**Q.P. Code :13162**

**[Time: Three Hours]** **[ Marks:80]**

Please check whether you have got the right question paper.

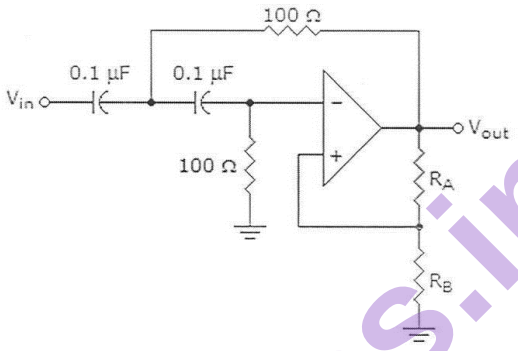
N.B:
1. Question no.1 is compulsory
2. Solve any three out of remaining
3. Assume suitable data wherever necessary and draw diagrams

**Q.1** Solve **any five.** **20**

a) Define (i) CMRR; (ii) Slew rate; (iii) Offset voltage (iv) Input Bias current

b) Implement (i) V0= 2V1+V2 (ii) VO=dvin/dt using opamp uA741.

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 Av for Non-Inverting amplifier. Design this amplifier for Av=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 it's applications
c. Precision Rectifiers
d. PLL 565 and its applications

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