R18

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations November 2020
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   What are the applications of diode clamping circuits?   **2M**
    b   Mention the applications of Transistor.   **2M**
    c   What is ment by pinchoff voltage.   **2M**
    d   Define Slew rate of Op-amp.   **2M**
    e   Draw the circuit of an practical integrator.   **2M**

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

UNIT-I

2   a   Derive the expressions for Ripple Factor and Efficiency of Full Wave Rectifier.   **5M**
    b   A Half wave rectifier has a load of 3.5kΩ. If the diode resistance and the secondary
        coil Resistance together have resistance of 800Ω and the input voltage of 240V,
        Calculate   **5M**
        (i) Peak, Average and RMS value of the current flowing (ii) DC power output
        (iii) AC Power input and   (iv) Efficiency of the rectifier.

OR

3   a   Draw and discuss the VI characteristics of a Zener Diode.   **5M**
    b   Discuss the working of inductor filter with circuit diagram.   **5M**

UNIT-II

4   a   Describe the Input and Output characteristics of a BJT in CC Configuration.
        Indicate   the regions of operations in the output characteristics.   **5M**
    b   Why hybrid model is used for the analysis of BJT amplifier at low frequencies? Draw
        hybrid model for CE transistor and derive the parameters.   **5M**

OR

5   a   Compare CB, CE and CC configurations of BJT.   **5M**
    b   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**

UNIT-III

6   a   Discuss the Drain and Transfer Characteristics of Common Source configuration of
        n channel JFET.   **5M**
    b   Derive input impedance and voltage gain of JFET Common Drain amplifier   with
        neat diagram.   **5M**

OR

7   a   Compare CG, CS and CD configurations of JFET.   **6M**
    b   With diagram, explain Common Gate Amplifier of JFET.   **4M**

UNIT-IV

8   a   Explain briefly i) virtual ground concept ii) current mirror   **6M**
    b   Compare and contrast ideal and practical op-amp.   **4M**

OR

9   a   Define the terms cmrr, common mode gain, differential mode gain, slew rate. **5M**
    b   Explain the term slew rate and write the importance in op-amp circuits?   **5M**

R18

UNIT-V

10 **a** Draw the circuit diagram of Dual Slope ADC and explain its working with neat sketches. **6M**

b An 8-bit Analog to Digital converter has a supply voltage of +12 volts.
Calculate: (i) The voltage step size for LSB. **4M**
                  (ii) The value of analog input voltage for a digital output of 01001011.

OR

11 **a** Draw and explain successive approximation type ADC. **5M**

b The basic step of a 9 bit DAC is 10.3 mV. If "000000000" represents 0 V. What output is produced if the input is "101101111"? **5M**

END