

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

CLASS: MSC
BRANCH: CHEMISTRY

SEMESTER : I
SESSION : MO/19

SUBJECT: CH402 CHEMICAL KINETICS & SURFACE CHEMISTRY

TIME:3:00 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.
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- Q.1(a) What do you understand by rate of reaction? Discuss the effect of temperature on reaction rate. [5]
Q.1(b) Discuss in detail activated complex theory of reaction rate. [5]
- Q.2(a) Give an account of the Debye-Huckel theory of strong electrolytes. Explain clearly what is meant [5]
by asymmetry and electrophoretic effect?
Q.2(b) Write down the Ilkovic equation and explain the different term involved in it. Draw and explain a [5]
typical program.
- Q.3(a) Discuss Franck-Condon principle along with its applications. [5]
Q.3(b) Draw the Jablonski diagram and explain different photophysical processes. [5]
- Q.4(a) Discuss briefly BET theory of multilayer adsorption along with its applications. [5]
Q.4(b) Discuss briefly Langmuir's unimolecular theory of adsorption. Derive an expression for Langmuir's [5]
adsorption isotherm.
- Q.5(a) Discuss different theories of electrical double layers. [5]
Q.5(b) Write down the polarographic equation for half-wave potential along with its significance. [5]

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