Q.P. Code: 18EC0443 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations Feb-2021

ANALOG ELECTRONIC CIRCUITS

(Common to EEE,CSE & CSIT)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Compare PN junction diode and zener diode.	2M
	b	Draw the generalized hybrid model for BJT amplifier.	2M
	c	What is ment by pinchoff voltage?	2M
	d	Define Virtual ground property of an OP-AMP.	2M
	e	Write ADC/DAC Specifications.	2M

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2		Derive the expressions for Average DC current, Average DC Voltage, RMS Value of Current, DC Power Output and AC Power Input of a Half Wave Rectifier.	10M

OR

3	a	Write notes on Diode Clippers and Clampers with diagram.	5M
	b	Calculate the ripple factor for a π type filter, employing 10H choke and two equal capacitors 16μF each and fed from a full wave rectifier and 50Hz mains. The load resistance is 4KΩ. Draw the neat circuit diagram.	5M

UNIT-II

4		With neat diagram, discuss Voltage Divider bias of BJT and derive the expression for Its stability factor.	10M

OR

5	a	If the base current in a transistor is 20μA when the emitter current is 6.4mA, what are the values of α and β? Also calculate the collector current.	5M
	b	Explain the concept of Load line and Q-point in BJT.	5M

UNIT-III

6		Draw the circuit diagram for Common Source configuration of n channel JFET and discuss the Drain and Transfer Characteristics.	10M

OR

7	a	With diagram explain Common Gate Amplifier of JFET.	6M
	b	For Common Drain Amplifier as shown in the Figure, $g_m = 2.5mS$, $r_d = 25K\Omega$. Calculate Input impedance, Output impedance and Voltage gain.	4M

UNIT-IV

8	a	Draw the various functional blocks of an operational amplifier IC. Explain each block.	6M
	b	Compare different configurations of differential amplifier.	4M

OR

9	a	Compare and contrast ideal and practical op-amp?	5M
	b	An op-amp has a slew rate of 2V/μs. What is the maximum frequency of an output sinusoid of peak value 5V at which the distortion sets in due to the slew rate limitation.	5M

UNIT-V

10	a	Draw and explain the weighted resistor DAC.	5M
	b	Explain about counter type ADC.	5M

OR

11	**a**	An 8-bit Analog to Digital converter has a supply voltage of +12 volts. Calculate: (i) The voltage step size for LSB. (ii) The value of analog input voltage for a digital output of 01001011	**5M**
	b	What is regulator and explain IC 723.	**5M**

END