BACHELOR OF TECHNOLOGY (CBCS - 2023)

B. Tech. Sem-II COMPUTER SCIENCE & BUSINESS SYSTEMS : SUMMER : 2024

SUBJECT: PRINCIPLES OF ELECTRONICS ENGINEERING

Day : Thursday
Date : 30/05/2024

S-27710-2024

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

N.B.

1) Figures to the right indicate full marks.
2) Use of non-programmable calculator is allowed.
3) Assume suitable data if necessary.

Q. 1 Describe the valence band, conduction band and forbidden energy gap with the help of energy level diagram. **(10)**

OR

Q. 1 Describe the drift current and diffusion current with help of diagram in detail. **(10)**

Q. 2 With a neat sketch explain the working of i) Centre-tap full-wave rectifier ii) Full –wave bridge rectifier **(10)**

OR

Q. 2 Define and explain the following terms in detail. **(10)**
i) PIV ii) Ripple factor iii) efficiency

Q. 3 Define the current amplification factor for common emitter configuration, common base configuration, and common collector configuration. Derive the relation between them. **(10)**

OR

Q. 3 Write short notes on the following: **(10)**
i) advantages of transistor ii) operating point iii) d.c. load line

Q. 4 Explain the operation of DMOSFET with the help of its construction diagram in depletion and enhancement mode. Give the advantages of DMOSFET. **(10)**

OR

Q. 4 Explain the working principle of CMOS in detail. Give the advantages and disadvantages of CMOS. **(10)**

Q. 5 Explain the operation of OP-Amp as comparator. Give the application of operational amplifier. **(10)**

OR

Q. 5 Explain the inverting and non-inverting mode of operation. Write a short note on voltage follower in Op-Amp. **(10)**

Q. 6 Explain in detail the following flip-flops with their truth table. **(10)**
i) S-R flip flop ii) D flip flop iii) J-K flip flop iv) T flip-flop

OR

Q. 6 Which gates are called as universal gates and why? Explain De-Morgans' first theorem and second theorem with truth table and logic diagram **(10)**

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