BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BMLT   SEMESTER: I
BRANCH: BMLT   SESSION: MO/2024

SUBJECT: BMT103: CHEMISTRY FOR MLT

TIME: 3 Hours   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Explain Mole Concept with respect to GMM, Volume and Number of atoms, molecules and ions.	[5]	1	2
Q.1(b)	Calculate the number atoms of oxygen present in 300 gm of $CaCO_3$.	[5]	1	3
Q.2(a)	Discuss VSEPR Theory and explain the hybridization and shape of NH_3, H_2O and CH_4.	[5]	2	2
Q.2(b)	Draw Molecular Orbital diagram of at least two Molecules according to Molecular Orbital Theory.	[5]	2	4
Q.3(a)	State and explain the Laws of Chemical Equilibrium.	[5]	3	2
Q.3(b)	Explain Ostwald dilution law and prove pH +pOH = 14.	[5]	3	3
Q.4(a)	Differentiate between Colloid, True Solution and Suspension.	[5]	4	2
Q.4(b)	Differentiate between Adsorption and Absorption. Explain the process of Electrophoresis.	[5]	4	2
Q.5(a)	Write the Group Displacement Law and application of Radioactive isotops.	[5]	5	1
Q.5(b)	Discuss Nuclear Fission and Nuclear Fusion.	[5]	5	2

:::::10/12/2024 M:::::