

P4763

[Total No. of Pages : 2

[5060]-584

**M.E. (Mechanical) (Heat Power/Design/Mechatronics/CAD/CAM/
Energy Engineering)**

**RESEARCH METHODOLOGY
(2013 Pattern) (Semester - I)**

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) Answer any five questions.*
- 2) Neat diagrams should be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Use of pocket calculator & different gas charts as applicable is allowed.*
- 5) Assume suitable data, if necessary.*

- Q1)** a) Discuss the motivation for doing research. [5]
- b) Discuss the eight step model for Research Process starting from formulation of research problem till research report writing. [5]
- Q2)** a) What do you mean by Citation and Impact Factor of a Journal? Explain the significance of Peer reviewed Journal Papers for literature review/validation. Discuss the impact of referring open access Journals/websites on research process. [5]
- b) Discuss the significance of literature review at Research during various stages of research. [5]
- Q3)** a) Explain the meaning of Research Problem (RP). How a Research Problem is different an ordinary problem. [5]
- b) What are the Criteria's of a Good RP. [5]

P.T.O.

- Q4)** a) Explain the term variable used in Research? How to identify Variables for Engineering Research? [5]
- b) Explain the term Research Design (RD) and its significance in Research Process. [5]
- Q5)** a) Explain the significance of curve fitting in Engineering Research and the procedure to be followed for the same. [5]
- b) Discuss the structure of a typical Engineering Research Proposal and in short elaborate each point. [5]
- Q6)** a) Explain: Static, Dynamic and Random Characteristics of instruments. [5]
- b) Define : [5]
- i) Range
 - ii) Accuracy
 - iii) Precision
 - iv) Sensitivity
 - v) Resolution
 - vi) Threshold/Dead zone.
- Q7)** a) Explain Linear Regression Equation. [5]
- b) Explain the structure for writing a research report. [5]

