Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

M.Sc.(Chemistry) (2015 to 2017) (Sem.–1)

PHYSICAL CHEMISTRY

Subject Code : MSCH-104

M.Code : 71598

Time : 3 Hrs. Max.Marks: 100

INSTRUCTIONS TO CANDIDATES :

1. First question is COMPULSORY.
2. Attempt FIVE questions in all selecting any ONE from each UNIT.
3. All questions carry EQUAL marks.

1. Write briefly : **(2×10=20)**

a. For any process (no constraints), what is the thermodynamic criterion of Spontaneity?

b. Define Fick's second law of diffusion.

c. What is turbulent flow?

d. What is electrode potential?

e. What is isothermal process?

f. Name any two refractory materials.

g. What is equivalent conductance?

h. What is half wave potential?

i. What are Newtonian fluids?

j. What is surface tension?

UNIT-I

2.	a.	Provide mechanical and molecular definition of work and heat.	6
	b.	Write a detailed account on third law of thermodynamics.	8
	c.	Write a note on thermodynamic probability.	6
3.		Write a detailed account on partition functions of diatoms.	20

UNIT-II

4.	a.	Describe transition state theory.	10
	b.	Write a note on kinetics of redox reactions.	10
5.	a.	Write a detailed account on oscillatory reactions.	8
	b.	Write a note on heat and mass transfer effect on catalytic reactions.	12

UNIT-III

6.	a.	Write a detailed account on cyclic voltammetry.	10
	b.	Write a note on coulometry.	10
7.		Write a detailed account on polarography.	20

UNIT-IV

8.		Write a note on various modes of heat transfer.	20
9.	a.	Write a detailed account on diffusion.	10
	b.	Write a note on Newtonian behaviour of fluids.	10

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.