Computer - Sem-III - old - EDTLC - 27/11/2015

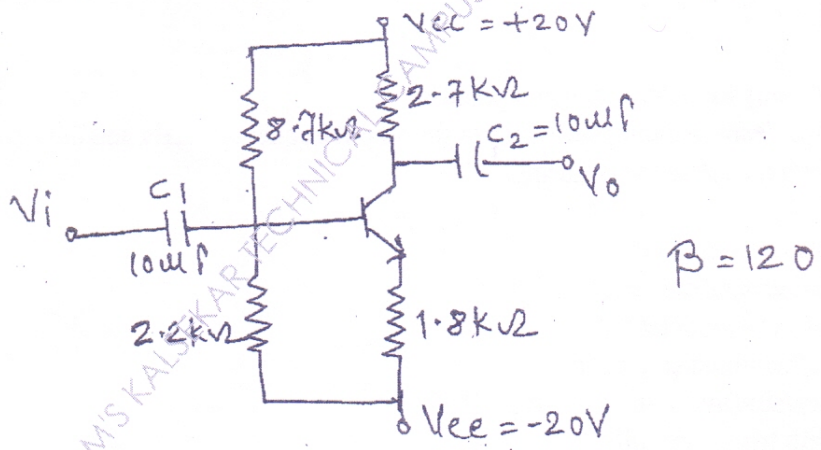
QP Code : **1109**

(3 Hours) [**Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**
(2) Attempt **any four** out of remaining **six** questions.
(3) **Figures** to the **right** indicate **full** marks.
(4) Assume suitable data wherever necessary and mention the same.

1. Attempt any **four** 20
   (a) Design a circuit with OP-amp to produce the O/P Vo given by -
   $V_0 = (Vs_1 + Vs_3) - (Vs_2 + Vs_4)$
   (b) Explain two static and two dynamic parameters of OP-amp
   (c) Voltage divider bias method is best biasing method compared to fixed bias and collector to base bias. Justify/Contradict.
   (d) Design practical differentiator for 5KHz.
   (e) Justify how FET can be used as variable resistor, constant voltage source.

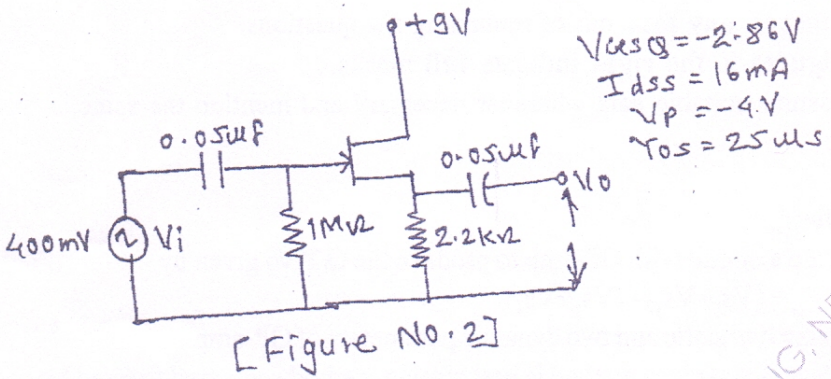
2. (a) Explain the graphical determination of h parameters using characteristics curves of CE amplifier. 10
   (b) Determine V_C and V_B for the network shown in Figure No. 1 10



[Figure No.1]

3. (a) Explain the construction of n.type JFET and explain its transfer characteristics in detail. 10

(b) Calculate the Voltage gain, input and output impedance for the circuit shown in Figure No. 2. 10



[Figure No. 2]

4. (a) Draw and explain the working of R-2R ladder n/w and following terms. 10
   (i) Resolution (ii) Offset Voltage
   (b) Design a regulator using LM723 for $V_0 = 9$ V and $I_o =$ Amps. 10

5. (a) Draw and explain functional diagram of PLL IC565 in detail. 10
   (b) Explain the working of practical Intergrator. Explain its advantages over simple integrator. 10

6. (a) Explain OP-amp as summer and comparator. 10
   (b) Using IC555 design astable multivibrator for output frequency 5KHz and duty cycle of 70% Draw the related waveforms. 10

7. Write short notes on (any four) 20
   (a) Virtual ground concept of OP-amp
   (b) Zero Crossing detector
   (c) Instrumentation amplifier
   (d) Monostable multivibrator using IC555
   (e) Schmitt trigger circuit.
