Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 31311

M.E./M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

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. Plastics Technology/M.Tech. Remote Sensing and GIS/ M.Tech. Textile Technology/M.Tech. Textile Technology (with Specialization in Textile Chemistry)/Master of Computer Applications/M.Tech. Pharmaceutical Biotechnology)

(Regulations – 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the essential features of a good research design?

2. What does a qualitative research mean?

3. What are the uses of secondary data?

4. What is the difference between questionnaire and an instrument?

5. What are the steps involved in a hypothesis testing?

6. What do you understand by a written report? What are its merits and demerits?

7. Write about WIPO.

8. How important is the IPR for an industry? Provide an example.

9. What is licensing? What is its significance?

10. What do you understand by registration of patent agents? What are their roles?

PART B — (5 × 13 = 65 marks)

11. (a) Discuss the various steps involved in formulating a research problem. Elucidate the different sources of secondary and exploratory data to answer the research problem. (13)

Or

(b) What is the need for literature review in defining the research gap and deciding on the research work? Explain the steps involved. (13)

12. (a) Explain the importance of data collecting, preparing, exploring, examining and displaying with suitable examples. (13)

Or

(b) Differentiate between probability and non-probability sampling techniques in detail with examples. (13)

13. (a) Explain the concept and types of hypothesis in detail. Discuss the technique of Analysis of Variance for one way and two way classifications. (13)

Or

(b) Explain the steps involved in writing a research report. Discuss the different types of research reports. Elaborate on the layout of a research report. (13)

14. (a) Explain about the dilution ownership of trade mark. How do you protect a trade mark from dilution? (13)

Or

(b) IPR and licensing issues are considered very important to public sector bodies? Discuss with a suitable case study. (13)

15. (a) What is a patent? What are its objectives and benefits? Explain the features of patent in detail. (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 difference in each pair of the following: (15)

(i) Research methods and research methodology

(ii) Trademarks and copy rights

(iii) Experiments and surveys

Or

(b) Write short notes on the differences between each of the following pairs: (15)

(i) Research hypothesis and research report

(ii) Trademark infringement and trademark dilution

(iii) Invention and discovery.

———————