Hall Ticket Number:

Code No. : 14316 N/O

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (EEE: CBCS) IV-Semester Main & Backlog Examinations, May-2019

Electronics Engineering-II

Time: **3** hours Max. Marks: 60

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Q.No.	Stem of the question	M	L	CO	PO
	Part-A (10 × 2 = 20 Marks)				
1.	Mention the advantages of Cascading amplifiers.	2	2	1	1
2.	A differential amplifier has V_{s1}=10mV,V_{s2} = 9mv.If it has A_d=60dB and CMRR=80dB.Find its output Voltage.	2	1	3	1
3.	An amplifier with a gain of 8 has 10% of its output fed back to the input. Determine the gain of the stage i) with negative feedback. ii) with positive feedback.	2	2	1	1
4.	What is the effect of voltage series negative feedback on input impedance, Voltage gain, output impedance and band width of the amplifier?	2	1	1	1,2
5.	Briefly explain the term 'piezoelectric effect'	2	2	2	1
6.	A Wein bridge Oscillator has a frequency of 500Hz, If the value of C is 100pF.Find the value of R?	2	1	2	1,2
7.	Explain Cross – over distortion in power amplifiers.	2	2	1	1
8.	A transformer coupled class A large signal amplifier has maximum and minimum values of collector to emitter voltage of 25V and 2.5V. Find its collector efficiency.	2	2	1	1,2
9.	Draw the output wave for positive clamper with negative V_{Ref}	2	2	4	1
10.	Distinguish between linear and nonlinear wave shaping.	2	1	4	1
	Part-B (5 ×8 = 40 Marks)				
11.a)	Explain the functionality of any three Drift compensation techniques.	4	2	1	1,2
b)	Derive overall gain expression for N-stage cascaded amplifier circuit	4	3	1	1,2
12.a)	Discuss the types of negative feedback amplifier and give the effect of each type of feedback on input impedance, output impedance, gain and bandwidth of the basic amplifier.	4	2	1	1,2
b)	Draw the circuit diagram of an amplifier with Current series feedback. Derive the expression for gain, Z_{in}, Z_o with feedback.	4	4	1	1,2
13.a)	A Colpitt's Oscillator is designed with C_1=100pF, C_2=7,500pF and the inductance is variable. Determine the range of inductance values, if the frequency of Oscillations is to vary between 950 KHz and 2050 KHz.	4	2	2	1,2
b)	Derive the expression for frequency of sustained Oscillations for Hartley Oscillator.	4	4	2	2,3

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14.a)	Draw the Circuit diagram of push - pull class B amplifier and explain its operation. Derive an expression for its maximum conversion efficiency.	4	2	1	1,2
b)	A Sinusoidal Signal V_s=1.95sin400t is applied to a power amplifier. The resulting current is I_o=12sin400t+1.2sin800t+0.9sin1200t+0.4sin1600t.Caculate i) The total harmonic distortion. ii) The percentage increase in power because of distortion.	4	3	1	1,2
15.a)	Draw and analyze the output of the low pass RC circuit for different time constants to i) Step Voltage input ii) Pulse input	4	4	4	2,3
b)	Explain the operation of Negative Clamper Circuit.	4	2	4	1
16.a)	An RC coupled amplifier has a voltage gain of 1000. f_1 = 50HZ and f_2 = 200 KHZ and a distortion of 5% without feedback. Find the amplifier A_{vf} , f_{1f}, f_{2f} and distortion when a negative fed back is applied with a feedback ratio of 0.01.	4	3	1	2,3
b)	Draw the circuit diagram of an amplifier with Voltage series feedback. Derive the expression for gain, Z_{in}, Z_o with feedback.	4	3	1	1,2
17.	Answer any ***two*** of the following:				
a)	Draw the equivalent circuit of Crystal and write the equations for f_p and f_s.	4	2	2	1,2
b)	Write the importance of Complementary Symmetry push-pull power amplifier.	4	2	1	1
c)	Derive an expression for the upper cut-off frequency of a low pass RC circuit.	4	3	4	1,2

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)	60
2	Knowledge on application and analysis (Level-3 & 4)	40
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	--