

**RESEARCH METHODOLOGY & IPR
(ECEN 5103)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Fundamental research is concerned with
 (a) applied field (b) surveys
 (c) formulation of theory (d) none of these.
- (ii) _____ research is mainly concerned with generalizations and with the formulation of a theory.
 (a) Fundamental (b) Applied
 (c) Quantitative (d) Data.
- (iii) _____ approach in research involves the construction of an artificial environment within which relevant information and data can be generated.
 (a) Qualitative (b) Empirical
 (c) Simulation (d) Applied.
- (iv) A journal is likely to publish the papers with
 (a) original and significant findings
 (b) well organized and well-written
 (c) concise and yet complete
 (d) all of these qualities.
- (v) Research methodology is a way to systematically _____ the research problem.
 (a) solve (b) hide
 (c) relate (d) discuss.
- (vi) Plagiarism is the appropriation of another person's
 (a) ideas (b) processes
 (c) results (d) any of these.

- (vii) Fabrication is
 (a) manipulation of research materials (b) making up data
 (c) appropriation of other's idea (d) any of these.
- (viii) Scientific research is mainly based on
 (a) theoretical exercise (b) empirical study
 (c) interviews (d) either (a) or (b).
- (ix) A government authority conferring a right for a set period, the sole right to exclude others from making, using, or selling an invention is a _____.
 (a) copyright (b) owner (c) patent (d) title.
- (x) _____ is a form of intellectual property law that protects original works of authorship, including literary, dramatic, musical, and artistic works, such as poetry, novels, movies, songs, computer software, and architecture.
 (a) Patent (b) Copyright (c) Masking (d) Forcing.

Group – B

2. (a) What characterizes an empirical research problem? How do you justify its significance?
 (b) Evaluate the criteria and the characteristics of a good research problem, using an example.
(3 + 3) + 6 = 12
3. (a) Differentiate between research methodology and research methods.
 (b) Draw the block diagram for a typical research process. Why is the feedback important from the data analysis stage to the design of research stage? Explain.
6 + 6 = 12

Group – C

4. (a) What is the necessity of defining a problem? Describe a few techniques employed to define a problem.
 (b) Why is literature survey important while defining a problem? Mention a few points to be remembered during the survey.
6 + 6 = 12
5. (a) What is research ethics? In light of current advances in biomedical research, explain why maintaining ethical standard in research is important?

- (b) What is plagiarism? What is its effect in research? What precautions are taken to avoid plagiarism in research?

$$(3 + 3) + (2 + 2 + 2) = 12$$

Group - D

6. (a) Define interpretation. Why is it necessary?

- (b) Explain a few techniques applied during interpretation.

$$6 + 6 = 12$$

7. What are the differences between a scientific research proposal and a research paper? In a technical presentation why bullet points are used? What is meant by a "busy slide"? What font type and size are usually recommended for a presentation body and header, and why?

$$(3 + 3 + 3 + 3) = 12$$

Group - E

8. What is a patent? What rights does a patent owner have? How many types of patents are there and how is the patent granted? What is the scope of patent protection? What are lifespan of patents?

$$(3 + 3 + 3 + 2 + 1) = 12$$

9. What is a copyright law? What is meant by the term of a copyright law? What is copyright infringement and what are its consequences?

$$(4 + 4 + 4) = 12$$