

AS-632

Pre. Ph.D. Course Work Examination, 2014

MATHEMATICS

Paper : First

(Fundamentals of Research in Science)

Section 'A'

**Q.1 (xii) Give few examples that are not patentable.**

Ans : In general, ideas, suggestions and 'discoveries' can't be patented. For example, laws of nature, physical phenomena and abstract ideas are not considered as patent. Methods of medical treatment, doing business and playing games, may not be patentable.

**(xiii) Write the name of five standard journals with publishers in your area of specialization.**

Ans : Expert system with applications, Elsevier

Applied Soft computing, Elsevier

Neurocomputing, Elsevier

Electronics letter, IET

IEEE Trans. on Evolutionary Computing, IEEE

**(xiv) What do you mean by scope of a journal?**

Ans : The scope of the journal indicates the areas and applications on which the journal generally focuses. It describes what are the different types of research areas on which mainly the papers are published in a particular journal.

## Section 'B'

### **Q. 7 Why literature review is important in a paper ? Discuss the steps to be followed while writing a review paper.**

A literature review is an account of previously published material by experts and researchers in a particular area of interest. The literature review gives the author an opportunity to reference previous research publications to provide strengths and weaknesses of the research. Literature review refers to an extensive, exhaustive, and systematic examination of publications relevant to the stated research problem. It acknowledges the strengths and weaknesses of the articles .A literature review is a compilation, classification, and evaluation of what other researchers have written on a particular topic. It represents a critical discussion, showing insight and an awareness of differing arguments, theories and approaches. Basically it is a synthesis and analysis of the relevant published work.

#### **Why is it important?**

A literature review is important because it:

- Explains the background of research on a topic.
- Demonstrates why a topic is significant to a subject area.
- Discovers relationships between research studies/ideas.
- Identifies major themes, concepts, and researchers on a topic.

#### **Common Steps of Literature Review**

**Introduction** - The introduction explains the focus and establishes the importance of the subject. It discusses what kind of work has been done on the topic and identifies any controversies within the field or any recent research which has raised questions about earlier assumptions. It may provide background or history. It concludes with a purpose or thesis statement. An introduction, gives the reader a quick idea the topic and the central theme or organizational pattern to be followed. The introduction should describe the literature review's topic and purpose. It should also establish the basic outline of the paper, identifying the trends, arguments, or approaches discussed. The introduction should also identify the literature review's scope and the author's reason for writing. In accomplishing these tasks, the introduction should include a thesis statement commenting on the

overall trend in the research summarized or the significance of the findings described in the body. It includes Background of the topic, importance, content etc. Establish the writer's reason (point of view) for reviewing the literature; explain the criteria to be used in analyzing and comparing literature and the organization of the review (sequence);

### **Body paragraphs:**

It group research studies and other types of literature (reviews, theoretical articles, case studies, etc.) according to common denominators such as qualitative versus quantitative approaches, conclusions of authors, specific purpose or objective, chronology, etc The literature review has a body consisting of series of sections and sub-sections which discuss the literature in a logical and coherent way. Each section discusses and evaluates the literature in terms of the most important topics or key concepts relevant to the area of study .Each section ends with a summary and sentences which relate this to the focus of the research area. Each body paragraph should deal with a different theme that is relevant to the topic. The reviewed topic need to be synthesized into each paragraph, so that there is a clear connection between the various sources. Each source need to be critically analyzed for how they contribute to the themes of the research.

The body paragraph includes

- historical background
- Methodology: - How the study was carried out e.g. instruments or equipment, procedures, methods to gather and analyze data)
- previous studies on the topic
- mainstream versus alternative viewpoints
- principle questions being asked
- General discussion that are being drawn.
- Critical response which may be positive and negative statements.
- The main point or argument in the article.
- Writer's perspective or theoretical position?
- Ideas helping or hindering the argument?
- Possible flaws or lacks of the paper`
- Similarities among the work, or differences that highlight important facets .

**Conclusion** - The conclusion synthesizes the knowledge confirmed through the discussion and evaluation section while identifying areas for further research. Conclusion should give a summary of the main agreements and disagreements in the literature, Any gaps or areas for further research ,Overall perspective on the topic. State the conclusions and implications of the results; discuss how it relates to the work reviewed in the literature review; also point to directions for further work in the area . Conclusion should summarize the major findings on the topic and the summary can be used to comment on the current understanding of the topic. The conclusion of a literature review should be used to suggest new topics or directions in research. The conclusion summarizes all the evidence presented and shows its significance. The literature review uses the most salient points from each of the final section summaries to suggest the need for the area of research or research question you are asking. It then concludes with a paragraph that relates the literature to the research project design (methodology).

## **References:**

A reference section includes all cited literature in a professionally appropriate format..The references page should acknowledge all the resources used for obtaining information. All sources cited in the text and tables must appear in the reference list at the end of the paper, and all entries in the reference list must be cited in the text. Reference entries should be ordered alphabetically, starting with the last name of the first author, followed by the first author's initial(s), and so on for each additional author.

Citation of electronics sources

Citation of unpublished materials

Citation of Journal Paper

Citation of Book

Citation of Paper or Chapter in an Edited Collection

Conference Proceedings

Electronic Conference Proceedings (published only online)

Star Catalogs

Electronic Newsletters (published only online)

Instrument Documentation

Preprints

Papers Submitted or In Press

Presentation

Patents

Paper in review

Accepted papers

Theses

## **Acknowledgments**

This section is devoted to thanking any persons or institutions that made the research possible. At the end of the paper individuals, institutions, or funding agencies may be acknowledged. Authors may also acknowledge the referee(s) if they wish.

## **Appendices**

[Appendices](#) are very useful because they give a place to dump raw data and calculations. They must still be laid out correctly; the data must be relevant and referred to in the main report.