ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

WORK SHEET: 48

Subject : PHYSICS

Date : 25.01. 2021

CLASS : XII

Chapter-Semiconductors and Electronics

Topic: Forward bias and reverse bias diode, characteristic curves, half and full wave 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 slowly (c) suddenly increases (d) decreases slowly.

2. When a *p* - junction diode is forward biased, potential barrier
(a) remains same (b) decreases (c) increases (d) may increase or decrease

3. In a half-wave rectifier, The r.m.s. value of the ac component of the wave is
(a) equal to dc value (b) more than dc value (c) less than dc value (d) zero.

4. P N Junction diode is reverse biased then
(a) the barrier potential decreases (b) barrier potential increases
(c) more current flows (d) resistance offered is low

5. In intrinsic semi-conductor at room temperature number of electrons and holes are
(a) equal (b) zero (c) unequal (d) infinite

6. A rectifier converts
(a) mechanical energy to electrical energy (b) light energy to electrical energy
(c) ac to dc (d) none of these
Ans. (c) ac to dc

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
(c) electric field is maximum (d) potential is zero

8. The potential barrier, in the depletion layer, is due to
(a) ions (b) electrons (c) holes (d) 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 kΩ (b) 11 kΩ (c) 15 kΩ (d)11.1 kΩ

10. In a full wave rectifier with input frequency 50 Hz. The ripple in the output is mainly of the frequency (in Hz)

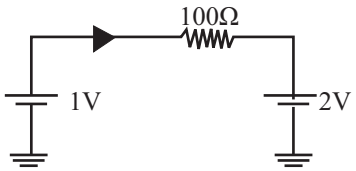
(a) 25 (b) 50 (c) 100 (d) none of these

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

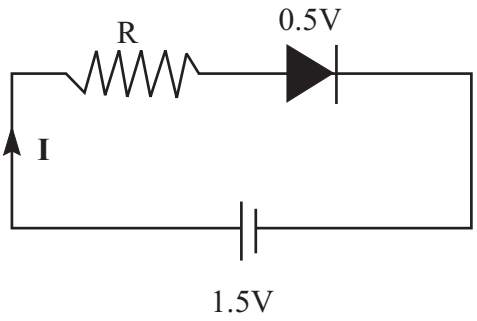
12. Assuming that the junction diode is ideal in the circuit shown in the current through the diode is

(a) zero (b) 1 mA (c) 10 mA (d) 30 mA



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



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)

15. In a junction diode, the holes are due to

(a) protons (b) neutrons (c) extra electrons (d) missing of electrons.