Name: Enrolment No:	

UPES
End Semester Examination, May,2023

Course:Analog Electtronics-II
Program: B.Tech ECE
Course Code:ECEG 2014

Semester: IV
Time : 03 hrs.
Max. Marks: 100

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain with the help of a schematic diagram the operation of a single loop feedback amplifier	4	CO2
2	Find the frequency of operation of a phase shift oscillator.	4	CO1
3	Explain the frequency response of a crystal	4	CO1
4	Define the output offset voltage and input offset current of opamp.	4	CO4
5	Find the expression for power output for a large signal class A amplifier.	4	CO3

SECTION B
(4Qx10M= 40 Marks)

Q 6	Find the expression for second harmonic distortion for a large signal Class A amplifier	10	CO3
7	How impedance matching is performed in the transformer coupled audio power amplifier? Find the expression for conversion efficiency for such amplifier.	10	CO3
8	a) Design a low pass filter at a cutoff frequency of 1 KHz at a pass band gain of 2. b) Using IC 741 , design an noninverting amplifier with three inputs for acting as an averaging amplifier.	10	CO4
9	Explain a differential instrumentation amplifier using a transducer bridge. How will you convert the above circuit into a temperature controller?	10	CO4
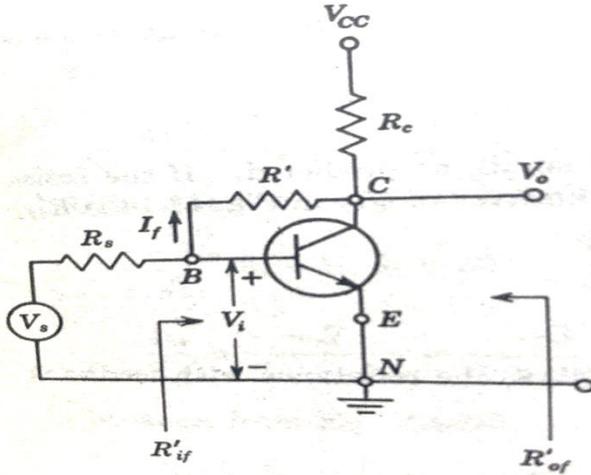
<table>
<tr><td colspan="4" align="center">**SECTION-C**
(2Qx20M=40 Marks)</td></tr>
<tr>
<td>Q 10</td>
<td>The circuit diagram given below has the following parameters:
Re=4k, R$'$=40k,Rs=10k, hie=1.1k, hfe=50, and hre =hoe=0.
What type of feedback is this? Find
a)Avf
b)Rif
c)Rof$'$

</td>
<td>20</td>
<td>CO2</td>
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<tr>
<td>Q11</td>
<td>a) Design a square wave oscillator so that fo=1 KHz. Select a 741 opamp with DC supply voltages ±15 V.
b) Explain a successive approximation analog to digital converter.

<div align="center">***OR***</div>
a) Design a triangle wave generator so that f$_0$=2 KHz and v0(pp)=7 V. The Opamp is a 1458/772 and supply voltage= ±15 V.
b) Describe a Monostable 555 timer and find the expression for time constant.</td>
<td>20</td>
<td>CO4</td>
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