Code No. : 14324

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
B.E. (E.E.E. : CBCS) IV-Semester Main Examinations, January-2021
Electronics Engineering-II

Time: **2 hours**   Max. Marks: **60**

Note: Answer any NINE questions from Part-A and any THREE from Part-B

Part-A (9× 2 = 18 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Which transistor configuration is the best in cascade for an output stage and for an Intermediate stage?	2	1	1	1,2
2.	What is the need of differential amplifier?	2	1	1	1
3.	Negative feedback effects gain of an amplifier. Justify	2	2	1	1,2
4.	List the advantages of negative feedback in amplifiers	2	2	1	1
5.	Explain why RC Phase shift oscillators are not used at high frequencies	2	3	2	1
6.	State the Barkhausen criterion for oscillations	2	2	2	1
7.	Derive the expression for harmonic distortion in power amplifiers	2	4	1	1,2,3
8.	Classify power Amplifiers	2	2	1	1
9.	Draw the frequency response of RC Low-pass circuit for sinusoidal input	2	3	4	1,2
10.	Write the applications of wave shaping circuits	2	2	4	1
11.	Define is CMRR?	2	2	3	1
12.	Write the applications of clamping circuits	2	4	1	1

Part-B (3 × 14 = 42 Marks)

13.	Draw the circuit diagram of two stage CE amplifier with bypassed capacitors and with the help of h-parameter equivalent circuits obtain the Overall voltage gain, Overall current gain and input impedances of individual stages	14	4	1	1,2,3
14. a)	With the help of block schematics, show four types of negative feedback in amplifiers	7	2	1	1
b)	For a series-shunt feedback amplifier, if A=100, β=0.1, R_i=1kΩ, R_o=50Ω, estimate R_{if}, R_{of}, A_f	7	3	1	1,2
15. a)	Draw the circuit diagram and derive the frequency of oscillation of BJT RC phase shift oscillator	10	2	2	1,2,3
b)	In the Hartley oscillator L2=0.4m H, C=0.004μF. Find L1 if the frequency of oscillations is 120KHz by neglecting the mutual inductance between the coils	4	2	2	1,2,3

			M	L	CO	PO
16.	a)	Discuss about conversion efficiency in class A power amplifier	7	4	1	1
	b)	A Sinusoidal signal Vs=1.95sin400t is applied to a power amplifier .The resulting current is i_o=12sin400t+1.2sin800t+0.9sin1200t+0.4sin1600t. Calculate (i) The total harmonic distortion. (ii) The percentage increase in power because of distortion.	7	3	1	1,2
17.	a)	With the neat waveforms, expressions, discuss response of the RC high –pass filter to a square wave input	10	2	4	1,2
	b)	Derive the expression for the upper cutoff frequency of low pass RC circuit	4	2	4	1,2,3
18.	a)	Discuss about the effect of cascading on bandwidth of multistage amplifiers	7	2	1	1
	b)	An RC coupled amplifier has a voltage gain of 1,000. f_1=50Hz, f_2=200KHz and a distortion of 5% without-feedback. Find the amplifier Voltage gain, f_1', f_2' and distortion when negative feedback is applied with feedback ratio of 0.01	7	2	2	1,2
19.		Answer any *two* of the following:				
	a)	Explain the operation of a Wien bridge oscillator.	7	2	2	1,2
	b)	Derive an expression for maximum power-conversion efficiency of a class B output stage.	7	2	1	1,2
	c)	Draw the basic circuit diagram of negative clamper circuit and explain its operation	7	2	5	1

M: Marks;   L: Bloom's Taxonomy Level;   CO: Course Outcome;   PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	66%
2	Knowledge on application and analysis (Level-3 & 4)	34%
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	0

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