designed circuit.	6	L3, CO2
2c)	Perform the following :(i) $(13)_{10}$ - $(86)_{10}$ using 1's complement method (ii)$(1000111)_2$ - $(10011)_2$ using 2's complement method	4	L3, CO3
3a)	Explain how does op-amp can be used as a Non-inverting amplifier? Derive an expression for voltage gain.	5	L2, CO2
3b	With neat circuit diagram explain Voltage Divider bias method using approximate analysis?	6	L4, CO2
3c	Perform the following i) $(16CF.2B)_{16}$=$(?)_8$ (ii)$(45)_{10}$ - $(8)_{10}$ using 2's complement method **OR** Determine the base value of x if $(211)_x$=$(152)_8$	4	L3, CO3