

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034****M.Sc. DEGREE EXAMINATION – CHEMISTRY****SECOND SEMESTER – APRIL 2023****PCH2MC03 – SCIENTIFIC RESEARCH METHODOLOGY  
AND COMMUNICATIONS**

Date: 06-05-2023

Dept. No. 

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

**SECTION A – K1 (CO1)**

	<b>Answer ALL the questions</b> <span style="float: right;"><b>(5 x 1 = 5)</b></span>
1.	<b>Choose the correct answer</b>
a)	CASSI stands for (i) Chemical abstract service source index      (ii) Chemistry abstract service source index (iii) Both a and b      (iv) none of the above
b)	Number of citations in an article is determined by ____ (i) Source index (ii) citation index (iii) general index (iv) formula index
c)	The journal Accounts of Chemical Research is abbreviated as (i) Acc. Chem. Res   (ii) Ac. Chem. Res. (iii) Acc. Che. Res. (iv) Acc. Chem. Res.
d)	APA refers to (i) American Psychological Association      (ii) American Physics Association (iii) Australian Psychological Association      (iv) Australian Physics Association
e)	What type of graph is useful for comparing groups of results obtained from multiple experiments? (i) Bar Graph   (ii) Line Graph (iii) Both (i) and (ii)   (iv) None of the above

**SECTION A – K2 (CO1)**

	<b>Answer ALL the questions</b> <span style="float: right;"><b>(5 x 1 = 5)</b></span>
2.	<b>Fill in the blanks</b>
a)	The _____ hypothesis states that there will be no differences between the groups under study.
b)	Review of _____ is very important aspect of any research both for planning the work as well as to show the relevance and significance
c)	----- is calculated by dividing the number of current year citations to the source items published in that journal during the previous two years.
d)	An abbreviation pp refers to -----
e)	----- is used to draw the structure of the molecule.

**SECTION B – K3 (CO2)**

	<b>Answer any THREE of the following</b> <span style="float: right;"><b>(3 x 10 = 30)</b></span>
3.	Classify the types of patent for a chemical compound. Mention the differences between patent and copyright.

4.	Describe in detail the art of thesis writing.	
5.	(a) How are semicolon and comma properly used in scientific reports? Give suitable examples. (6) (b) Discuss the methods to avoid plagiarism in scientific reporting. (4)	
6.	How are books and journal articles to be cited by Harvard and oxford style?	
7.	Illustrate the guidelines to be followed in representing the tables and graphs in a thesis.	
<b>SECTION C – K4 (CO3)</b>		
	<b>Answer any TWO of the following</b>	<b>(2 x 12.5 = 25)</b>
8.	Summarise the major types of research designs.	
9.	(a) Discuss the characteristics of technical communication. (6.5) (b) Use the following hints to provide a suitable title and write the abstract of the article. Copper oxide, Azadirachta indica leaves, UV-Vis, 437 nm , FTIR, 450 cm <sup>-1</sup> , XRD, 33.5 monoclinic ,FESEM, rod, EDS, 12.57 wt% Cu, photodegradation, Rhodamine-B (6)	
10.	(a) Illustrate the importance of Google scholar in scientific research. (6) (b) Give an account of Indian citation index. (6.5)	
11.	Explain the technique and importance of oral and poster presentation of research findings.	
<b>SECTION D – K5 (CO4)</b>		
	<b>Answer any ONE of the following</b>	<b>(1 x 15 = 15)</b>
12.	(a) Describe the techniques involved in defining a research problem. (10) (b) Write a short note on Chicago annotated bibliography? (5)	
13.	(a) Outline the considerations to be followed in writing a research article? (5) (b) Provide a suitable representation of a covering letter to the editor for publishing an article. (5) (c) Illustrate the significance of ChemDraw. (5)	
<b>SECTION E – K6 (CO5)</b>		
	<b>Answer any ONE of the following</b>	<b>(1 x 20 = 20)</b>
14.	(a) Illustrate the ethical principle in research. (10) (b) Explain the general format of a research proposal to the funding agencies. Cite five funding agencies which extend financial support to research projects. (10)	
15.	(a) Interpret the structure of a review article. Comment upon the kind of review articles published in Accounts of Chemical Research, Coordination Chemical Reviews, and thematic issues in Chemical Reviews. (10) (b) Discuss the referencing styles of journals and books followed by any two leading publishers. (5) (c) Highlight the importance of MS-Excel in data interpretation. (5)	
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