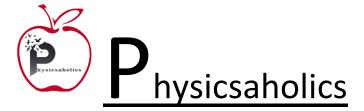




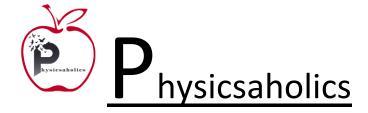
DPP – 1

Video Solution on Website	https://physicsaholics.com/home/courseDetails/63		
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Q 1. Silicon is a ser conductivity (a) Decreases (c) Remains U	niconductor. If a small amount of As is added to it, then its electrical (b) Increases (d) Becomes zero		
	conductivity of a semiconductor increases when electromagnetic avelength shorter than 2480nm is incident on it. The band gap in (eV) nductor is (b) 0.7 eV (d) 1.1 eV		
	ode is fabricated from a semiconductor with a band gap of 2.5eV. It gnal of wavelength (b) 4000 nm (d) 4000 Å		
	or is made from a compound semiconductor with band gap 0.73eV. wavelength (approx.) it can detect is (b) 17000 Å (d) 1703 Å		
Q 5. A N-type semi (a) Negatively (c) Neutral			
-			
atoms/ m^3 . Giv	is doped with Al. The concentration of acceptor atoms is $\sim 10^{21}$ en that the intrinsic concentration of electron-hole pairs is $\sim 10^{19}/m^3$, on of electrons in the specimen is (b) $10^{15}/m^3$ (d) $10^{2}/m^3$		





Q 8. What is the conductivity of a semiconductor sample having electron concentration of 5 $\times 10^{18}/m^3$ hole concentration of $5 \times 10^{19}/m^3$, electron mobility of $2 m^2 V^{-1} s^{-1}$ and hole mobility of 0.01 $m^2 V^{-1} s^{-1}$? (Take charge of electron as 1.6×10^{-19} C) (b) 1.68 $(\Omega - m)^{-1}$ (a) 1.83 $(\Omega - m)^{-1}$ (c) 1.20 $(\Omega - m)^{-1}$ (d) 0.59 $(\Omega - m)^{-1}$ A semiconductor has equal electron and hole concentration of $6 \times 10^4/m^3$. On doping Q9. with a certain impurity, electron concentration increases to $8 \times 10^{12}/m^3$. Identify the type of semiconductor. (a) P- type (b) N- type (c) cant identify with given data (d) NPN type Q 10. Pure Si at 500 K has equal number of electron (n_e) and hole (n_h) concentrations of 1.5 x $10^{16} m^{-3}$. Doping by indium increases n_h to 4.5 x $10^{22} m^{-3}$. The doped semiconductor is of (a) p-type having electron concentration $n_e = 5 \times 10^9 m^{-3}$ (b) n-type having electron concentration $n_e = 5 \times 10^{22} m^{-3}$ (c) p-type having electron concentration $n_e = 2.5 \times 10^{10} m^{-3}$ (d) p-type having electron concentration $n_e = 2.5 \times 10^{23} m^{-3}$ The number density of donor atoms which have to be added to an intrinsic germanium Q 11. semiconductor to produce an n-type semiconductor of conductivity 5 $ohm^{-1}cm^{-1}$ is $a \times 10^{15} cm^{-3}$. Given that the mobility of electron in n-type Ge is 3900 $cm^2V^{-1}s^{-1}$. Neglect the contribution of holes to conductivity. Then a will be (a) 8 (b) 2(c) 14 (d) 0.4 Which of the following has negative temperature coefficient of resistance Q 12. (a) Copper (b) Aluminium (c) Iron (d) Germanium Q 13. Doping of intrinsic semiconductor is done (a) To neutralize carriers (b) To increase the concentration of majority charge carries (c) To make it neutral before disposal (d) To carry out further purification Q 14. In a semiconducting material the mobilities of electrons and holes are μ_e and μ_h respectively. Which of the following is true (a) $\mu_{e} > \mu_{h}$ (b) $\mu_{e} < \mu_{h}$ (c) $\mu_e = \mu_h$ (d) $\mu_e < 0; \mu_h > 0$ Q 15. The major carrier of current in a p-type semiconductor will be. (b) protons (a) neutrons (c) electrons (d) holes





Answer Key

Q.1 b	Q.2 c	Q.3 d	Q.4 b	Q.5 c
Q.6 b	Q.7 a	Q.8 b	Q.9 b	Q.10 a
Q.11 a	Q.12 d	Q.13 b	Q.14 a	Q.15 d

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