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Roll No. ....

THIRD SEMESTER

B.Tech.[Civil Engineering]

SUPPLEMENTARY EXAMINATION

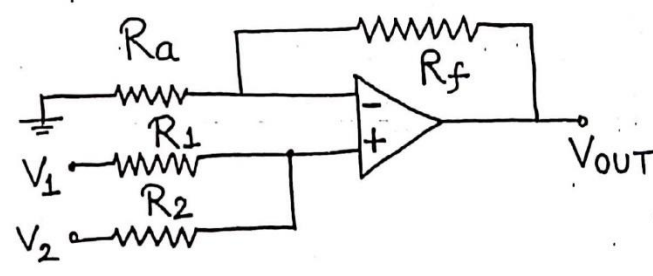
(FEB.-2019)

EC-251 BASIC ELECTRONICS AND INSTRUMENTATION

Time: 3:00 Hrs

Max. Marks: 40

Note: Q1 is compulsory and attempt any five from the rest.  
Assume suitable missing data, if any.

Q1.	(a)	State DeMorgan's theorem and its use.	[2]
	(b)	Explain the difference between Synchronous and Asynchronous Counters.	[2]
	(c)	Mention the differences between Primary and Secondary Transducers.	[2]
	(d)	Draw the circuit diagram for the Voltage Follower using the non inverting op-amp.	[2]
	(e)	Draw the V-I characteristics of the PN junction diode.	[2]
Q2.	(a)	Explain the basic types of clamper circuits. Draw the necessary waveforms.	[4]
	(b)	Explain the working of a Full Wave Rectifier.	[2]
Q3.	(a).	Draw and explain the working of an Inductive Transducer.	[3]
	(b)	Draw the common collector circuit and draw the input and output characteristics and also explain the active, cutoff and saturation region by indicating them on the output V-I characteristic curve.	[3]
Q4.	(a)	Draw the circuit for Class B amplifier	[3]
	(b)	Calculate the value of $V_{OUT}$ for non-inverting summing amplifier. 	[3]

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Q5.	(a)	Draw the neat and clear diagram for Cathode Ray Oscilloscope.	[3]
	(b)	Draw the Lissajous pattern for the following angle values (i). $45^\circ$ (ii). $90^\circ$ (iii). $180^\circ$	[3]
Q6.	(a)	Explain in detail piezoelectric transducer with its derivation and applications.	[6]
Q7.	(a)	Write a short note on Thermistor.	[2]
	(b).	Design the Full adder circuit using two half adders along with necessary expressions for Sum and Carry.	[4]
Q8.	(a)	Implement the Boolean Expression using minimum number of 3 input NAND Gates. $f(A, B, C, D) = \sum(1,2,3,4,7,9,10,12)$	[3]
	(b)	Draw the JK flip flop and explain its operation.	[3]

\*\*\*\*Good Luck\*\*\*\*