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Question Paper Code : 61270

M.E./M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

First Semester

Aeronautical Engineering

RM 4151 — RESEARCH METHODOLOGY AND IPR

(Common to : M.E. Aerospace Technology/M.E. Applied Electronics/
M.E. Automobile Engineering/M.E. Big Data Analytics/M.E. Biomedical
Engineering/M.E. Biometrics and Cyber Security/M.E. CAD/CAM/
M.E. Communication Systems/M.E. Communication and Networking/
M.E. Computer Aided Design/M.E. Computer Integrated Manufacturing/
M.E. Computer Science and Engineering/M.E. Computer Science and
Engineering (With Specialization in Artificial Intelligence and Machine
Learning/M.E. Computer Science and Engineering (With Specialization in
Networks)/M.E. Construction Engineering and Management/M.E. Digital
Signal Processing/M.E. Electronics and Communication Engineering/
M.E. Electronics and Communication Engineering (Industry Integrated)/
M.E. Embedded System Technologies/M.E. Energy Engineering/
M.E. Engineering Design/M.E. Environmental Engineering/M.E. Industrial
Engineering/M.E. Industrial Safety Engineering/ M.E. Infrastructure
Engineering and Management/M.E. Internal Combustion Engineering/
M.E. Manufacturing Engineering/M.E. Mechatronics/M.E. Medical
Electronics/M.E. Mobile and Pervasive Computing/M.E. Multimedia
Technology/M.E. Power Electronics and Drives/M.E. Power Systems
Engineering/M.E. Product Design and Development/M.E. Software
Engineering/M.E. Soil Mechanics and Foundation Engineering/M.E. Structural
Engineering/M.E. Thermal Engineering/ M.E. VLSI Design/M.E. VLSI and
Embedded Systems/M.Tech. Biopharmaceutical Technology/
M.Tech. Biotechnology/M.Tech. Chemical Engineering/M.Tech. Information
Technology/M.Tech. Nano Science and Technology/M.Tech. Pharmaceutical
Biotechnology/M.Tech. Plastics Technology/M.Tech. Remote Sensing and GIS/
M.Tech. Textile Technology/M.Tech. Textile Technology (With Specialization in
Textile Chemistry)/Master of Computer Application (2 Years))

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Enumerate the basic steps of the research process.
2. Differentiate observational and experimental studies of research with suitable example.

3. State the significance of structured and unstructured questionnaire in research.
4. List the different methods to display data in research process.
5. Identify standard measures of association of variable used in data analysis in research.
6. Recall requirements of presenting research insights and finding using oral presentation.
7. Define the concept of trade secret of IPR in India with example.
8. Outline functions of UNESCO in IPR maintenance for sustainable developmental goals.
9. Name the criteria for patent application process.
10. State the feature of equitable assignments of a patent.

PART B — (5 × 13 = 65 marks)

11. (a) Examine use of secondary and exploratory data to answer research question with suitable examples.

Or

- (b) Analyze the purpose, categories, significance of qualitative research and mention its applications in research.
12. (a) Compare the types of measurement scales in research and point out their use in statistical analysis of research data.

Or

- (b) Distinguish the methods of data preparing, exploring, examining and displaying in research methodology with examples.
13. (a) Simplify the procedure of multivariate analysis of data in research methodology. Give note on their application in different field and problems of the real world.

Or

- (b) Categorize the process of testing hypothesis and testing measures of association. Write their significance in research.
14. (a) Survey the evolution and development of the concept of IPR, IPR development process.

Or

- (b) Identify the common rules, laws of IPR practices and give note on types and features of IPR agreement.

15. (a) Point out the objective, benefits, features of a patent and write note on the significance of inventive step.

Or

- (b) Explain equitable assignment, licenses and licenses of related patents under the Indian patent act.

PART C — (1 × 15 = 15 marks)

16. (a) Demonstrate the role of IPR and protection of Biodiversity. Point the role WIPO and IPR establishments.

Or

- (b) Elaborate on the types of patent application, process of E filling and Grant of patent.