

**Question No. 1**

- 1a) Differentiate between research techniques and research methodology. (6) CO1

**Question No. 2**

- 2a) Explain the Taguchi method for planning experiments. (6) CO2

**Question No. 3**

- 3a) What are the key guidelines for designing experiments in research? (8) CO3

**OR**

- 3b) Discuss the role of statistical concepts in experimentation. (8) CO3

- 3c) What is the impact of regression analysis on experimental outcomes? (8) CO3

**OR**

- 3d) Discuss the role of principal component analysis in research. (8) CO3

**Question No. 4**

- 4a) Define hypothesis testing. What are its key steps? (8) CO4

**OR**

- 4b) Explain the importance of critical regions and decision rules in hypothesis testing. (8) CO4

- 4c) What are Type I and Type II errors in hypothesis testing? Explain with examples. (8) CO4

**OR**

- 4d) What is the significance of sample size in hypothesis testing? (8) CO4

**Question No. 5**

- 5a) What is intellectual property, and why is it important in research and commercialization? (8) CO5

**OR**

- 5b) Explain the steps involved in filing for a patent. (8) CO5

- 5c) Discuss the TRIPS agreement and its implications for intellectual property rights. (8) CO5

**OR**

- 5d) What is the IMRAD format in scholarly publishing? (8) CO5

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