DPP 02

Q.1 The contribution in the total current flowing through a semiconductor due to electrons and holes are 3/4 and 1/4 respectively. If the drift velocity of electrons is 5/2 times that of holes at this temperature, then the ratio of concentration of electrons and holes is $\frac{x}{y}$. Find $(x + y)$.

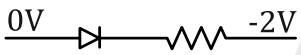
Q.2 The barrier potential of a PN junction diode does not depend on

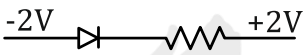
(A) diode design (B) temperature (C) forward bias (D) doping density

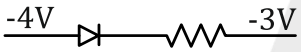
Q.3 A potential barrier of 0.50 V exists across a PN junction. If the depletion region is 5.0×10^{-7} m wide, the intensity of the electric field in this region is

(A) 1.0×10^6 V/m (B) 1.0×10^5 V/m (C) 2.0×10^5 V/m (D) 2.0×10^6 V/m

Q.4 The forward biased diode is

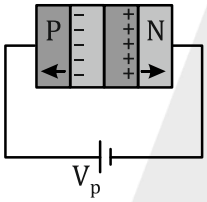
(A) 

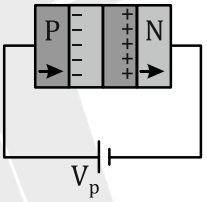
(B) 

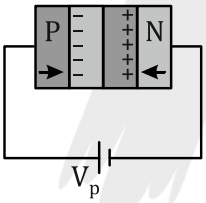
(C) 

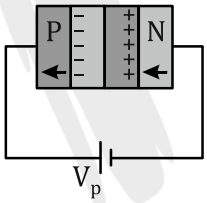
(D) 

Q.5 In the case of forward biasing of P – N junction, which one of the following figures correctly depicts the direction of flow of carriers?

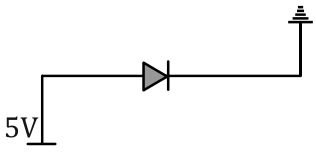
(A) 

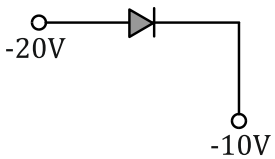
(B) 

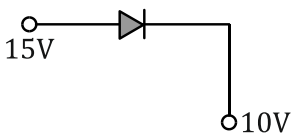
(C) 

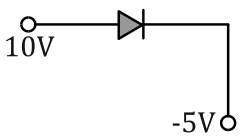
(D) 

Q.6 Which is a reverse-biased diode?

(1) 

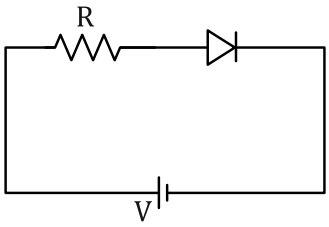
(2) 

(3) 

(4) 

(A) 1,2,3 (B) 2,4,5 (C) 1,3,4 (D) 2,3,4

Q.7 For the given circuit of P-N junction diode, which of the following statement is correct?



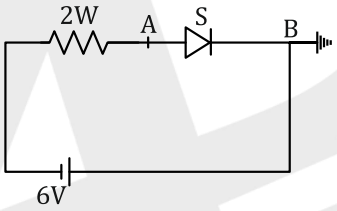
(A) In forward biasing, the voltage across R is V.

(B) In forward biasing, the voltage across R is 2 V.

(C) In reverse biasing, the voltage across R is V.

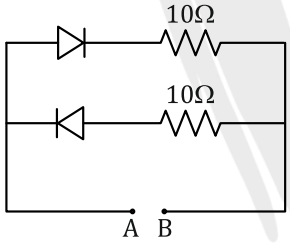
(D) In reverse biasing, the voltage across R is 2 V.

Q.8 The diode shown in the circuit is a silicon diode. The potential difference between the points A and B will be



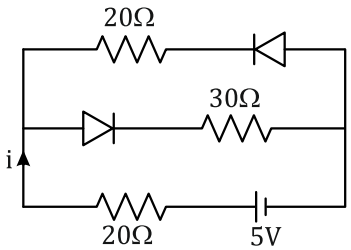
(A) 6 V (B) 0.6 V (C) 0.7 V (D) 0 V

Q.9 A $2-V$ battery is connected across the points A and B as shown in the figure given below. Assuming that the resistance of each diode is zero in forward bias and infinity in reverse bias, the current supplied by the battery when its positive terminal is connected to A is



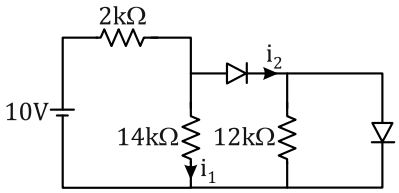
(A) 0.2 A (B) 0.4 A (C) Zero (D) 0.1 A

Q.10 Current in the circuit will be



(A) $\frac{5}{40}$ A (B) $\frac{5}{50}$ A (C) $\frac{5}{10}$ A (D) $\frac{5}{20}$ A

Q.11 In the following circuit, find i_1 and i_2.



(A) 0,0 (B) 5 mA, 5 mA (C) 5 mA, 0 (D) 0, 5 mA

ANSWER KEY

1.	(11)	**2.**	(A)	**3.**	(A)	**4.**	(A)	**5.**	(C)	**6.**	(B)	**7.**	(A)
8.	(A)	**9.**	(A)	**10.**	(B)	**11.**	(D)						