

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)
B. Tech. Sem - II CS&BS :SUMMER- 2022
SUBJECT : PRINCIPLES OF ELECTRONICS ENGINEERING

Day : Friday
Date : 5/8/2022

S-24140-2022

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

- 1) All Questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non – programmable calculator is **ALLOWED**
- 4) Assume suitable data **WHEREVER** necessary.
- 5) Draw neat labeled diagrams **WHEREVER** necessary.

Q. 1 Describe the Fermi levels for intrinsic semiconductor, n-type extrinsic semiconductor and p-type extrinsic semiconductor with the help of energy band diagram. **(10)**

OR

- a) Differentiate between extrinsic semiconductor and intrinsic semiconductor. **(06)**
- b) Describe the concept of majority and minority charge carriers in extrinsic semiconductors. **(04)**

Q. 2 Draw and explain full wave Rectifier with center tap transformer with the help of waveforms. State the advantages of full wave rectifier. **(10)**

OR

Describe the effect of forward and reverse biasing on the width of depletion region on P-N junction diode. Also Draw the V-I characteristic graph of Ideal diode and practical diode. **(10)**

Q. 3 Describe the operation of NPN Transistor in Active region with suitable diagram. Also comment on doping concentration and area allocation for Emitter, Base and Collector. **(10)**

OR

Define stability factor s , s' and s'' . Derive the general expression for stability factor for transistors. **(10)**

Q. 4 Draw and explain operation of p-channel JEET with Drain and Transfer characteristic graph. **(10)**

OR

- a) Describe basic working principle of CMOS. **(06)**
- b) List the applications of FETs. **(04)**

Q. 5 Describe all topologies of feedback amplifier with block diagram. **(10)**

OR

- a) Draw and explain op-Amp as a Adder. **(06)**
- b) Explain the block diagram of Op-Amp. **(04)**

Q. 6 Describe operation of basic gates and universal gates with the help of symbol, truth table and logic equations. **(10)**

OR

- a) Reduce the expression, $\sum m(1,5,6,12,13,14) + d(2,4)$ **(06)**
- b) Show, **(04)**

$$A + \overline{AB} = A + B$$

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