Pre. Ph.D. Course Work (2017 Course) : SUMMER - 2018 (Common for All Engineering & Technology Faculty/ Interdisciplinary Studies)

SUBJECT: PAPER – I: RESEARCH METHODOLOGY & ICT FOR RESEARCH

(Civil Engineering/ (Chemical Engineering) / (Computer Engineering)/ (Electrical Engineering) / (Electronics Engineering) / (Mechanical Engineering)/ (Interdisciplinary Studies)

Day: **Monday** Time: **10.00 AM TO 01.00 PM**

Date: **25/06/2018** **S-2018-4749** Max. Marks: 100

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.

Q.1 What is the role of information and communication Technology (ICT) in research? Describe its importance is your area of research. **(10)**

OR

Q.1 What is the criteria of a good research? What are the problems encountered by researchers in India? **(10)**

Q.2 Describe the complete research process in detail. **(10)**

OR

Q.2 What is the role of literature review in defining a research problem? Explain the importance of identifying the gap areas of research. **(10)**

Q.3 What are the various techniques involved in defining a research problem? Write the problem statement of your research and explain how you have identified the variables to be studied and determined the scope and objectives of your research. **(10)**

OR

Q.3 What is a research problem? Describe main issues which should receive the attention of the researchers in formulating the research problem. Give suitable examples. **(10)**

Q.4 What are the several methods of collecting primary data? Discuss any one method in detail. **(10)**

OR

Q.4 What factors should be considered while selecting an appropriate method for data collection? Explain term 'bias' in data collection. **(10)**

Q.5 What is the general procedure for hypothesis testing? Draw a flow diagram for hypothesis testing. **(10)**

OR

Q.5 What is a Z- test of hypothesis testing? When it is used and for what purpose? **(10)**

P. T. O.

Q.6 What is the difference between simple linear and multiple linear regression? **(10)**

OR

Q.6 For the data below: **(10)**

X	1	2	3	4	5	6	7	8	9
Y	16	23	35	28	44	40	20	61	82

Sketch the scatter plot and compute the coefficient of linear regression line $Y = aX + b$

Q.7 What are the statistical software tools available in research? Describe its role in your area of research. **(10)**

OR

Q.7 What are the various moments and response curve methods? Explain any one method in detail. **(10)**

Q.8 What are the essential steps in developing a research report? **(10)**

OR

Q.8 What should be the structure of any research report? Explain the importance of bibliography? **(10)**

Q.9 What is a patent? Explain the necessary contents of a complete specification of any invention? **(10)**

OR

Q.9 What do you mean by 'Plagiarism'? How to avoid plagiarism while writing any research report or thesis? **(10)**

Q.10 What should be the design of review paper? Explain its layout in detail. **(10)**

OR

Q.10 What are the essential contents of abstract of any research paper? How will you differentiate between abstract, introduction and conclusion? **(10)**

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