

**Question Paper Code : 12272**

M.E./M.Tech. DEGREE EXAMINATIONS, JANUARY 2022.

First Semester

RM 4151 — RESEARCH METHODOLOGY AND IPR

(Common to : All Branches)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the characteristics of a good sample design?
2. List down the ways of conducting surveys.
3. How do you choose a sampling method for a research?
4. What is meant by standardized questionnaire in research methodology?
5. What is the significance of formulating a hypothesis?
6. What are the merits and demerits of oral presentation?
7. Write down the benefits of IPR protection for society.
8. How important is the IPR for a start-up company?
9. What are the criteria of patentability?
10. Who are patents agents? What are their functions?

PART B — (5 × 13 = 65 marks)

11. (a) Under what circumstances a qualitative research approach is suitable? What are its merits and demerits? How do they vary from a quantitative approach? (13)

Or

- (b) What is the purpose of a research process and design? Explain the steps involved in them. (13)

12. (a) What is data collection? What are its types? Define reliability and validity of measurement. Explain the procedure for testing reliability and validity of an instrument used in your research. (13)

Or

- (b) What is sampling? How are they classified? Briefly explain the concept of sampling error? Explain the various types of sampling errors encountered. (13)

13. (a) Explain the procedure for hypotheses testing for multiple regression analysis. A sample survey of 5 families was taken and figures were obtained with respect to their annual savings  $x_1$  (Rs. in 100's), annual income  $x_2$  (Rs, in 1000's), and family size  $x_3$ . The data is summarized in the table below. Find the least-square regression equations of  $x_1$  on  $x_2$  and  $x_3$ . Also estimate the annual savings of a family whose size is 4 and annual income is Rs. 16,000.

Family	Annual savings ( $x_1$ )	Annual Income ( $x_2$ )	Family size ( $x_3$ )
1	10	16	3
2	5	13	6
3	10	21	4
4	4	10	5
5	8	13	3

Or

- (b) Explain the steps involved in writing a research report. Explain the Layout of a research report in detail. (13)
14. (a) Explain the role of UNESCO in IPR maintenance. (13)

Or

- (b) What is the role of IPR in protecting the Biodiversity of a developing country? How are biological materials protected? (13)
15. (a) What are the objectives and benefits of a patent? Explain the features of patent in detail. With an example explain the role of agencies in IP registration. (13)

Or

- (b) Explain the various types of patent applications. Explain the process of e-filing procedure in detail. (13)

PART C — (1 × 15 = 15 marks)

16. (a) With suitable examples write the importance on each of the following:
- (i) Design (5)
  - (ii) Trademarks (5)
  - (iii) Copy right (5)

Or

- (b) Write short notes on the differences between each of the following pairs:
- (i) Utility patent and design patent (5)
  - (ii) Applied and basic research (5)
  - (iii) Probabilistic and non-probabilistic samples (5)
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