Reg. No. : | | | | | | | | | | | | |

Question Paper Code : X20480

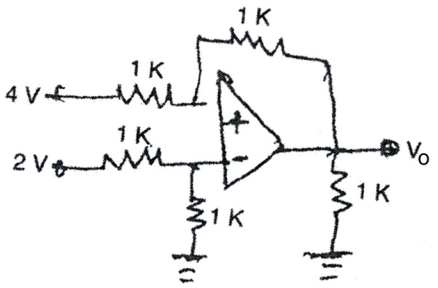
B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2021
Third Semester
Electrical and Electronics Engineering
EE 6303 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS
(Common to Electronics and Instrumentation Engineering and Instrumentation and Control Engineering)
(Regulations 2013)
(Common to PTEE6303 – Linear Integrated Circuits and Applications for B.E. (Part-Time)/Third Semester Electronics and Electronics Engineering – Regulations 2014)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. State the limitations of IC technology.
2. Distinguish between dry etching and wet etching.
3. Draw the circuit diagram of a symmetrical emitter coupled differential amplifier.
4. For the circuit diagram shown below determine the output voltage V_o.



5. Draw the circuit of a log amplifier using two op-amps.
6. Calculate the value of the LSB, MSB and full scale output for an 8-bit DAC for the 0 to 12 V range.
7. Draw the functional block of 555 timer IC.
8. Define PLL.
9. What are the limitations of three terminal regulator ?
10. How current boosting is achieved in a 723 IC ?

PART – B **(5×13=65 Marks)**

11. a) i) Distinguish diffusion and ion implantation process in IC fabrication. **(5)**
    ii) Describe the metallization process, assembly processing and packaging with neat diagram. **(8)**

(OR)

b) Discuss briefly about the PN junction diode and JFET fabrication.

12. a) Discuss in detail about the DC and AC characteristics of op-amp. **(13)**

(OR)

b) Explain the differential amplifier using op-amp. **(13)**

13. a) i) Discuss the second order high pass filter with its frequency response and design the circuit with the cut-off frequency of 5 KHz. **(7)**
    ii) With a neat circuit diagram, explain the working of Schmitt trigger using op-amp. **(6)**

(OR)

b) i) Explain the working of instrumentation amplifier. **(7)**
    ii) With neat circuit diagram, explain the operation of R-2R D/A converter. **(6)**

14. a) i) Draw and explain the functional diagram of 555 timer. **(8)**
    ii) Discuss the operation of a FSK generator using 555 timer. **(5)**

(OR)

b) Draw the block diagram of a VCO and explain its operation.

15. a) With necessary diagram and waveforms explain the working principle of switched mode power supply. **(13)**

(OR)

b) Write short notes on the following :
    i) LM 380 power amplifier. **(6)**
    ii) ICL 8038 function generator. **(7)**

PART – C **(1×15=15 Marks)**

16. a) Sketch the implementation of an instrumentation amplifier using three op-amps. Explain the principle of operation and its applications. **(15)**

(OR)

b) Using 7805 design a current source to deliver a 0.2A current to a 22 ohm 10 w load. **(15)**

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