

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

CLASS: B.TECH.
BRANCH: CHEM. ENGG.

SEMESTER: VII
SESSION: MO/2022

SUBJECT: CL412 COLLOID AND INTERFACIAL ENGINEERING

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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			CO	BL
Q1	(a) HLB of Tween 80 = 15, HLB of Span 80 = 4.3, We need 2 g of Tween 80 and Span 80 blend having a HLB value of 10.6. How much Tween 80 and Span 80 are needed?	[2]	CO3	Calculate [4]
Q1	(b) Discuss the mechanism of colloidal stability in aqueous medium. Explain gold number in selecting the dispersing agent of colloids	[3]	CO2	Comprehension[2]
Q2	(a) Discuss the stability of liquid foams	[2]	CO2	Comprehension[2]
Q2	(b) The aggregation number of SDS micelle in water is 80. Compute v and l . From these values calculate packing parameter and shape of the micelle in water.	[3]	CO4	Calculate [4]
Q3	(a) Describe the different methods used to prepare colloidal solution	[2]	CO1	Knowledge[1]
Q3	(b) Classify the biosurfactants. Write the applications of biosurfactants.	[3]	CO3	Application [3]
Q4	(a) Relate surface tension with surface energy	[2]	CO4	Analysis [4]
Q4	(b) Differentiate between DLS and SLS	[3]	CO4	Analysis [4]
Q5	(a) Describe electrophoresis. Describe sedimentation potential.	[2]	CO3	Knowledge [1]
Q5	(b) Demonstrate Micellar solution and relate it with reverse micelle.	[3]	CO3	Application [3]

:::::: 28/09/2022 :::::M