

Reg.No. _____



Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : **16CH2006**
Sub. Name : **Surface Chemistry and Chemical Kinetics**

Semester : **2016-17 ODD**
Duration : **3hrs**
Max. marks : **100**

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Explain the relationship between the vapour pressure and temperature of ordinary substance and liquid crystal.	CO1	10
	b.	Discuss some effects of surface tension in detail	CO1	7
	c.	Write a short note on free volume in a liquid	CO1	3
(OR)				
2.	a.	What is surface energy? Explain the effect of temperature on surface tension.	CO1	8
	b.	Write a note on interfacial tension and surface active agents	CO1	8
	c.	What is liquid crystal? How does it differ from ordinary solid?	CO1	4
3.	a.	Explain the origin of charge on colloidal particle by considering AgI colloidal system as an example in detail	CO2	10
	b.	Describe any five factors that determine the stability of macro-emulsion	CO2	5
	c.	What are the different gel preparation methods?	CO2	5
(OR)				
4.	a.	Discuss the electrophoresis method with a neat diagram	CO2	10
	b.	Explain the factors that affect critical micelle concentration (CMC) in aqueous media	CO2	10
5.	a.	What is micelle? Discuss its formation in detail.	CO2	10
	b.	Explain the role of an electrolyte in coagulating the colloidal sol	CO2	10
(OR)				
6.	a.	Describe the general characteristics of catalysts	CO2	10
	b.	Derive the integration of first order rate expression when both the reactants are the same.	CO2	10
7.	a.	Derive the integration of second order rate expression when both the reactants are the same.	CO3	12
	b.	Nitrous oxide N ₂ O decomposes into N ₂ and O ₂ , the reactants and the products being all gaseous. If the reaction is first order, develop expression for the rate constant as a function of time, initial pressure and the total pressure.	CO3	5
	c.	Write the unit of zero, first and second order rate constants	CO3	3
(OR)				
8.	a.	Derive Michaelis-Menten equation for enzyme catalysed reaction	CO3	15
	b.	Derive the integrated Arrhenius equation	CO3	5
<u>Compulsory:</u>				
9.	a.	Derive the BET equation for adsorption of gas on solid surface	CO2	12
	b.	List out the difference between chemisorption and physisorption	CO2	8

ALL THE BEST