END SEMESTER/RETEST EXAMINATION, 2020

Semester: 4th

Subject code: ET-405

Subject: ANALOGUE ELECTRONICS-II (new)

MARKS : 70 (part A-25 + Part B-45)

Duration: 3 hours

Questions on Part A are compulsory

Answer any five questions from Part B

PART-A **MARK-25**		
Question no.		**marks**
Question 1	**Fill in the blanks**	1x10=10
1a	In double tuned amplifier for loose coupling, the circuit Q is ----------.	
1b	The tuned amplifiers are used to select and amplify a specific ------- frequency.	
1c	Selectivity is ---------- in stagger tuned amplifier.	
1d	Positive feedback in amplifier increases the ---------- of the original signal.	
1e	Darlington pair provides very high current gain and ---------- input resistance.	
1f	In current-series feedback the output impedance is increased by the factor ----------.	
1g	In ideal op-amp, the B.W is ----------.	
1h	The 555 timer basically operates in ---------- mode.	
1i	The output shape of an op-amp integrator with a square wave input is ---------- wave.	
1j	Commercially available thin and thick film circuits are combinations of integrated and ---------- components.	
Question no 2	**Write true or false:**	1x10=10
2a	The B.W is reduced in stagger tuned amplifier.	
2b	Negative feedback in amplifier reduces B.W.	
2c	Emitter follower provides better frequency response than a transformer for impedance matching.	
2d	Input offset voltage is the voltage, applied between input terminals to balance the amplifier.	
2e	If CMRR is very low, the efficiency of an op-amp is very high.	

2f	Hartley oscillator consists of two inductors and one capacitor in phase shift network.	
2g	Number of components per chip in SSI is > 100.	
2h	Miller circuit is used for converting a step into ramp waveform.	
2i	Barkhausen conditions for sustained oscillation that the loop gain of the circuit must be ≥ 1.	
2j	To prevent impurities from entering the N-type epitaxial layer, Sio_2 layer is used in ICs .	
Question no 3	**Choose the correct answer.**	1x5=5
Q 3a	For a given op-amp differential gain $A_d=10^4$ and common mode gain $A_c=10$. The CMRR is-	
	i) 10 ii) 100 iii) 1000 iv) 10000	
3b	In wein bridge oscillator employs two transistors so as to obtain phase shift of	
	i) 360° or 0° ii) 180° iii) 90° iv) 270°	
3c	In cascaded amplifier voltage series feedback is most commonly used to obtain	
	i) High input impedance and low output impedance. ii) Low input impedance and low output impedance. iii) Low input impedance and high output impedance. iv) High input and output impedance.	
3d	In voltage-series configuration of a negative feedback amplifier has open loop voltage gain A=100, feedback ratio $\mathscr{B}$=0.1, the voltage gain A_f is	
	i) 10 ii) 100 iii)99.9 iv)9.09	
3e	Astable M.V has the stable state	
	i) One ii) Two iii) Three iv) Temporary	

PART-B, MARK-45		
Question no.	**Questions**	**marks**
Question no. 4		
Q4a	Differentiate between series and shunt feedback amplifier.	3
Q4b	Describe how gain is stabilized and distortion is reduced.	6
Question no5		

Q5a	Describe the operation of differential amplifier in double ended input and output with neat diagram.	6
Q5b	Write the significance of CMRR.	3
Question no. 6		
Q6a	Discus bias current, offset voltage, and open loop gain in case of op-amp.	6
Q6b	Describe with neat diagram op-amp as integrator.	3
Question no. 7		
Q7a	What is barkhausen criterion for oscillation?	3
Q7b	Draw the circuit diagram of colpitt oscillator and briefly explain how the oscillation is maintained.	6
Question No8		
Q8a	Give the function of clamper circuit.	2
Q8b	Explain the working of positive and negative clamper with proper diagram.	7
Question No 9		
Q9a	State the basic difference between Astable and Bistable M.V	2
Q9b	Describe monostable M.V using IC 555 with proper diagram.	7
Question no10		
Q 10a	What are the applications of sweep circuits?	2
Q10b	Describe the operation of Miller sweep circuit.	7
Question no 11		
Q 11a	Write the advantages of ICs over discrete elements.	3
Q 11b	Discuss crystal growth of substrate and epitaxial growth of ICs in respect of production process for the monolithic ICs.	6

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