APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: CS207

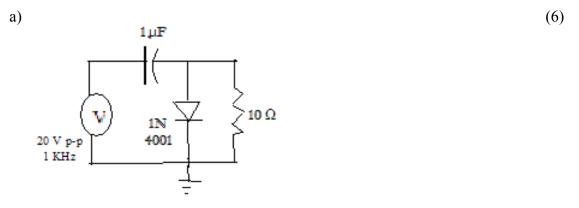
Course Name: ELECTRONIC DEVICES AND CIRCUITS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries3 marks. Marks 1 Draw the circuit of a RC differentiator and write its design equation. Also (3) draw its output waveform for a 1KHz square wave input. 2 Compare the features of BJT with FET. (3) 3 What is line regulation and load regulation? Explain with equation for (3) percentage of regulation 4 Draw a sweep circuit with transistor acting as a switch. (3)

PART B Answer any two full questions, each carries9 marks.



What is the function of above circuit?,

What will happen:

- (i) if polarity of diode is changed.
- (ii) if a reference voltage of (-3 volts) is connected in series with the diode.
- (iii) Plot output wave forms in all cases.
- b) Explain working of a voltage Tripler with the help of relevant circuit (3)
- 6 a) Give the necessity of Current fold back and current limit protection. (9) Explain with circuit and graphs.
- 7 a) Draw the structure of depletion mode MOSFET and explain its operation (7) with characteristics.
 - b) Distinguish between enhancement and depletion mode MOSFETs (2)

PART C

Answer all questions, each carries 3 marks.

8 Give the importance of biasing in transistors? Mention significance of (3)

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		operating point.	
9		What is the effect of cascading in gain and bandwidth of Amplifier?	(3)
10		What are the conditions for getting sustained oscillations?	(3)
11		Mention the difference between positive and negative feedback? Give one application of each.	(3)
		PART D	
		Answer any two full questions, each carries 9 marks.	
12		Voltage divider biasing is most widely used one in amplifiers. Why? Explain with the help of required equations and circuit.	(9)
13	a)	Design a Hartley oscillator to generate a frequency of 150KHz.	(5)
	b)	Draw the circuit of RC coupled amplifier and explain the function of each component.	(4)
14		With circuit diagram and design equations explain the working of a monostable multivibrator	(9)
		PART E	
		Answer any four full questions, each carries 10 marks.	
15	a)	What are the features of ideal op-amp?	(2)
	b)	With circuits and equations show that an op-amp can act as integrator, differentiator, adder, subtractor.	(8)
16	a)	Define: (1) Slew rate, (2) CMRR, (3) offset voltage (4) Offset current	(4*2=8)
	b)	What are their practical values for parameters of op-amp IC 741	(2)
17		With circuit, relevant equations and waveforms explain the working of a Schmit trigger	(10)
18	a)	Describe the working of a binary weighted D/A Converter, with example	(3)
	b)	Draw the circuit and frequency response of active lowpass and high pass filters .Also draw the circuit of a second order active low pass filter	(7)
19	a)	Explain the working of any one type of ADC.	(8)
	b)	What are their importantspecifications?	(2)
20	a)	With functional block diagram, explain the working of 555 Timer IC.	(4)
	b)	Write design equations and pin out of 555 TIMER IC working as a stable multivibrator to generate a wave form of 1KHz., with 50% duty cycle.	(6)
