AQ—2841

Faculty of Engineering & Technology

M.E. Mechanical Engg. (Thermal Engg.) Semester-II (New-CGS) Examination

RESEARCH METHODOLOGY

Paper—2 MTE 3

Sections—A & B

[Maximum Marks—80

Time—Three Hours]

INSTRUCTIONS TO CANDIDATES

(1) All questions carry marks as indicated.

(2) Answer THREE questions from Section A and THREE questions from Section B.

(3) Due credit will be given to neatness and adequate dimensions.

(4) Assume suitable data wherever necessary.

(5) Illustrate your answers wherever necessary with the help of neat sketches.

SECTION—A

1. (a) Distinguish between Research Method and Research Methodology.   7

   (b) Discuss the criteria of good research.   7

2. (a) What are various sources of literature review in engineering research ?   7

   (b) Explain the role of hypothesis in research work.   6

3. (a) Name a few principles, entities, attributes and activities to be considered if you were to simulate the operation of (i) Traffic system, (ii) Centralized air cooling.   6

   (b) Distinguish between closed system and open system pertaining to research methodology.   7

4. (a) Explain static mathematical model with an example.   7

   (b) Explain with an example numerical computation technique for continuous model.   6

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5. (a) Explain the meaning and significance of Research design.   7

     (b) Explain single factorial research design.   6

SECTION—B

6. (a) Explain with examples dependent variable and independent variable.   7

     (b) Discuss Taguchi approach to parameter design.   7

7. (a) Distinguish between systematic and stratified sampling.   7

     (b) What is primary data and secondary data ? Explain.   6

8. (a) What is significance of variance ? Explain analysis of variance.   7

     (b) Explain with the help of example, process optimization.   6

9. (a) Explain layout of research report.   7

     (b) What are various types of research reports ?   6

10. (a) What are various techniques of improving creativity ?   7

     (b) What is ANN ? Explain.   6