G2460

Second Semester BSc Degree examination may 2019

Foundation Course Chemistry

CH1221 – Methodology and Perspectives of Sciences and General Informatics

(2017 Admission onwards) Max Marks :80

Q.No	Section A Answer All questions, Each question carries 1 mark	Marks
1	Give the difference between science and technology Science – organized knowledge Technology – application of science	
2	What are the contributions of Dmitri Mendeleyev Any one point related to periodic law / periodic table/ ----	
3	What is the SI unit of electric current Ampere	
4	Suggest an alternative for conventional fuel Solar energy/ wind energy/fuel cell …. Any one	
5	What is sampling Selection of a definite part of matter for analysis	
6	Who are the winners of Nobel prize in Chemistry in the year 2018 Frances H Arnold, George P Smith, Gregory P Winter	
7	What is plagiarism Deliberate representation of others words/ ideas and thought s as one's own work without acknowledgement	
8	Define ionic product Product of molar concentrations of ions present in solution	
9	Name one structure drawing software in chemistry Chem pen/ chem. Sketch/ chem. Draw/ chem. Doodle……	

10	Name one carcchogenic chemical used in the lab Give mark if attempted	
	Section B **Answer any eight questions Each question carries 2 marks**	
11	Distinguish between accuracy and precision Accuracy – concordance between experimental value and true value Precision – reproducibility / concordance of a series of measurements	
12	What is data sharing	
13	What is histogram	
14	What is correlation analysis Used to determine the amount of correlation between two or more variables Eg. PV = nRT , there is relation between P & T / or any other relation	
15	What is standard deviation	
16	What is virtual lab of MHRD Project of MHRD- to provide access to laboratories in various disciplines of science and engineering for students of all levels	2
17	What is meant by a primary standard in titrimetric analysis Definition / characteristics – any four points	2
18	Give two examples of redox indicators Diphenyl amine / N phenyl anthranilic acid /…..	
19	What is INFLIBNET	2
20	Explain the basic concepts of IPR Right of an individual/ organization for a creative e work.	2

21	Name four toxic chemicals used in lab Any four	2
22	Write the smiles of cyclo hexane and benzene Cyclo hexane : C1CCCCC1 Benzene : c1ccccc1	2
	Section C **Answer any six questions, each question carries 4marks**	
23	Write a note on combinatorial chemistry Computer simulations of different but structurally related molecules or materials -high impact in the pharmaceutical industry – virtual library of molecules- robotics Applications – developing catalysis- electronic devices ….	2 2
24	What is nano technology? Give two important applications of nano materials Definition – explanation Applications (any two)	 2 2
25	Explain the term co precipitation with an example.	
26	What are the postulates of Bohr's atom model Five main postulates	4
27	Explain the theory of acid base titrations Explanation with examples – reactions- pH change near the end point – selection of indicators	4
28	Write four important principles of green chemistry Four principles	4
29	What is NPTEL Technology enhanced national learning programme- funded by MHRd- organisedby IITs, IISc…..high quality learning materials …	4
30	What are metallochromic indicators? Give examples. Definition and explanation	3

	example	1
31	Explain copy right and patents Copy right – IPR provided by the government to authors of original work- literary-musical- computer programmes – other creative works -….. Patent – right to any one who invents or discovers any new and useful process/ machine / product …….ownership of patent - procedure	
	Section D **Answer any two questions, Each question carries 15marks**	
32	Explain various types of file formats and databases in chem. Informatics Basics of chem. Informatics – definition and need of chem. informatics Applications- various types of file formats- data bases	5 5 5
33	Write short note on (a) Common ion effect (b) Solubility product And explain their applications in inorganic qualitative analysis Common ion effect : definition / explanation with example Solubility product :definition / explanation with example Application in group analysis – with examples	 5 5 5
34	Discuss the safety measures in the lab and mention the hazard warning information Safety measures- before starting work – during the lab- before leaving the lab-	5x3=15

	fire hazards- labels and material safety warnings	
35	Write short note on the following (a) Micro scale analysis (b) Redox titrations (c) TLC Micro scale analysis : green approach- reduce amount of chemicals- reduced amount of chemical hazards- less waste- reduce the release of toxicchemicals- economical – easier – reduce the time Redox titrations ; definition explanation with examples TLC – definition – procedure – expalantion – rf value - advanages	5 5 5