T.E. Sem V (CBGS) · ETRX

OLIC

19/5/15

QP Code : 3306

(3 Hours) **[Total Marks : 80**

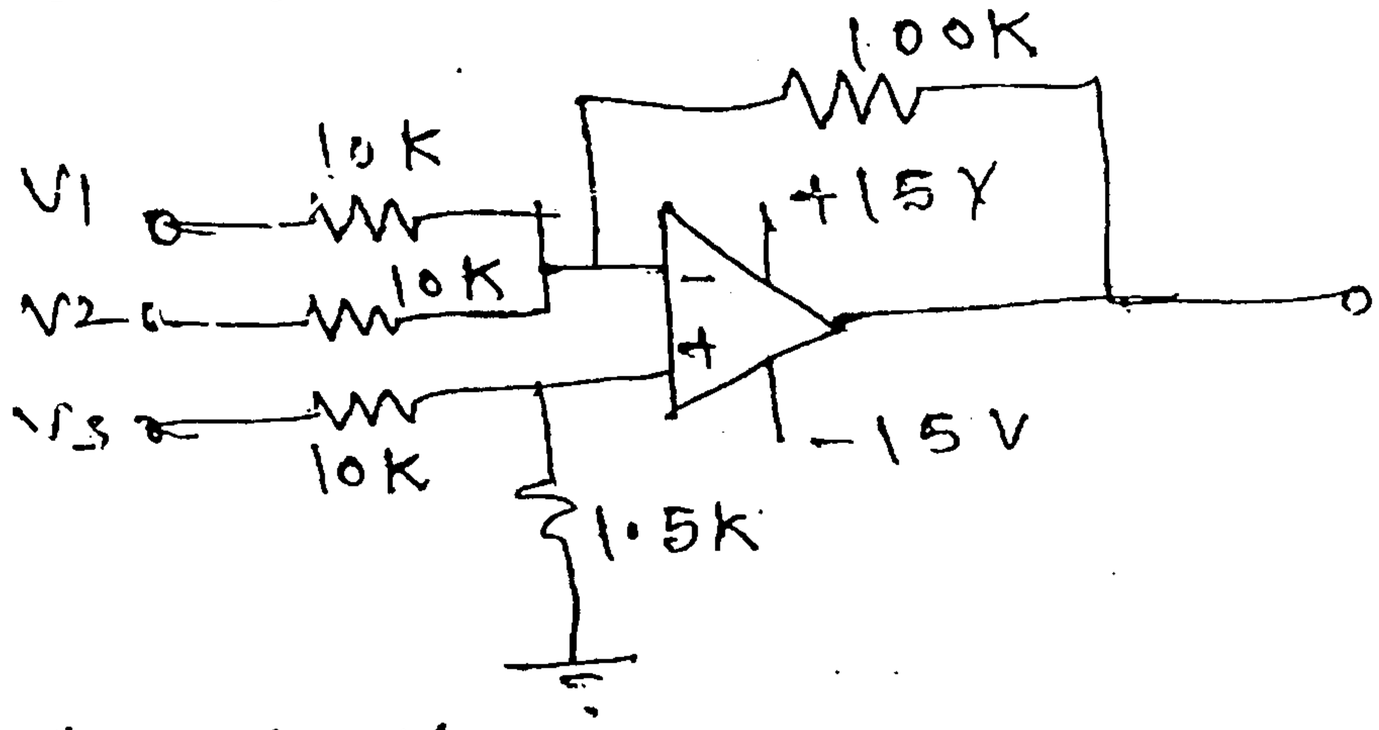
N.B. (1) Question No. **1** is **compulsory**.
(2) Solve any **three** questions from **remaining** questions.
(3) Assume **suitable** data if **necessary**.

1. Solve any **four** :–
   (a) What is the need of Input offset voltage compensation and how it can be achieved. **5**
   (b) Design RC phase shift oscillator to produce sinusoidal output of 5KHz. **5**
   (c) Design schmitt strigger circuit to achiev upper and lower threshold voltage as 1·5 volts. **5**
   (d) Explain Resolution, Accuracy and settling time with respect to DAC. **5**
   (e) Design a Flasher circuit using IC 555, in which lamp should remain on for 4 sec and off for 2 sec. **5**

2. (a) Derive closed loop parameters for Inverting opamp. **10**
   (b) Design a second order KRC low pass filter with a cut off frequency fo = 2KHz and Q = 5. **10**

3. (a) Design a triangular wave generator to get the ouput frequency of 1·5 KHz and $V_{o\,(p-p)} = 7·5V$ using IC 741. **10**
   (b) Explain counter type ADC with neat diagram. **10**

4. (a) Calculate output voltage for the given amplifier. **10**



$V_1 = 1.5V$
$V_2 = 3V$
$V_3 = 4V$

(b) (i) Prove that opamp can be used as current to voltage converter. 4
(ii) Compare normal rectifier with precision rectifier. 3
(iii) Define different parameters of PLL. 3

5. (a) Explain different comparators, state different applications and suggest modifications for practical comparator. 10
(b) What are different possible IC 723 based voltage regulators. Design voltage regulator to achieve $V_o = 12V$ and $I_o = 1$ Amp. 10

6. (a) Explain function of each block of PLL. 10
(b) Design voltage Regulator using IC LM317 for the given specifications. $V_o = 12 \pm 3$ volts and 1L = 100mA. 10
