

**Course Code/Name : PH3251 – Materials Science**  
**Regulation : 2021**

### UPC – Questions

Unit No	Name of the Unit	Questions	CO Mapping	Grade	
				A	B
I	Crystallography	1. BCC & FCC(16) 2. HCP(14) 3. Crystal Defects(16) 4. Plastic Deformation Mechanisms(8) 5. Nucleation (Homogeneous & Heterogeneous)(12)	C110.1	1 2 3 4 -	5
II	Electrical & Magnetic Properties of Materials	1. Electrical & Thermal Conductivity(12) 2. Density of Energy States(16) 3. Effective Mass(8) 4. Para magnetism in Conduction Electron(8) 5. Classification of Magnetic Materials(8) 6. Exchange Interaction(8) 7. GMR Device(8) 8. Quantum interference device-SQUID(8) 9. Fermi Distribution Function(8) 10. Tight Binding Approximation(8)	C110.2	1 2 3 4 5 6 7 8 - -	9 10
III	Semiconductor and Transport Physics	1. Intrinsic Carrier Concentration(16) 2. Carrier Concentration of N-Type Semiconductor(16) 3. Carrier Concentration of P-Type Semiconductor(16) 4. Hall Effect(16) 5. Schottky Diode & Ohmic Contacts(8+8)	C110.3	1 2 3 4 5	
IV	Optical Properties of Materials	1. Light Detector & Solar Cell(8+8) 2. LED & OLED(8+8) 3. Laser Diode(8) 4. Electro-Optic Modulator(8) 5. Switching Device(SEED)(8) 6. Plasmonics(8)	C110.4	1 2 3 4 5 -	6
V	Nano Electronic Devices	1. Quantum Confinement.(12) 2. SET(10) 3. Carbon Nano Tube.(12) 4.SPINTRONICS & Spin FET.(10) 5. Zener Bloch Oscillator.(10) 6. Semiconductor Photonic Structure.(12)	C110.5	1 2 3 4 5 -	6

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### UPC – Student Planner

Slot	Unit .No	Name of the Unit	Questions	CO Mapping	Grade	
					A	B
1	IV	Optical Properties of Materials	1. Light Detector & Solar Cell(8+8) 2. LED & OLED(8+8) 3. Laser Diode(8) 4. Electro-Optic Modulator(8) 5. Switching Device(SEED)(8) 6. Plasmonics(8)	C110.4	1 2 3 4 5 -	6
2	II	Electrical & Magnetic Properties of Materials	1. Electrical & Thermal Conductivity(12) 2. Density of Energy States(16) 3. Effective Mass(8) 4. Para magnetism in Conduction Electron(8) 5. Classification of Magnetic Materials(8) 6. Exchange Interaction(8) 7. GMR Device(8) 8. Quantum interference device-SQUID(8) 9. Fermi Distribution Function(8) 10. Tight Binding Approximation(8)	C110.2	1 2 3 4 5 6 7 8 - -	9 10
3	V	Nano Electronic Devices	1. Quantum Confinement.(12) 2. SET(10) 3. Carbon Nano Tube.(12) 4.SPINTRONICS & Spin FET.(10) 5. Zener Bloch Oscillator.(10) 6. Semiconductor Photonic Structure.(12)	C110.5	1 2 3 4 5 -	6
4	I	Crystallography	1. BCC & FCC(16) 2. HCP(14) 3. Crystal Defects(16) 4. Plastic Deformation Mechanisms(8) 5. Nucleation (Homogeneous & Heterogeneous)(12)	C110.1	1 2 3 4 -	5
5	III	Semiconductor and Transport Physics	1. Intrinsic Carrier Concentration(16) 2. Carrier Concentration of N-Type Semiconductor(16) 3. Carrier Concentration of P-Type Semiconductor(16) 4. Hall Effect(16) 5. Schottky Diode & Ohmic Contacts(8+8)	C110.3	1 2 3 4 5	
6	<b>Pending Questions</b>					
7	<b>Part-A Questions</b>					

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