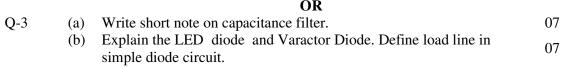
Exam Se	at No:	Enrollment No:		
		C.U.SHAH UNIVERSITY		
		Wadhwan City		
Subject C	ode : 4TI	E02APH1 Summer Examination-2014 Date: 30/05/2	Date: 30/05/2014	
Subject N	ame: Ap	plied Physics		
	Semester:- tion: Regu	B.Tech /II Time:2:00 To !	5:00	
Instructio				
	•	estions of both sections in same answer book / Supplementary		
	-	mable calculator & any other electronic instrument is prohibited. tten on main answer Book are strictly to be obeyed.		
		ams & figures (If necessary) at right places		
		e & Perfect data if needed		
		SECTION-I		
Q-1		Define following terms.	07	
	(a)	Bohr theory (any one).	01	
	(b)	Diode.	01	
	(c)	Energy Band.	01	
	(d)	Depletion Capacitance	01	
	(e)	PIV.	01	
	(f)	Intrinsic semiconductor & Extrinsic Semiconductor.	02	
Q-2	(a)	Write a short note on Mass Action Law of Semiconductor.	05	
	(b)	Explain the drift and diffusion current for a semiconductor.	05	
	(c)	Find the conductivity of silicon (i) in intrinsic condition at a room		
		temperature of 300K, (ii) with impurity of 1 in 10 ⁸ , Given that n _i for	04	
		silicon at 300K is $1.5*10^{10}$ cm ⁻³ , $\mu_n = 1300$ cm ² /V-s, $\mu_p = 500$ cm ² /V-s	04	
		number of Si Atoms per cm ³ =5*10 ²²		
		OR		
Q-2	(a)	Explain Switching characteristics of P-N junction diode with neat	05	
		Sketch and graph.		
	(b)	Write a short note on Tunnel Diode	05	

(Vp-p), and the output ripple frequency (fr).



Explain how the zener diode can be used as a voltage regulator.

Explain full wave rectifier and draw waveforms. Find all voltage

A 50ohm load resistance is connected across a half wave rectifier. The input supply voltage is 230V (rms) at 50 Hz. Determine the DC

output (average) voltage, peak-to-peak ripple in the output voltage

(c)

and current equations.

Q-3



04

07

07

SECTION-II

Q-4		Define following terms.	07
	(a)	Amplifier.	01
	(b)	FET.	01
	(c)	Optical Fiber.	01
	(d)	LASER.	01
	(e)	Bias Stability.	01
	(f)	JFET.	01
	(g)	Load line for transistor.	01
Q-5	(a)	Derive the relationship between α and β .	05
	(b)	Why does the CE configuration provide large current amplifier while	05
		the CB configuration does not?	05
	(c)	A transistor has $I_B = 100 \mu A$ and $I_C = 2 \mu A$. Find (i) β of the transistor,	
		(ii) α of the transistor, (iii) emitter Current I_E , (iv) if I_B change by	04
		+25 μ A and I _C change by +0.6 mA, find the new value of β .	
		OR	
Q-5	(a)	Explain the construction of FET with its V-I characteristics.	05
	(b)	Discuss the FET as a voltage variable resister.	05
	(c)	Explain with help of neat sketch of FET pinch- off Voltage.	04
Q-6	(a)	Give brief introduction of optical Fiber and its applications.	07
	(b)	What are the different configurations of BJT and Explain.	07
		OR	
Q-6	(a)	Why BJTs are called bipolar devices and FETs are called unipolar	07
		devices? Explain.	07
	(b)	What is an Optical Communication? Explain it with an example.	07
		*****30***14****S	

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