Reg. No. :

Question Paper Code : X 10363

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020/
APRIL/MAY 2021
Fourth Semester
Electronics and Communication Engineering
EC8453 – LINEAR INTEGRATED CIRCUITS
(Common to Biomedical Engineering/Medical Electronics/B.E. Robotics and
Automation)
(Regulations 2017)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. What causes slew rate ?

2. What are the assumptions made from ideal op-amp characteristics ?

3. Define voltage follower.

4. What is the need for an integrator ?

5. List the features of 566 VCO.

6. Define lock range.

7. What is integrating type converter ?

8. What are the advantages and disadvantages of R-2R ladder DAC ?

9. What is the necessity of having input and output capacitors in three terminal IC regulators ?

10. Mention the advantages of opto-couplers.

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PART – B   **(5×13=65 Marks)**

11. a) For the circuit shown in figure 11. a), find out v_0 as function of v_1 and v_2.   **(13)**
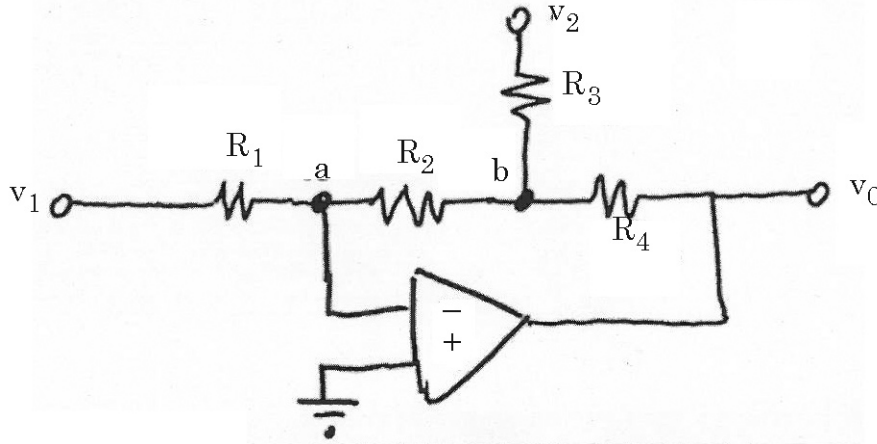

Figure 11. a)

(OR)

  b) With neat sketches, explain in detail the working of Widlar and Wilson current sources.   **(13)**

12. a) With neat circuit diagram explain the working principle of instrumentation amplifier and derive its differential gain.   **(13)**

(OR)

  b) Design a second order Butterworth low pass filter having upper cut-off frequency 1 kHz.   **(13)**

13. a) Draw the FSK modulator and demodulator circuits implemented using IC565 and explain its operation.   **(13)**

(OR)

  b) Mention the important building blocks of Phase Locked Loop (PLL) explain its working.   **(13)**

14. a) Draw the dual slope ADC and explain its working.   **(13)**

(OR)

  b) Describe in detail about binary weighted resistor type digital to analog converter with necessary circuit diagram.   **(13)**

15. a) What are the modes of operation of a timer ? Draw the functional diagram of a square wave generator using timer and derive its duty cycle. **(13)**

(OR)

b) Draw the functional diagram of 723 regulator. And explain how it can be used as a high voltage regulator. **(13)**

PART – C   **(1×15=15 Marks)**

16. a) Find out the input impedance (Z_{in} = V_{in}/I_{in}) of the circuit shown in figure 16 a). **(15)**
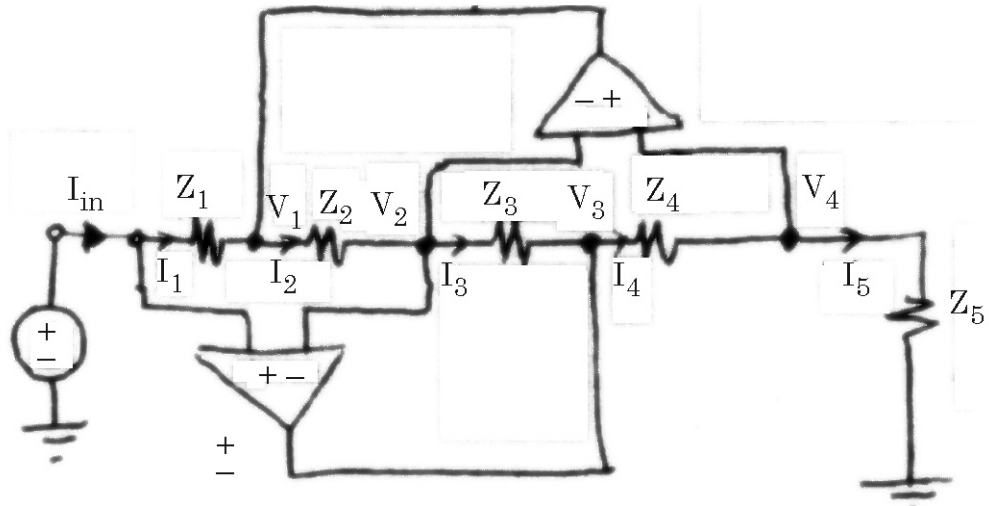

Figure 16. a)

(OR)

b) i) Explain how resistors can be realized using switched capacitor filter. **(8)**

ii) Describe about the Gilbert multiplier cell with relevant sketch. **(7)**

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