

Hall Ticket Number:

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (E.C.E.) IV-Semester Advanced Supplementary Examinations, September-2022**Electronic Circuits**

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	List any Four differences between Integrator and Differentiator	2	1	1	1
2.	Draw the circuit to convert a Sine wave to Square Wave.	2	1	1	2
3.	Define Gain and Bandwidth of an Amplifier.	2	1	2	1
4.	Two amplifiers having gain 20 dB and 40 dB are cascaded. Find the overall gain in dB.	2	2	2	2
5.	Identify the type of Feedback in Emitter Follower Circuit. Justify your answer.	2	2	3	2
6.	Derive the input and output impedance of current Shunt Amplifier.	2	1	3	1
7.	Define the condition for Oscillations.	2	1	4	1
8.	List two applications of Wein Bridge Oscillator.	2	1	4	1
9.	Define Cross Over Distortion in a Power Amplifier.	2	1	5	1
10.	Draw the circuit of a single Tuned Amplifier.	2	1	5	1
Part-B (5 × 8 = 40 Marks)					
11. a)	Derive the expression for % Tilt of an Integrator circuit when a square wave input is applied.	4	3	1	2
b)	Draw the circuit of a Negative Clamper and explain its working.	4	2	1	2
12. a)	Draw the Circuit of Single stage RC Amplifier and explain the significance of each component.	4	2	2	1
b)	Identify the reason for the fall of gain in Low Frequency and High Frequency Range of an Amplifier.	4	3	2	2
13. a)	Draw the Block Diagram of a Feedback Amplifier and explain the function of each Block.	4	2	3	1
b)	The Distortion in an Amplifier is found to be 6% when the feedback ratio of the Negative Feedback Amplifier is 0.05. When the feedback is removed the Distortion becomes 15%. Find the open loop and closed loop Gain.	4	3	3	3
14. a)	Derive the condition for Oscillations of an RC Phase shift Oscillator.	4	2	4	2
b)	Given for a Colpitts Oscillator $C_1=1\mu F$, $C_2=0.1\mu F$, $L=470\mu H$. Calculate the frequency of Oscillations and feedback factor.	4	3	4	3

Contd... 2

15. a)	Derive the efficiency of Class B Push Pull Power Amplifier.	4	2	5	2
b)	A single tuned amplifier consist of tuned circuits having $R=5\text{ohm}$, $L=10\text{mH}$, $C=0.1\text{mF}$. Determine a) Resonant frequency b) Quality factor of tank circuit c) Band width of amplifier	4	3	5	2
16. a)	Calculate the output voltages of a Compensated attenuator for the following values of capacitors.(a) $C1=75\text{pF}$ (b) $C1=100\text{pF}$ (c) 50pF .The input Step voltage is 50V . Consider $R1=R2=1\text{M}\Omega$. $C2=75\text{pF}$	4	3	1	2
b)	Draw the High frequency equivalent Circuit of an Amplifier and identify the importance of each component.	4	2	2	1
17.	Answer any <i>two</i> of the following:				
a)	Explain the merits and demerits of Negative feedback in Amplifiers.	4	2	3	1
b)	Differentiate between Class A and Class B Power Amplifiers	4	3	4	2
c)	Draw the equivalent circuit of a Crystal Oscillator and explain its advantages.	4	3	5	1

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

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%
