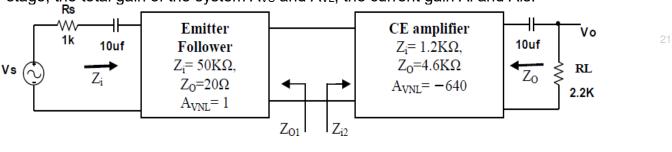
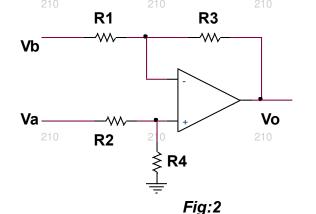
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	3 <sup>rd</sup> Semester Back Examination 2019-20 ANALOG ELECTRONIC CIRCUITS													
	BRANCH : AEIE, EIE, IEE													
	Max Marks: 100													
	Time : 3 Hours													
Λnc	Q.Code : HB529 Answer Question No.4 (Part-1) which is compulsory, any eight from Part-II and any two from													
Alls	swee guestion no.el (Pa	art-i) wiii		ıpuisoiy, a art-III.	illy eigh	t iigiii Pa	irt-ii ang any	two irongio						
	The fi	aures in		hand marg	in indic	ate mark	s.							
		J		Part										
Q1	Only Short Answer Ty							(02x10)						
,	Suggested Word				rive, Sta	ate, Write	, Create, etc							
a)	State the different type		_	cuit.										
b)	How thermal runaway of In a BJT circuit Rc is gi	ven to he	ี่ 10KO an	d Vac is aiv	en to he	210 10V DC	Draw the do	210						
c)	load line.	ven to be	101122 011	a vec is giv	cir to be	100 00.	Draw the de							
d)	Derive the equation of	a transco	nductance	from Sho	ckley's e	equation in	n a JFET.							
e)	List the major difference													
f)	Write the difference be				_	of an opan	np.							
g)	Why re model is prefer		•		del?									
h) i)	Write the difference be Derive the relationship		0.10	0.4.0	rk	210	210	210						
• • • • • • • • • • • • • • • • • • • •					ı ıx.									
i)	Which type of feed bac	ck is used	ı III OSCIII <i>a</i>	iloi.	Part- II									
j)	Which type of feed ba	ck is used	i iii Oscilia											
j) Q2	Only Focused-Short			Part- II	nswer A	ny Eight	out of	(06x08)						
Q2	• •	Answer T n, Formul	ype Ques	Part- II stions- (A ulate, Dev	elop, Illu			,						
Q2	Only Focused-Short <i>I</i> Twelve) Analyze, Justify, Design	Answer T n, Formul D	ype Ques late, Calc ofference	Part- II stions- (A ulate, Deve s & Simila	elop, Illu rities	ıstrate, E	xplain, Distin	guish,						
Q2	Only Focused-Short A Twelve) Analyze, Justify, Design What is negative feedb	Answer T n, Formul D ack? Dev	ype Ques late, Calc difference relop the g	Part- II stions- (A ulate, Deve s & Simila	elop, Illu rities	ıstrate, E	xplain, Distin	,						
Q2	Only Focused-Short A Twelve) Analyze, Justify, Design What is negative feedb with the help of a block In a 3-stage cascaded	Answer T  n, Formul  pack? Dev diagram' opamp ar	Type Questlate, Calcolfference relop the graph relationship to the grap	Part- II stions- (An ulate, Deve s & Simila eneralized ving gain o	elop, Illu rities equation	ustrate, E n of negat	xplain, Distin ive feedback having the	guish,						
Q2 A a)	Only Focused-Short A Twelve) Analyze, Justify, Design What is negative feedb with the help of a block In a 3-stage cascaded same feed back resistor	Answer T  n, Formul  pack? Dev diagram' opamp ar or of 100K	Type Questiate, Calcolifference velop the general multiple (Ω. Calculation)	Part- II stions- (An ulate, Deve s & Simila leneralized wing gain of the value of t	elop, Illu rities equation of +10, -2 ue of othe	ustrate, E n of negat 20 and -30 er resistor	xplain, Distin tive feedback having the in each	guish,						
Q2	Only Focused-Short Analyze, Justify, Design What is negative feedb with the help of a block in a 3-stage cascaded same feed back resisted amplifier to complete the	Answer T  n, Formul  pack? Dev diagram' opamp ar or of 100K	Type Questiate, Calcolifference velop the general multiple (Ω. Calculation)	Part- II stions- (An ulate, Deve s & Simila leneralized wing gain of the value of t	elop, Illu rities equation of +10, -2 ue of othe	ustrate, E n of negat 20 and -30 er resistor	xplain, Distin tive feedback having the in each	guish,						
Q2 (A) (a) (b)	Only Focused-Short Analyze, Justify, Design What is negative feedby with the help of a block In a 3-stage cascaded same feed back resisted amplifier to complete the voltage is 300mV.	Answer T  n, Formul  pack? Dev diagram' opamp ar or of 100K ne feedba	Type Quest late, Calc Difference relop the g ? mplifier ha Ω. Calcula ck loop ar	Part- II stions- (An ulate, Deve s & Simila leneralized wing gain of the valued calculate	elop, Illu rities equation of +10, -2 ue of othe e the outp	ustrate, E n of negat 20 and -30 er resistor put voltag	xplain, Distin tive feedback having the in each e if i/p	guish,						
Q2 A a)	Only Focused-Short Analyze, Justify, Design What is negative feedby with the help of a block In a 3-stage cascaded same feed back resisted amplifier to complete the voltage is 300mV.  Define offset voltage in	Answer T  n, Formul  pack? Dev diagram opamp ar or of 100K ne feedba	Type Questlate, Calcolifference relop the general relation to the general relation to the following section of the color	Part- II stions- (An ulate, Deve s & Simila leneralized ving gain of ate the valued calculate s are used	elop, Illurities equation of +10, -2 ue of other the outp	ustrate, E n of negat 20 and -30 er resistor put voltag	xplain, Distin tive feedback having the in each e if i/p	guish,						
Q2 a) b)	Only Focused-Short Analyze, Justify, Design What is negative feedby with the help of a block In a 3-stage cascaded same feed back resisted amplifier to complete the voltage is 300mV.	Answer T  The Formula of Answer T  The Answe	Type Questilate, Calcolifference relop the graph of the	Part- II stions- (An ulate, Deve s & Simila eneralized wing gain of the value of calculate s are used of tage in operations.)	elop, Illurities equation of +10, -2 ue of othe e the outp to contro	ustrate, E n of negated and -30 er resistor put voltaged of the offs	xplain, Disting tive feedback having the rin each e if i/p	guish,						
Q2 (A) (a) (b)	Only Focused-Short Analyze, Justify, Design What is negative feedby with the help of a block In a 3-stage cascaded same feed back resists amplifier to complete the voltage is 300mV. Define offset voltage in a 741 opamp? Define to Scillation of the same.	Answer T  n, Formul  pack? Devention of 100K  ne feedba  opamp?  otal output  ooth positi	Type Quest late, Calc Difference velop the g ? mplifier ha Ω. Calcula ck loop ar Which pin ut offset vo ve and ne	Part- II stions- (An ulate, Deve s & Simila leneralized ving gain of ate the valued calculate is are used oltage in opgative feed	elop, Illurities equation of +10, -2 ue of othe e the outp to contro amp. lback? D	ustrate, E n of negated and -30 er resistor put voltaged the offs 210 Derive the	xplain, Disting tive feedback having the in each e if i/p set voltage in condition of	guish,						
Q2 a) b)	Only Focused-Short Analyze, Justify, Design What is negative feedby with the help of a block in a 3-stage cascaded same feed back resisted amplifier to complete the voltage is 300mV. Define offset voltage in a 741 opamp? Define the Which oscillator uses be oscillation of the same explain the significance.	Answer T  n, Formul  pack? Devention of 100K  ne feedba  opamp?  otal output  ooth positi	Type Quest late, Calc Difference velop the g ? mplifier ha Ω. Calcula ck loop ar Which pin ut offset vo ve and ne	Part- II stions- (An ulate, Deve s & Simila leneralized ving gain of ate the valued calculate is are used oltage in opgative feed	elop, Illurities equation of +10, -2 ue of othe e the outp to contro amp. lback? D	ustrate, E n of negated and -30 er resistor put voltaged the offs 210 Derive the	xplain, Disting tive feedback having the in each e if i/p set voltage in condition of	guish,						
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Q2 a) b) c)	Only Focused-Short Analyze, Justify, Design What is negative feedby with the help of a block In a 3-stage cascaded same feed back resists amplifier to complete the voltage is 300mV. Define offset voltage in a 741 opamp? Define to Which oscillator uses be oscillation of the same Explain the significance chosen as the input?	Answer T  n, Formul  pack? Devention of 100K  ne feedba  opamp?  otal output  ooth positi	Type Quest late, Calc Difference relop the g mplifier hat Ω. Calculate ck loop ar Which pinut offset vo ve and ne	Part- II stions- (An ulate, Deve s & Simila leneralized ving gain of ate the valued calculate s are used oltage in opgative feed sting of an	elop, Illurities equation of +10, -2 ue of othe e the outp to contro amp. lback? D	ustrate, E n of negated and -30 er resistor put voltaged of the offs 210 Derive the r. Why sq	xplain, Disting tive feedback having the rin each e if i/p set voltage in condition of uare wave is	guish, 210						

+20V For the silicon made BJT amplifier shown in the f) fig:1 draw the DC equivalent ckt. and determine, RB RC  $V_C, V_E$  and  $V_B$ 430K 2K Cc Rs Cs 0.1u 10u 0.5K BETA=50 RL 1k RE CE ۷i 1k 100u fig:1

g) For the cascaded system shown in figure determine, Loaded voltage gain of each stage, the total gain of the system Avs and AvL, the current gain Ai and Ais.



h) In the circuit shown in fig:2 is to be used as subtractor, for R<sub>1</sub>=R<sub>2</sub>=10K, find the value of R<sub>3</sub> and R<sub>4</sub>, so that Vo= 2V<sub>a</sub>-3V<sub>b</sub>.



- i) What is a super beta transistor? Why it is called so. Draw the circuit and derive the DC analysis equations for a beta transistor based biasing circuit.
- Illustrate the operation and construction of a CMOS inverter? j)
- k) Differentiate the power amplifier? Why it is called large signal amplifier?
- I) Explain the role of the capacitors in determining the low frequency response of an amplifier.

## Part-III

## (02X16)Only Long Answer Type Questions (Answer Any Two out of Four)

## Discuss, Describe, Examine, Classify, Prove, Evaluate, Compare, Contrast, etc.

Q3 What is instrumentation amplifier? What are the properties of a good instrumentation amplifier? Derive the output voltage equation of a standard instrumentation amplifier?

	Describe the construction, operation and V-I characteristics of a Enhanced type MOSFET?											
210	Discuss Miller's effect. How it is effective in a common emitter amplifier circuit. Explain with the help of neat circuit diagram.											
	Compare the emitter follower and source follower. Discuss with the help of circuit diagram and mathematical expressions of their voltage gain, input impedance, output impedance											
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