

Q.P. Code :13162

[Time: Three Hours]

[ Marks:80]

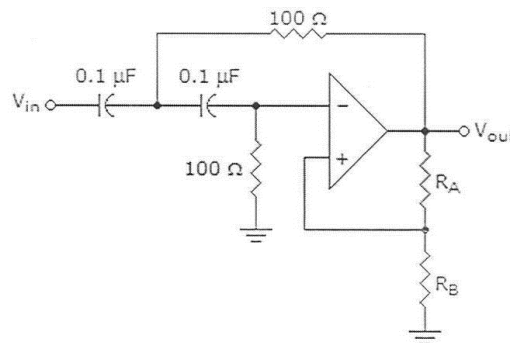
Please check whether you have got the right question paper.

- N.B:
1. Question no.1 is compulsory
  2. Solve any three out of remaining
  3. Assume suitable data wherever necessary and draw diagrams

**Q.1** Solve any five.

**20**

- a) Define (i) CMRR; (ii) Slew rate; (iii) Offset voltage (iv) Input Bias current
- b) Implement (i)  $V_O = 2V_1 + V_2$  (ii)  $V_O = dv_{in}/dt$  using opamp  $\mu A741$ .
- c) For the following circuit identify type of filter and find cutoff frequency



- d) Describe performance parameters of DAC.
- e) Draw functional block diagram of IC 555
- f) What are various protection circuits used for Voltage regulators?

**Q.2** a) Derive expression for  $A_v$  for Non-Inverting amplifier. Design this amplifier for  $A_v = 15$ .

**10**

b) What is window detector? Explain with proper waveforms.

**10**

**Q.3** a) Explain with necessary diagrams and waveforms the principle of operation of a Monostable multivibrator using OP-AMP.

**10**

b) Explain Schmitt Trigger circuit. Design same for  $UTP$  and  $LTP = \pm 2V$

**10**

**Q.4** a) Explain with necessary diagrams the operation of a triangular wave generator using OPAMP.

**10**

b) Explain with a functional block diagram the principle of operation of 723 regulator. What are the important characteristics of this voltage regulator IC?

**10**

**Q.5** a) Explain with proper circuit diagram the principle of operation of dual slope converter.

**10**

b) Explain working of Astable multivibrator using IC 555

**10**

**Q.6** Write short notes on all.

**20**

- a. Log-Antilog Amplifier
- b. Instrumentation amplifier and its applications
- c. Precision Rectifiers
- d. PLL 565 and its applications