

Reg. No:

--	--	--	--	--	--	--	--	--	--

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

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

ANALOG ELECTRONICS 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 | Write down the need for filters in power supplies. | 2M |
| | b | write relationship between α , β , r . | 2M |
| | c | Mention the applications of FET. | 2M |
| | d | Define Slew rate. | 2M |
| | e | State the important features of an instrumentation amplifier. | 2M |

PART-B

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

UNIT-I

- | | | |
|---|--|------------|
| 2 | With neat diagrams, explain forward and reverse biasing of a PN Junction diode. Draw its V-I Characteristics | 10M |
|---|--|------------|

OR

- | | | | |
|---|----------|--|-----------|
| 3 | a | Calculate the ripple factor of a LC filter with FWR for a inductance of 10H and capacitance of $8\mu\text{F}$ for 50Hz AC input supply. Draw the neat circuit diagram. | 5M |
| | b | With neat diagram, describe Bridge Rectifier | 5M |

UNIT-II

- | | | |
|---|---|------------|
| 4 | Discuss the Input and Output characteristics of a BJT in CE Configuration. Indicate the regions of operations in the output characteristics | 10M |
|---|---|------------|

OR

- | | | | |
|---|----------|--|-----------|
| 5 | a | Discuss the operation of NPN transistor with diagram | 5M |
| | b | Discuss the applications of CB, CE and CC amplifiers | 5M |

UNIT-III

- | | | |
|---|--|------------|
| 6 | Derive input impedance, output impedance and voltage gain of JFET Common Drain amplifier with neat diagram | 10M |
|---|--|------------|

OR

- | | | | |
|---|----------|--|-----------|
| 7 | a | Compare CG, CS and CD configurations of JFET | 6M |
| | b | Compare the performance of BJT with FET. | 4M |

UNIT-IV

- | | | | |
|---|----------|---|-----------|
| 8 | a | What is frequency compensation and explain how the frequency response is varied with respect to Compensation network. | 6M |
| | b | Explain briefly i) virtual ground concept b) current mirror circuit | 4M |

OR

- | | | | |
|---|----------|---|-----------|
| 9 | a | List out the ideal characteristics of an operational amplifier. | 5M |
| | b | Design an inverting amplifier with gain $A = 10$. | 5M |

UNIT-V

- 10 a Draw and explain successive approximation type ADC? **5M**
 - b Draw and explain in detail about R-2R DAC **5M**
- OR**
- 11 a 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**
 - b Draw a neat circuit of a differentiator circuit. Explain the functioning with the input output Wave forms. **5M**

END