

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

**CLASS: BE
BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: VII
SESSION : MO/2018**

SUBJECT : CL7035 COLLOID AND INTERFACIAL ENGINEERING

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

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- Q1 (a) What are colloidal dimensions? What is Tyndall effect? [2]
(b) What is the mechanism of colloidal stability in aqueous medium? How gold number is used to select the dispersing agent? [3]
- Q2 (a) A spherical particle of 1cm in diameter is broken uniformly into a large number of spherical particles such that the diameter of each of the new particle is 1×10^{-7} m. What is the total surface area of new particle? [2]
(b) What is surfactant? Give physical properties Vs molar conc of surfactant solution. [3]
- Q3 (a) What is the importance of Stokes Einstein equation? [2]
(b) What is elastic scattering, Inelastic Scattering and Quasi elastic Scattering? [3]
- Q4 (a) What is the formula for determination of surface tension by Wilhelmy plate method? [2]
(b) What are the advantages and disadvantages of Maximum bubble pressure method? [3]
- Q5 (a) What is terminal velocity? What is Creaming? [2]
(b) Explain the models for foam drainage. Show by diagram the stability of foam by different surfactant systems [3]
- Q6 (a) Explain the main features of Gemini surfactant. [2]
(b) What are vesicles and Liposomes? What are the applications? [3]

::: 14/09/2018 :::M