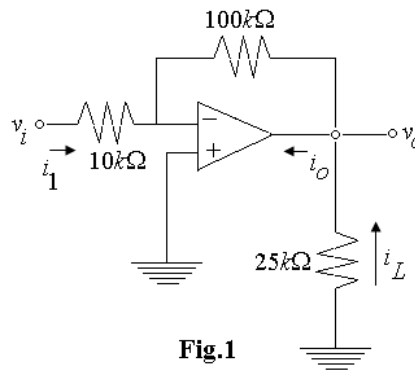


- Q.2 a. Write about IC chip size and circuit complexity and explain power supply connections of an Op-Amp.**

**Answer:** Page no. 41 of Text Book I

- b. Calculate  $i_1, v_o, i_L$  and total current is into the output pin of the circuit shown below in Fig.1**



**Answer:** Page no. 44/2.2 of Text Book I

- Q.3 a. Draw and explain the internal circuit of op-Amp. Explain the following terms:**
- |  |  |
|--|--|
| <p>(i) Input Offset current</p> <p>(iii) Slew rate</p> | <p>(ii) Input Offset Voltage</p> <p>(iv) Stability of Op-Amp</p> |
|--|--|

**Answer:** Page no. 105 of Text Book I

- b. Draw the circuit of instrumentation amplifier and derive the expression for its output.**
- |                             |                                |
|-----------------------------|--------------------------------|
| <p>(i) Using two Op-Amp</p> | <p>(ii) Using three Op-Amp</p> |
|-----------------------------|--------------------------------|

**Answer:** Page no. 141-143 of Text Book I

- Q.4 a. Draw the circuit of Half-Wave rectifier using Op-Amp and explain.**

**Answer:** Page no. 148-149 of Text Book I

- b. Explain the operation of practical differentiator circuit using Op-Amp.**

**Answer:** Page no. 164-165 of Text Book I

- Q.5 a. Explain the working of monostable multivibrator and derive the expression for the time period "T".**

**Answer:** Page no. 218-220 of Text Book I

- b. Draw and explain the functional diagram of 555 Timer IC. Explain its application as pulse position modulator.

Answer: Page no. 311-312 of Text Book I

- Q.6 a. Write the advantages of digital techniques and discuss serial and parallel transmission.

Answer: Page no. 41 of Text Book II

- b. Explain the following codes:

(i) BCD Code

(ii) ASCII Code

(iii) Gray Code

(iv) Alphanumeric Code

Answer: Page no. 38-39 of Text Book II

- Q.7 a. Construct a logic circuit for the following Boolean expression  
 $Y = AC + B\bar{C} + \bar{A}BC$  using NAND gates only.

Answer: Page no. 70 of Text Book II

- b. Simplify the following logic expression using Karnaugh Map and explain in steps;

$$Y = \bar{C}(\bar{A}\bar{B}\bar{D} + D) + A\bar{B}C + \bar{D}$$

Answer: Page no. 130-131 of Text Book II

- Q.8 a. Explain BCD adder with a neat diagram.

Answer: Page no. 243 of Text Book II

- b. Implement full adder using  $3 \times 8$  decoder.

Answer: Page no. 345/7.55(a) of Text Book II

- Q.9 b. Explain, with a neat diagram and waveforms, the working of a Mod-6 Johnson counter.

Answer: Page no. 372-374 of Text Book II

**Text Books**

- I     Linear integrated circuits, 4<sup>th</sup> edition by D. Roy Choudhary & Shail B Jain of New Age International Publishers.**
  
- II    Digital Systems-Principles and Applications by Ronald J. Tocci & Neil S Widmer, Eighth edition of Pearson Education.**