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Question Paper Code: U7S01

M.E. DEGREE EXAMINATION, DEC 2025

Communication Systems

21PGM701 - RESEARCH METHODOLOGY AND IPR

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) **Examine why a clearly defined scope and precise objectives are essential for a research problem, supporting your analysis with a case study.** CO2-Ana (20)

Or

- (b) **“Analyze and justify the statement that a well-designed research methodology is fundamental to the success of any research study.”** CO2-Ana (20)

2. (a) Belinda is publishing her first article that builds on the research of a similar project she did three years prior with her colleague, Isaiah. In Belinda’s current article she has placed a graph from the article she and Isaiah co-authored about their previous research. Isaiah created the original graph. Does Belinda have to site the previous article? Compare in this scenario with self-plagiarism and plagiarism.. CO6-App (20)

Or

- (b) Joanne is a researcher at George Kent College. She collected data on rural mental health patients and just published an article on her research in a scholarly journal. Joanne plans to independently write a book about her research and develop educational 26 tools that she can sell to professionals. Joanne is partly funded through her college, but most of her research was paid for with a private stipend from a charitable foundation. Joanne is reluctant to publicly disclose her data before her book is finished. Can she hold off on sharing her data until she completes her book? CO6-App (20)

3. (a) Evaluate the suitability and significance of the Chi-Square Test and ANOVA in hypothesis testing under different research scenarios such as: (i) analyzing categorical survey responses, (ii) comparing performance across multiple experimental groups, and (iii) assessing the effect of sample size variation. Justify their use in deriving valid scientific conclusions from research data
- Or
- (b) Evaluate how measures of central tendency aid in reliable decision-making in fields like healthcare, education, and business analytics, justifying the suitable measure for each case
- CO3-Eva (20)
4. (a) As a project associate for a research work, you are asked to prepare a research proposal for possible funding from a research agency in India. Develop a typical research proposal based on your domain knowledge.
- Or
- (b) Narrate the steps involved in developing a research proposal. Suggest a case study of sample proposal.
- CO4-Com (20)
5. (a) Analyze the essential documents required for patent filing and explain the process of obtaining patent rights and grants.
- Or
- (b) Analyze the interrelationship between technological research, innovation, and proof of concept, and justify your findings through a suitable research example.
- CO5-Ana (20)