Sanjay Ghodawat University, Kolhapur

2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: (2020-2021) S.Y. B.Sc.	**School of Science**	**Department: Chemistry**
Course Code: CHS-202	**Course Title: Chemistry-IV**	**Semester : IV (Even)**
Day and Date:	**End Semester Examination**	**Time : 2 Hrs.** **Max Marks : 50**

Instructions: 1) All Questions are compulsory.

2) Use of scientific calculator and log table is allowed.

3) Draw neat and systematic diagrams wherever necessary

		Marks	Bloom's Level	CO
Q.1	**Answer/Solve the following (any Two)**			
a)	What is most probable velocity? Derive equation for the most probable velocity using distribution law of molecular velocities of a gas.	8	L2	CO2
b)	Discuss separation of lanthanides by ion-exchange method with the help of flow chart and write any four uses of lanthanides.	8	L2	CO1
c)	Explain the following characteristics of transition elements i. Magnetic properties of transition elements ii. Colour of transition metal complexes on the basis of CFT	8	L2	CO1
Q.2	**Answer/Solve the following (any two)**			
a)	Give IUPAC names of the following complex i. $[Pt(NH_3)_4(NO_2)Cl]SO_4$ ii. $[Co(NH_3)_3(NO_2)Cl_2]$ iii. $K_3[Fe(C_2O_4)_3]$ iv. $[Cr(PPh)_3(CO)_5]$	8	L1	CO3
b)	Calculate the CFSE for the following ion i. d^4 high spin octahedral ii. d^5 tetrahedral iii. d^6 strong field octahedral iv. d^8 tetrahedral	8	L3	CO3
c)	What are the postulates of Werner's theory? Give its applications.	8	L1	CO3

Q.3 Answer/Solve the following (any two)

a)	Define the term viscosity of fluids. Describe experimental method of determination of viscosity of liquids.	9	L2	CO4
b)	I) What are Miller indices? Find out the Miller indices of the planes whose intercepts are, i) (a,b,c) and ii) (2a,-3b,-3c). II) Calculate interplaner spacing of the planes (100), (110) and (111) of simple cubic lattice based on geometrical considerations.	9	L3	CO4
c)	Discus the terms packing fraction and co-ordination number. Calculate the packing fraction and coordination number of simple cubic and body centered cubic lattice.	9	L3	CO4

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