

ST. LAWRENCE HIGH SCHOOL A JESUIT CHRISTIAN MINORITY INSTITUTION SOLUTION TO WORK SHEET: 48 Subject : PHYSICS



Date : 25.01. 2021

CLASS : XII		Topic: Forward bias and characteristic curves by	Topic: Forward bias and reverse bias diode, characteristic curves half and full wave	
Cha	apter-Semiconductors and Electronics	rectification.		
Multiple choice questions :1 X 15 = 15				
1.	On increasing the reverse bias to a large value in a p-n junction diode current			
	(a) remains fixed(b) increases slowlyAns. (c) suddenly increases	y (c) suddenly increases (d) decreases slowly.	
2.	When a p - junction diode is forward biased, potential barrier			
	(a) remains same (b) decreases Ans. (b) decreases	(c) increases (d) m	ay increase or decrease	
3.	In a half-wave rectifier, The r.m.s. value of t (a) equal to dc value (b) more than dc v Ans. (b) more than dc value	the ac component of the wave is value (c) less than dc value	(d) zero.	
4.	P N Junction diode is reverse biased then(a) the barrier potential decreases(c) more current flowsAns. (b) barrier potential increases	(b) barr (d) resi	(b) barrier potential increases (d) resistance offered is low	
5.	In intrinsic semi-conductor at room temperature number of electrons and holes are			
	(a) equal(b) zeroAns. (a) equal	(c) unequal (d) infinite	
6.	A rectifier converts			
	(a) mechanical energy to electrical energy	(b) light ener	(b) light energy to electrical energy	
	(c) ac to dc Ans. (c) ac to dc	(d) none of the	(d) none of these	
7.	In the middle of the depletion layer of a reverse biased p - n juction, the			
	(a) electric field is zero	(b) potential is maximum	(b) potential is maximum	
	(c) electric field is maximum Ans. (d) potential is zero	(d) potential is zero	(d) potential is zero	
8.	The potential barrier, in the depletion layer,	is due to		
	(a) ions(b) electronsAns. (a) ions	(c) holes (d) t	forbidden band	

- 9. When plate voltage in a diode valve is increases from 100 V to 150 V, then plate current increases rom 7.5 mA to 12 mA. The dynamic plate resistance will be (a) 10 k Ω (b) 11 k Ω (c) 15 k Ω (d)11.1 k Ω Ans. (d)11.1 k Ω
- In a full wave rectifier with input frequency 50 Hz. The ripple in the output is mainly of the frequency (in Hz)

(a) 25 (b) 50 (c) 100 (d) none of these Ans. (c) 100

11. A half-wave rectifier is being used to rectify an alternating voltage of frequency 50 Hz. The number of pulses of rectified current obtained in one second is
(a) 50
(b) 25
(c) 100
(d) 200
Ans. (a) 50

12. Assuming that the junction diode is ideal in the circuit shown in the current through the diode is

(a) zero (b) 1 mA (c) 10 mA (d) 30 mA Ans. (a) zero 100Ω

13. The diode used in the circuits shown in has a constant voltage drop of 0.5V at all currents and a maximum power rating of 100 mW. What should be the value of the resistor R, connected in series with the diode for obtaining maximum current ?
(a) 1.5Ω (b) 5 Ω (c) 6.67 Ω (d) 200 Ω

Ans. (b) 5 Ω



- 14. In forward bias the width of potential barrier in a *p-n* junction diode
 (a) increases
 (b) decreases
 (c) remain constant
 (d) first (a) then (b)
 Ans. b) decreases
- 15. In a junction diode, the holes are due to
 (a) protons
 (b) neutrons
 (c) extra electrons
 (d) missing of electrons.