

VFSTR - VADLAMUDI	Regd. No.											
	Year	Semester			Branch			Section				
Staff Name: Dr. P. Srinivasa Rao	I	1			Non-Bio			26 to 46				
Faculty Dept.: Physics	Course: EP			Code: 25PY101			Set-2					
Program Name: B. Tech.	Date: 29.11.25			Time: 2.00 to 3.00 PM (Each Course 30 Minutes)			Pre – T1					

1. a) Starting from the expressions of electron concentration, obtain an expression for the electrical conductivity of an intrinsic semiconductor. 4M

b) Why Germanium has more conductivity than Silicon at all temperatures? 1M

2. a) Discuss the Variation of Fermi level in the following cases i) $T=0K$, ii) $m_h^* = m_e^*$

iii) $m_h^* > m_e^*$ iv) $m_h^* < m_e^*$. 4M

b) For an intrinsic semiconductor with a band gap of 0.7 eV, determine the position of E_F at

$T = 300 K$, if $m_h^* = 2m_e^*$ 1M