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**RVE–005**

**Ph. D. IN VOCATIONAL EDUCATION  
AND TRAINING (PHDVET)**

**Term-End Examination**

**June, 2024**

**RVE-005 : RESEARCH METHODOLOGY–II**

*Time : 3 Hours*

*Maximum Marks : 100*

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**Note :** *Attempt any **five** questions. All questions carry equal marks. Simple calculator will be allowed to students.*

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1. (a) Differentiate between Descriptive and Inferential Statistics.
- (b) List the steps involved in 'Data Analysis'.
- (c) Explain 'Estimation' as a procedure used in Inferential Statistics giving the fluctuation that can arise while performing it. 5+5+10

**P. T. O.**

2. (a) Calculate the combined mean marks from the mean marks of the students of three different schools given below :

School	School I	School II	School III
Mean of Marks	44.6	55	58.5
No. of Students	20	40	140

- (b) Calculate the standard deviation from the given data set : 10+10

X	15	25	20	35	40	45
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3. Briefly explain any *four* of the following with suitable examples : 5×4=20
- (i) Normal distribution
  - (ii) Regression Analysis
  - (iii) Sampling error
  - (iv) Mode
  - (v) Non-parametric tests
  - (vi) Report writing
4. A company wants to study the relation between R & D expenditure (X) and annual profit (Y)

during the last 8 years (presented in table below) :

Year	R & D Expenses (in thousands of ₹) X	Annal Profit (in thousands of ₹)
2020	8	45
2019	6	42
2018	4	40
2017	9	60
2016	4	30
2015	5	34
2014	3	25
2013	1	20

- (a) Plot the data on a scatter diagram. 5
- (b) Estimate the sample correlation coefficient and interpret the result obtained. 15
5. (a) What is meant by Hypothesis ? Explain different types of hypothesis with the help of a relevant example.
- (b) With the help of an example explain the conditions under which 'Z' test and 't'-test are used. Also give formulas for their calculation. 10+10

6. Eight patients were given a new drug to control blood sugar levels. The difference in blood sugar before and after consuming the drug are given below :

Patients	Difference in Sugar levels
1	2
2	4
3	7
4	0
5	-2
6	-3
7	0
8	0

Assuming that the change in sugar levels follows normal distribution, can we say that the drug is effective in controlling sugar levels at 5% level of significance ?

(Note : Table Value of  $t_{(7),0.05}$  is 1.895). 20

7. What is 'Analysis of Variance' ? Mention the situations in educational research where it can be preferably used. Give examples. 20