Enrollment No: Exam Seat No:  C. U. SHAH UNIVERSITY  Winter Examination-2021						
Subject	t Nam	e: Applied Physics				
Subject	t Code	e: 4TE02APH1	Branch: B.Tech (All)			
Semest	er: 2	Date: 20/10/2021	Time: 02:30 To 05:30	Marks: 70		
(2) (3)	Use of Instru Draw	of Programmable calculator & an actions written on main answer by neat diagrams and figures (if not me suitable data if needed.	· · · · · · · · · · · · · · · · · · ·	rohibited.		
Q-1		Attempt the following question	ns:	(14)		
	-	<u> </u>	PNP transistor work in break down region while oth forward and break down regio	<u> </u>		
	c)	Avalanche phenomena is prese (1) Ordinary diode (2) Zener di above	ent in ode 3) Both the diode 4) None o	f the		
	d)	The barrier potential for Ge ty 1) 0.3 2) 0.7 3) 1.0 4) 10	pe ordinary diode isvolt.			
	e)	The is used as P type i material.	mpurity to be added with pure sil	icon		
	f)	1) Aluminium 2) Boron 3) Ant State the application of ordinar	• ,			
	<b>g</b> )	State the name of various confi				
	h)	The transistor can be used as a	n amplifier. (True/False)			
	i)	The diode have pote Four	ential barrier. 1) One 2) Two 3) Ti	hree 4)		
	j)	The efficiency ofrectif	fier is better. 1) Half wave 2) Brid	ge type		
	k) l) m)	3) Centre tapped full wave (4) State the function of Gate termi List any two applications of las Today's mobile technology use infrastructure.(True/False)	nal in the MOSFET. er			



n) Give any two advantages of fiber optic communication.

## Attempt any four questions from Q-2 to Q-8

Q-2		Attempt all questions	(14)
	<b>(a)</b>	Write short note on Zener Diode.	7
	<b>(b)</b>	Write short note on PN junction diode.	7
Q-3		Attempt all questions	(14)
	<b>(a)</b>	Write a short note on Bridge rectifier.	7
	<b>(b)</b>	Write a short note on half wave rectifier and its waveform.	7
Q-4		Attempt all questions	(14)
	<b>(a)</b>	Explain difference between BJT and FET	7
	<b>(b)</b>	Explain output characteristics of CE transistors.	7
Q-5		Attempt all questions	(14)
	(a)	Write short notes on Light emitting diode and tunnel diode.	7
	<b>(b)</b>	Write short notes on clipper and clamper circuits.	7
Q-6		Attempt all questions	(14)
	(a)	Draw the common base and common emitter configuration of transistor. State how transistor act in both the mode.	7
	<b>(b)</b>	Find the concentrations of holes and electrons in p type silicon at	7
		$300^0$ Kelvin .Assume resistivity as 0.02 ohm-cm. Assume $\mu_p$ -=	
		475 m <sup>2</sup> /volt-sec., ni= $1.458 \times 10^{10}$ per m <sup>3</sup> .	
Q-7		Attempt all questions	(14)
	(a)	With the help of energy band diagram explain energy band theory.	7
	<b>(b)</b>	Explain the law of mass action for atomic particles.	7
Q-8		Attempt all questions	(14)
	(a)	Explain the concept of forward bias and reverse bias of diode with suitable sketch.	7
	<b>(b)</b>	Explain various types of optical fiber configuration.	7

