

Registration No.:

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Total Number of Pages: 02

Course: M.Tech
Sub_Code: P3PGCC01

3rd Semester Regular/Back Examination: 2025-26

SUBJECT: RESEARCH METHODOLOGY

BRANCH(S): COMPUTER SCIENCE AND ENGG, ELECTRICAL AND ELECTRO ENGG, ECVD, ELECTRICAL ENGG., ELECTRO AND TELECOMMUNICATION ENGG, ENVIORN ENGG., ENVIRONMENTAL SCIENCE AND ENGG, HEAT POWER & THERMAL ENGG, HEAT POWER ENGG, MACHINE DESIGN, ME, MECH. ENGG., MECH. SYSTEM DESIGN, PLASTICS ENGG., POLYMER NANOTECH., POWER ELECTRO & DRIVES, POWER ENGG AND ENERGY SYSTEMS, POWER SYSTEM ENGG, PRODUCTION ENGG, SOIL MECHANICS & FOUNDATION ENGG, STRUCTURAL & FOUNDATION ENGG, STRUCTURAL ENGG, THERMAL ENGG, VLSI & EMBEDDED SYSTEMS, VLSI & EMBEDDED SYSTEMS DESIGN, CIVIL ENGG., WATER RESOURCE ENGG AND MANAGEMENT

Time: 3 Hours

Max Marks: 100

Q.Code: U034

Answer Q1 (Part-I) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right-hand margin indicate marks.

Part-I

Q1 Answer the following questions: (2 x 10)

- What is the meaning of research and research problem?
- What are the secondary data?
- What are the limitations of data collection by observation method?
- Write the use of formulation of hypothesis in research.
- Write applications of Z-test in research.
- What are the applications of sign Test?
- Explain about nominal scale of measurement.
- Which type of sample design is better and why?
- Write the use of linear regression.
- Write the application of sampling fundamentals.

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Write about the Identification of research problem.
- Write the importance of scientific research in decision making.
- Write about the sampling fundamentals and sample designs.
- Write about the use of measurement and scaling techniques in research.

- e) Write about the data processing and its application in research.
- f) Write the use of Krushall – Wallis's test in research.
- g) How the analysis of data makes it suitable and reliable for use in research?
- h) Explain how the t-test is essential in testing of hypothesis.
- i) Discuss about null and alternate hypothesis.
- j) How multiple regressions analysis is useful in validation of research results?
- k) Explain the use of SPS package in analysis of results.
- l) How decision of acceptance of hypothesis is important in testing of hypothesis for validation of research result?

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

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| Q3 | Explain about the formulation of research hypothesis and the research designs. Also write about the types of research and research process. | (16) |
| Q4 | Critically discuss about the design of questionnaire. Also discuss about the observation method and interview method of data collection of primary data. | (16) |
| Q5 | Discuss about Chi-square test and test statistics. Also discuss about sign test, run test and analysis of variance | (16) |
| Q6 | Explain about factor analysis and discriminant analysis along with applications in research with suitable counter examples. | (16) |

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Total Number of Pages: 02

Course: M.Tech/M.Sc.I
Sub Code: P3PGCC02/19MIMS904

3rd / 9th Semester Regular/Back Examination: 2025-26

SUBJECT: INTELLECTUAL PROPERTY RIGHTS

BRANCH: M.Sc.I.(MSE) WATER RESOURCE ENGG AND MANAGEMENT, CIVIL ENGG., VLSI & EMBEDDED SYSTEMS DESIGN, VLSI & EMBEDDED SYSTEMS, THERMAL ENGG, STRUCTURAL ENGG, STRUCTURAL & FOUNDATION ENGG, SOIL MECHANICS & FOUNDATION ENGG, PRODUCTION ENGG, POWER SYSTEM ENGG, POWER ENGG AND ENERGY SYSTEMS, POWER ELECTRO & DRIVES, POLYMER NANOTECH., PLASTICS ENGG., MECH. SYSTEM DESIGN, MECH. ENGG., ME, MACHINE DESIGN, HEAT POWER ENGG, HEAT POWER & THERMAL ENGG, ENVIRONMENTAL SCIENCE AND ENGG, ENVIORN ENGG., ELECTRO AND TELECOMMUNICATION ENGG, ELECTRICAL ENGG., ECVD, ELECTRICAL AND ELECTRO ENGG, COMPUTER SCIENCE AND ENGG

Time: 3 Hours

Max Marks: 100

Q.Code: U080

Answer Question No.1 (Part-I) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right-hand margin indicate marks.

Part-I

- Q1** **Answer the following questions:** (2 x 10)
- a) What is the full form of TRIPS?
 - b) Why is IP important for economic growth?
 - c) What is the difference between a trademark and a patent?
 - d) How does IPR encourage innovation?
 - e) Which act governs copyright in India?
 - f) Why is IPR important globally?
 - g) How does IPR encourage biotech innovation?
 - h) How does a patent encourage innovation?
 - i) What is the purpose of patent claims?
 - j) What is novelty in patent law?

Part-II

- Q2** **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** (6 x 8)
- a) Explain the difference between economic rights and moral rights under copyright law.
 - b) What are the various steps involved in registering copyright in India?
 - c) What are the economic and social rationale behind copyright protection?
 - d) What does the Pith and Marrow Doctrine emphasize in determining infringement?
 - e) How does the Gillette Defense help a defendant in an infringement case?
 - f) Explain the difference between civil and administrative remedies in patent law.

- g) What is the difference between novelty and non-obviousness in patents?
- h) Mention six differences between a conditional patent and an unconditional patent.
- i) What steps must a company take to protect its trade secrets?
- j) What is misappropriation in intellectual property law? Explain with examples.
- k) What is a trademark? How does trademark protection prevent consumer confusion?
- l) Who can surrender a patent? Name three grounds on which a patent can be revoked.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

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|-----------|--|-------------|
| Q3 | Explain the significance of Intellectual Property Rights (IPR) in promoting innovation and creativity. Provide examples from different industries. | (16) |
| Q4 | Define trademarks and explain their role in distinguishing goods and services in the marketplace. How do trademarks help in brand protection and consumer trust? | (16) |
| Q5 | Explain in detail the step-by-step procedure for filing a patent application in India, from prior art search to grant of the patent. | (16) |
| Q6 | Define copyright. Explain the difference between economic rights and moral rights in copyright. Why are both important for creators? | (16) |