09 AUG 2023

Reg. No.													

Question Paper Code	12130

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Second Semester

Computer Science and Business Systems

20BSPH205 - PRINCIPLES OF ELECTRONICS

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	List out any four properties of semiconducting material.	2,K1,CO1
2.	Define Fermi energy level.	2,K1,CO1
3.	Define ripple factor.	2K1,CO2
4.	Mention the difference between ordinary diode and Zener diode.	2,K2,CO2
5.	Define band width stability.	2,K1,CO4
6.	Mention the types of oscillators.	2,K2,CO4
7.	What is operational amplifier?	2,K1,CO5
8.	What is Integrated circuit?	2,K1,CO5
9.	Draw the logic symbol of NOR and EX-OR gate.	2,K2,CO6
10.	What are sequential and combinational logic circuits?	2,K1,CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	With neat sketch elucidate the formation of n type and p type extrinsic semiconductor.	13,K2,CO1
		OR	
	b)	Explain about carrier transport, a concept of drift and diffusion current in a semiconductor.	13,K2,CO1
12.	a)	With neat sketch explain the mechanism of formation of pn junction and the process of biasing in a pn junction diode.	13,K2,CO2
		OR	
	b)	Explain in detail the working of a half wave rectifier and derive the expression for its efficiency.	13,K2,CO2
13.	a)	Explain the concept of feedback amplifiers and draw the block diagram of positive and negative feedback amplifiers and explain them in detail.	13,K2,CO4

OR

b) Explain about Voltage shunt and Voltage series feedback and derive the expression for input impedance, output impedance and voltage gain. *13,K2,CO4*

14. a) With a neat block diagram explain the working concept of an OP-amp. *13,K2,CO5*

OR

b) Explain about how OP-amp can be utilized as an integrator and differentiator. *13,K2,CO5*

15. a) Explain in detail about the working of half adder and half subtractor circuit. *13,K2,CO6*

OR

b) Explain the working of Asynchronous and synchronous counter with its truth table. *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Draw the input and output characteristics of CB configuration and explain it. *15,K3,CO3*

OR

b) With neat sketch explain the construction, working and characteristics of JFET. *15,K3,CO3*