

<b>Scheme of Valuation/Answer Key</b>			
(Scheme of evaluation (marks in brackets) and answers of problems/key)			
<b>APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY</b>			
THIRD SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019			
<b>Course Code: CS207</b>			
<b>Course Name: ELECTRONIC DEVICES AND CIRCUITS</b>			
Max. Marks: 100		Duration: 3 Hours	
<b>PART A</b>			
<i>Answer all questions, each carries 3 marks.</i>			Marks
1		Circuit -1 mark, Derivation - 1 mark Waveform – 1 mark	(3)
2		Circuit diagram with transformer, dc sources and diodes/zener diodes – 2 marks Design of series resistance $R = \sqrt{(R_f R_r)}$ – 1 mark	(3)
3		Circuit Diagram – 1. mark, Load Resistance $R_L = 5.1 \text{ V}/20 \text{ mA} = 255\Omega$ -- 0.5 mark, Series Resistance $R_s = (12 \text{ V} - 5.1 \text{ V})/25 \text{ mA} = 276 \Omega$ - 1 mark Power Rating of $R_s = 6.9 \text{ V} \times 25 \text{ mA} = 0.1725 \text{ W}$ -- 0.5 mark	(3)
4		Series vs Shunt Clippers – 1.5 marks Positive vs Negative Clippers – 1.5 marks	(3)
<b>PART B</b>			
<i>Answer any two full questions, each carries 9 marks.</i>			
5	a)	Circuit Diagram – 1 marks, Working – 2 marks	(3)
	b)	Characteristics with regions marked – 2 marks, Explanation – 4 marks	(6)
6	a)	Circuit – 2 marks, Working – 2 marks	(4)
	b)	Circuit – 2 mark, Working – 3 marks	(5)
7	a)	Circuit Diagram Triangular wave to Square wave – 1 mark, Design - 1 marks Circuit Diagram Square wave to Triangular – 1 mark, Design - 1 marks	(4)
	b)	Block Diagram – 2 marks, Working – 3 marks	(5)
<b>PART C</b>			
<i>Answer all questions, each carries 3 marks.</i>			
8		Thermal runaway – 3 marks	(3)
9		Circuit Diagram with explanation -3 marks	(3)
10		Comparison (at least 3 points) – 3 marks	(3)
11		Statement – 1 mark, Explanation – 2 marks	(3)

<b>PART D</b>			
<i>Answer any two full questions, each carries 9 marks.</i>			
12		Circuit – 2 marks, Design with component values computed – 5 marks, Frequency Response Curve – 1 mark, Explanation of shape – 1 mark	(9)
13	a	Effects of cascading on : Gain – 1.5 marks, Bandwidth - 1.5 marks	(3)
	b	Circuit – 2 marks, Working – 3 marks, Satisfying Barkhausen criteria – 1 marks	(6)
14		Circuit – 3 marks, Waveforms – 2 marks, Working - 4 marks	(9)
<b>PART E</b>			
<i>Answer any four full questions, each carries 10 marks.</i>			
15	a)	Circuit Diagram – 2 marks, Working – 3 marks	(5)
	b)	Circuit – 1 mark, Design with component values computed – 4 marks	(5)
16	a)	Derivations for Voltage Gain : Inverting – 3 marks, Non-inverting – 3 marks	(6)
	b)	Comparison (at least 3 points) – 4 marks	(4)
17	a)	Circuit – 1 marks, Working – 3 marks, Applications - 2 marks	(6)
	b)	CMRR – 1.5 marks, Typical Value – 0.5 mark, Slew Rate – 1.5 marks, Typical Value – 0.5 mark	(4)
18	a)	Circuit Diagram – 1 mark, Working – 3 marks, UTP – 1 mark, LTP - 1 mark.	(6)
	b)	Comparison (at least 3 points) – 4 marks	(4)
19	a)	Circuit - 1 mark, Explanation – 2 marks, Realisation of Y(t) – 2 marks	(5)
	b)	Circuit – 2 marks, Working with waveforms - 3 marks	(5)
20	a)	Circuit – 2 marks, Working - 3 marks	(5)
	b)	Circuit – 2 marks, Design with component values computed – 3 marks	(5)
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