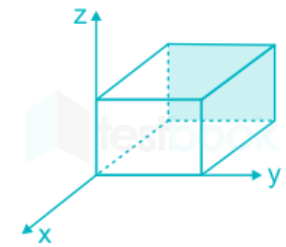


Name. _____		<b>Printed Pages:01</b>		
Student Admn. No.: _____				
<b>School of Basic and Applied Science</b> <b>Backlog Examination, June 2023</b> <b>[Programme: B.Sc. ] [Semester: IV] [Batch: ]</b>				
Course Title: SOLID STATE PHYSICS		<b>Max Marks: 100</b>		
Course Code: BSCP2011		<b>Time: 3 Hrs.</b>		
<b>Instructions:</b>	1. All questions are compulsory. 2. Assume missing data suitably, if any.			
		K Level	COs	Marks
<b>SECTION-A (15 Marks)</b>		<b>5 Marks each</b>		
1.	What is graphene? Draw its structure and write its applications.	<b>K1</b>	CO6	5
2.	Describe the terms space lattice and crystal structure	<b>K1</b>	CO1	5
3.	Compare ferromagnetic and diamagnetic materials.	<b>K2</b>	CO3	5
<b>SECTION-B (40 Marks)</b>		<b>10 Marks each</b>		
4.	Analyze the difference between type 1 and type 2 superconductors.	<b>K2</b>	CO5	10
5.	Solve the Miller indices for the shaded region. 	<b>K3</b>	CO1	10
6.	Trace the hysteresis curve and highlight the critical points on the curve. What causes the hysteresis curve?	<b>K4</b>	CO3	10
7.	Explain the terms (i) Dielectric Polarization, (ii) Polarisability, (iii) Dielectric Constant, (iv) Spontaneous polarization, (v) Electric susceptibility. OR Compute the atomic packing fraction of simple cubic cell.	<b>K3</b>	CO4	10
<b>SECTION-C (45 Marks)</b>		<b>15 Marks each</b>		
8.	For BCC, compute the interplanar spacing in Angstrom between the parallel planes of (220). The lattice parameter of iron is 2.866 Angstrom.	<b>K3</b>	CO1	15
9.	Determine the Debye theory for specific heat of solids at high temperature	<b>K5</b>	CO2	15
10	Deduce the second nearest neighbor distance for FCC having a side length of b. OR Deduce the intensity of magnetization of the bar magnet whose mass; magnetic density, and magnetic moment are 100g, 4gcm <sup>-3</sup> , and 1 Am <sup>2</sup> , respectively.	<b>K6</b>	CO3	15