BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2024)

CLASS: BTECH **SEMESTER : V**
BRANCH: All **SESSION : MO/2024**

SUBJECT: PH321 ADVANCE EXPERIMENTAL TECHNIQUE

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	In a tetragonal lattice $a=b=2.5\mathring{A}, c=1.8\mathring{A}$.Deduce the lattice spacing between (111) planes	[2]	1	2
Q.1(b)	Explain powder method of X-ray diffraction	[3]	1	3
Q.2(a)	X-ray with wavelength 0.58Å is used for evaluating interplanar spacing between certain planes. First order diffraction is obtained at glancing angle 9.5^{o}.Find the interplanar spacing d.	[2]	1	2
Q.2(b)	Derive Braggs law from Laue Condition	[3]	1	3
Q.3(a)	How electron microscope has advantage over optical microscope?	[2]	2	2
Q.3(b)	Sketch the different component of TEM.	[3]	2	2
Q.4(a)	How AAS is used for environmental analysis.	[2]	2	2
Q.4(b)	Discuss the working of AFM.	[3]	2	3
Q.5(a)	Describe the latent heat of fusion of a material.	[2]	3	2
Q.5(b)	Define Specific heat capacity of solid , liquid and gas	[3]	3	2

::::::26/09/2024::::::M