Mouly (1964) states that, “Always there is a need for thorough understanding of all research methods with particular references to their strength, limitations, applicability and appropriateness, for an inappropriate method can only lead to unsatisfactory results and disillusionment.”

Plan and procedure is an important part of any research. A research work can’t be undertaken successfully without proper thinking and planning.

According to Kerlingers (1973), “Plan and procedure includes an outline of what the investigator will do, from writing the hypotheses and their operational implications to the final analysis of data.”

It provides proper direction to find the solution to a problem in a scientific manner. A well planned action in advance, followed by a systematic execution brings out fruitful results. Proper planning also saves resources, time and efforts of the researcher. In a research study, the investigator has to describe the following things:

1) Used technique for collection of the data.
2) Method to draw the sample of the data.
3) Selection of the appropriate tools and their reliability & validity.
4) Suitable statistical technique.

So, keeping in view all the above things, this chapter covers the following steps:

3.1 Research Methodology
3.2 Identification of the variables
3.3 Population and Sample
3.4 Tools used
3.5 Data collection
3.6 Scoring procedure
3.7 Statistical techniques used

3.1 RESEARCH METHODOLOGY

Research method is the most important aspect of any study. It describes various steps of the plan adopted in solving a research problem. It is necessary to adopt a systematic
procedure to collect the necessary data, which helps researcher to test the hypotheses of the study under investigation.

According to George J. Mouly, “The systematic and scholarly application of the scientific method, interpreted in its broader sense, to the solution of educational problems; conversely, any systematic study designed to promote the development of education as a science can be considered educational research.”

There are various methods like: historical method, experimental method, descriptive method and case study method. Selection of the research method is determined by the nature of the problem. The variables of the present study are mathematical achievement (dependent variable), mathematical anxiety, mathematical attitude and problem solving ability (independent variable). The variables involved in this study can’t be studied in the artificial setting. Hence, the investigator considered descriptive survey method suitable for her study. Best (1983) considered descriptive survey method as non-experimental because it deals with the relationship between non-manipulative variables in a natural, rather than an artificial setting.

As per the objectives and hypotheses of the study the investigator decided to use descriptive survey method to study the mathematical achievement in relation to problem solving ability, mathematical attitude & anxiety of secondary school students.

3.2 IDENTIFICATION OF THE VARIABLES

3.2.1 Independent variables:

The independent variable is that factor which is manipulated and selected by experimenter to determine the relationship to an observed phenomenon. In present study, problem solving ability, mathematical achievement and mathematical anxiety are considered as independent variables.

3.2.2 Dependent Variable:

The variable being affected or assumed to be affected by the independent variable is called Dependent Variable. In the present study, mathematical achievement is considered as dependent variables.
The independent and dependent variables are shown in the following figure:

![Diagram showing variables]

3.3 POPULATION AND SAMPLE

3.3.1 Population

The term ‘population’ in research is used in a broader sense than its common place meaning which is a population of people. The entire group from which the sample has been selected is called the population. That group or population may consist of persons, objects, educational institutions, time units, geographical areas, attributes, qualities, behaviour of people and animals, cities, families, answers to various items of a test etc.

*According to Selltiz, Jahoda and others, “A population is the aggregate of all the cases that conform to some designated set of specification.”*

According to nature and scope of the research in hand a population should be well defined in terms of geographical limits, age, grade, sex, category, socio-economic status, physical attributes and psycho-social behavior. The population is properly defined so that there is no ambiguity as to whether a given unit belongs to the population or not. If a population is not properly defined, a researcher does not know what units to consider when selecting the sample. In the present study all the secondary students studying in the Government and private schools affiliated to H.B.S.E. (Bhiwani) were considered as the population. There are four divisions in
Haryana which has 21 districts. The description of different divisions and districts is given below:

Table- 3.1

Divisions and their respective Districts

<table>
<thead>
<tr>
<th>Divisions</th>
<th>Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rohtak division</td>
<td>Rohtak, Jhajjar, Karnal, Panipat, Sonipat</td>
</tr>
<tr>
<td>Ambala division</td>
<td>Ambala, Yamunanagar, Kurukshtetra, Panchkula, Kaithal</td>
</tr>
<tr>
<td>Hisar division</td>
<td>Hisar, Jind, Fatehabad, Sirsa, Bhiwani</td>
</tr>
<tr>
<td>Gurgaon division</td>
<td>Gurgaon, Faridabad, Mewat, Palwal, Mahendragarh, Rewari</td>
</tr>
</tbody>
</table>

3.3.2 Sample

A sample is a smaller representation of a population. A sample is a subset of population. The selection of a sample is a very crucial work. A good sample must be as nearly representative of the entire population as possible and ideally it must provide the whole of the information about the population from which the sample has been drawn. There are some characteristics of a good sample which are given below:

1) A proper sample must give a precise but correct picture of the population from which it is drawn.

2) The sample must be obtained by probability process. This would permit the use of statistical procedure to describe and analyze the data of the sample. It would also help to relate the population from which it has been drawn.

3) The sample should be as small as precision considerations permit.

Simply to say that the sampling process should yield not only the estimations of the population but must also obtain measurement on sub classes of a population. Selecting an appropriate sample design is also a very sensitive issue. Fairness in the sample can be secured by giving every member of the population a specifiable chance of appearing in it. The investigator has tried as far as possible to take all possible care to ensure that the sample of her research study becomes a true representation of the population under study. In the present study, stratified random sampling was followed. Firstly, all the four divisions Haryana state were taken. Out of each of the four divisions one district was selected randomly through lottery method viz. Karnal.
district from Rohtak division, Yamunanagar district from Ambala division, Jind district from Hisar division, and Faridabad district from Gurgaon division. The distribution of the sample is as under:

### 3.4 DISTRIBUTION OF THE SAMPLE

#### Figure- 3.2 Distribution of the sample

The sampling frame for the present study is given in following the table:

**Table- 3.2**

<table>
<thead>
<tr>
<th>Name of the District</th>
<th>Total Government Schools</th>
<th>Selected Government Schools</th>
<th>Total Private Schools</th>
<th>Selected Private Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karnal</td>
<td>159</td>
<td>05</td>
<td>190</td>
<td>05</td>
</tr>
<tr>
<td>Yamunanagar</td>
<td>111</td>
<td>05</td>
<td>188</td>
<td>05</td>
</tr>
<tr>
<td>Jind</td>
<td>209</td>
<td>05</td>
<td>215</td>
<td>05</td>
</tr>
<tr>
<td>Faridabad</td>
<td>89</td>
<td>05</td>
<td>274</td>
<td>05</td>
</tr>
</tbody>
</table>

Table- 3.2 depicted that in each district 10 secondary schools (5 Government and 5 private) were selected randomly through lottery method. Further the list of the selected schools for sample is as follow:
### Table- 3.3

**List of Sample Schools**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the District</th>
<th>Type of School</th>
<th>Name of the selected Schools</th>
</tr>
</thead>
</table>
| 1       | Karnal               | Government     | 1. Govt. Sr. Sec. School, Bahri, Assandh  
|         |                      |                | 2. Govt. Sr. Sec. School, Kohand, Gharuanda  
|         |                      |                | 3. Govt. Sr. Sec. School, Model Town, Karnal  
|         |                      |                | 4. Govt. Sr. Sec. School, Prem Nagar, Karnal  
|         |                      |                | 5. Govt. Sr. Sec. School, Karnal  |
|         |                      | Private        | 1. S B S National Sr. Sec. School, Indri, Karnal  
|         |                      |                | 2. Shaheed Bhagat Singh Sr. Sec. School, Bhadson, Karnal  
|         |                      |                | 3. Guru Nanak Girls Sr. Sec. School, Karnal  
|         |                      |                | 4. Asian High School, Shiv Colony, Karnal  
|         |                      |                | 5. Bright Public Sr. Sec. School, Ramba, Karnal  |
| 2       | Yamunanagar         | Government     | 1. Govt. Sr. Sec. School, Jagadhri  
|         |                      |                | 2. Govt. Sr. Sec. School, Bhatali, Jagadhri  
|         |                      |                | 3. Govt. Sr. Sec. School, Model Colony, Yamunanagar  
|         |                      |                | 4. Govt. Sr. Sec. School, Jagadhri-workshop, Yamunanagar  
|         |                      |                | 5. Govt. Sr. Sec. School, Kunjal Jattan, Yamunanagar  |
|         |                      | Private        | 1. Geeta Sr. Sec. School, Chamrori, Yamunanagar  
|         |                      |                | 2. Janta Sr. Sec. School, Mustafabad, Yamunanagar  
|         |                      |                | 3. M L N Sr. Sec. School, Yamunanagar  
|         |                      |                | 4. D A V Sr. Sec. School, Yamunanagar  
|         |                      |                | 5. Swami Vivekanand Sr. Sec. School, Yamunanagar  |
| 3       | Jind                | Government     | 1. Govt. Sr. Sec. School, Alewa, Jind  
|         |                      |                | 2. Govt. Sr. Sec. School, Ahirka, Jind  
|         |                      |                | 3. Govt. Sr. Sec. School, Defence Colony, Jind  
|         |                      |                | 4. Govt. Sr. Sec. School, Jind  
|         |                      |                | 5. Govt. Sr. Sec. School, Nidani, Jind  |
|         |                      | Private        | 1. Gopal Vidya Mandir Sr. Sec. School, Jind  
|         |                      |                | 2. Arya Kanya Mahavidyalaya, Narwana  |
### Chapter III
#### Plan and procedure

<table>
<thead>
<tr>
<th></th>
<th>Faridabad</th>
<th>Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Nav Saraswati High School, Hakikat Nagar, Jind</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>New Tagore High School, Uchana Mandi, Jind</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Gian Bharti High School, Uchana Mandi, Jind</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Govt. Sr. Sec. School, Faridabad Old</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Govt. Sr. Sec. School, Fathehpur Chandila, Faridabad</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Govt. Sr. Sec. School, Jassana, Faridabad</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Govt. Sr. Sec. School, Sector-55, Faridabad</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Govt. Sr. Sec. School, Saran, Faridabad</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Faridabad</th>
<th>Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>B M R Sr. Sec. School, Sector-18, Faridabad</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Old Vidya Mandir Sr. Sec. School, Shastri Colony, Sector-19, Faridabad</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Shiv Public High School, Seekri, Faridabad</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Gian Public High School, Kabulpur (Khader), Faridabad</td>
<td></td>
</tr>
</tbody>
</table>

After words, 200 secondary school students were taken randomly from 10 secondary schools in each district. In this way, total sample of 800 secondary school students of Karnal, Yamunanagar, Jind and Faridabad districts were selected randomly through lottery method.

The further distribution of the sample is described through the sample design which is as follow:
800 secondary school students from Haryana state

Karnal (200 students from 10 schools)
- 100 students from 5 Government schools
- 53 Male, 47 Female

Yamunanagar (200 students from 10 schools)
- 100 students from 5 Government schools
- 53 Male, 47 Female

Jind (200 students from 10 schools)
- 100 students from 5 Government schools
- 50 Male, 50 Female

Faridabad (200 students from 10 schools)
- 100 students from 5 Private schools
- 53 Male, 47 Female

Figure- 3.3 Sample design
Further the distribution of urban and rural secondary school students are presented through the following Figure.

Figure- 3.4 Sample design
3.5 TOOLS USED

1) Mathematical Achievement Test of Ali Imam and Tahira Khatoon (2011)
2) Problem Solving Ability Test of L. N. Dubey (2011)
3) Mathematical Attitude Scale of P. S. Yadav (1984)
4) Mathematical Anxiety Scale of Sadia Mahmood and Tahira Khatoon (2012)

3.6 DESCRIPTIONS OF THE TOOLS

3.6.1 Mathematical Achievement Test

Mathematical Achievement Test (MAT) was developed and standardized by Dr. Ali Imam and Tahira Khatoon in 2012. This achievement test in mathematics for class IX students was very comprehensive test based 14 chapters of class VIII mathematics text book (NCERT). The test at initial stage considered 100 items of multiple choice type, representing achievement at various units as 35 items in arithmetic, 30 items in algebra, 10 items in geometry, 15 items in mensuration and 10 items in statics. As a result of expert’s comments some of the questions were modified and some omitted. After modification and elimination of questions mathematical achievement test contained 70 questions. Initially this test was administered on 250 students (150 male and 100 female) of secondary schools. The sample was randomly selected in rural and urban areas of Lucknow district. These schools belong to different categories of management and range from good to poor in regard to standards of performance of their students.

Item analysis: An item analysis to determine the discriminating power of each item was computed using Pearson product moment correlation technique. The items found to have a correlation of 0.34 or less with the total test were discarded such items are 10 in number. To remove the effect of the eliminated item scores of the subjects on them were deducted from their total score and item total correlations again computed in respect of remaining 60 items. Out of 60 items, 20 questions from arithmetic, 19 from algebra, 6 from geometry, 11 from mensuration and 4 from statics. The reiterative procedure increased the original coefficients such that none of the 60 items was found to have a
correlation less than 0.35 with the total. The question numbers correspond to these give in final version of mathematical achievement test. The test in its finished form consisted of 60 items of multiple choice.

**Reliability**: In order to find as to what extent the mathematical achievement test developed by the investigator possesses this quality, split-half method was employed. A split-half reliability coefficient was found by correlating scores of the subjects on odd items of the form with their scores on even items. The reliability was calculated by using the scores of 250 subjects on the 60 items of the final mathematical achievement test. The correlation coefficient thus, obtained was 0.89 which was corrected by Spearman-Brown prophecy formula increased to 0.94. Yet another formula used for estimating reliability was a simplified of general Kuder-Rechardson formula. The estimate of reliability by this formula yielded a coefficient of correlation of 0.92.

**Reliability of the Tool in the Present Study**: To check the Reliability of this tool in the present study split-half method of reliability was applied by using Spearman-Brown Prophecy formula. The computed value of Spearman-Brown Prophecy formula was 0.74 which was satisfactorily high.

**Validity**: Content validity and construct validity were used to find the validity. Content validity of the item was ensured through rational logical analysis of the math teachers and expert in test construction. Correlation between total scores and item scores were also used for validity. This approach assumes that the total score is valid, thus the extent to which the item correlation with the total score is indicative of construct validity of the test.

**Scoring**: There are 60 questions in the test. Each correct response was assigned one mark while the incorrect ones were assigned zero marks. The achievement score of a subject is the sum total on all the items of the test. Theoretically the range of scores on this scale extended from 0 to 60.

**Time limit**: Time limit for this test is 3 hours.

This mathematical achievement test was finally administered and standardized on 1127 (793 males and 334 females) secondary school students
3.6.2 Problem Solving Ability Test

Problem solving ability test (PSAT) was developed and standardized by Dr. L. N. Dubey in 1988 and it was revised in 2011. The problem solving ability has been standardized over a sample of 1640 students between the age group of 12 to 17 years. The students selected from schools, colleges and universities from all socio-economic status and varied intelligence.

Reliability: The reliability coefficient of the test was calculated by the following methods:

- Spearman-Brown formula (Split-half method) - 0.78
- Kudar-Richardson formula (Rational equivalence method) - 0.76

Reliability of the Tool in the Present Study: For the present study the reliability of the test was estimated by split-half method by using Spearman-Brown Prophecy formula. The computed value of Spearman-Brown formula was 0.65. The test had high reliability on split-half method, which was significant.

Validity: The coefficient of validity was calculated by correlation the scores with the following tests:

- Group Intelligence Test (R.K. Tandon) - 0.68
- Test of Reasoning Ability - 0.85

Scoring: There are 20 problems in the test. Each problem has four alternatives answers. Out of these four answers only one is correct. If the pupil writes the correct answer he should be given one mark, and if he writes a wrong answer zero should be given. In the end all the marks should be added. Theoretically the range of the score is 0 to 20.

Time limit: The time limit for the test is only 40 minutes.

3.6.3 Mathematical Attitude Scale

Mathematical attitude scale (MATS) was developed and standardized by P. S. Yadav in 1984. With a view to assess the nature of the statements, 52 statements were submitted to a group of five judges. They were specifically instructed to classify these statements into two pills on the strength of the nature of the statements are positive and negative valence. They were also
requested to grammatical structure of the statements. In this way five statements were rejected on account of their defective structure or not meeting the criteria described earlier. Some statements were further refined in the light of the suggestions offered by the judges. Finally, 47 statements (24 positive and 23 negative) were retained for the try out. A printed form consisting 47 items were administered to 200 students of class IX.

**Item analysis:** Scores of students were arranged in the descending order. Top and bottom 25 percent cases were taken out and were termed as high and low groups. After calculating the t-value for each item, the items were arranged in descending order with respect to their t-test values. The highest t-test value was 8.41 and the lowest t-test value was 0.48. In all 40 items having t-test value equal to or greater than 2.71 were selected for the final scale. The significant t-test values imply that average response on the high and low groups to all the 40 items differ significantly.

**Reliability:** Split half reliability for the 40 items of the scale was computed using the Spearman-Brown formula and the value is 0.919. Also the product moment correlation between two halves of the scale is 0.85.

**Reliability of the Tool in the Present Study:** To check the reliability of the scale in the present study, split-half method of reliability was applied by using Spearman-Brown Prophecy formula and computed value of Spearman-Brown Prophecy formula was 0.74 which was satisfactorily high.

**Validity:** Each item was judged by experts and content validity was established.

**Scoring:** The response categories are on a 5-point Likert scale and the scheme of scoring responses categories involved differential weighting such that the response category. The weighting for different response categories are given below:

- Strongly Disagree – 1
- Disagree – 2
- Undecided – 3
- Agree – 4
Strongly Agree – 5
In the negative items the weighting for different response categories are given below:

Strongly Disagree – 5
Disagree – 4
Undecided – 3
Agree – 2
Strongly Agree – 1
The range of the scores is 40 to 200.

**Time Limit:** The time limit for the test is only 20 minutes.

### 3.6.4 Mathematical Anxiety Scale

Mathematical anxiety scale (MAS) was developed and standardized by Sadia Mahmood and Tahira Khatoon in 2012. The initial form (25 items) of mathematical anxiety scale (MAS) was administered on 250 students, which include 130 male and 120 female students, randomly sampled from six secondary schools of Aligarh district. The age of the sample ranged from 15-17 years. This scale is bi-dimensional with positive (i.e. liking, excitement, pleasant, comfortable) and negative (i.e. fear, dread, nervousness, worry) effects towards math.

**Item analysis:** An item analysis was done to determine the discriminating power of each item with the total scale by using Pearson product moment correlation technique. The items found to have a correlation of 0.35 or less with the total scale were discarded. Such items were 11 in number. To remove the effect of the eliminated items scores of the subjects on them were deducted from their total score and item total correlation again computed in respect of the remaining 14 items. Coefficient of the 14 items was found to have a correlation of less than 0.50 with the total scale. Out of 14 items, 11 items had total correlations above 0.50, and the highest being 0.69. This suggested that most of the items contributed to the total inventory and only three items had correlation 0.50 with total scale. This instrument in its finished form considered of 14 items of which 7 were positively and 7 were negative.
**Reliability:** Reliability of MAS was calculated by using the scores of 250 subjects on 14 items of the final form. A split-half reliability coefficient was found by correlating scores of the subjects on odd items of the scale with their scores on even items. The correlation coefficient thus obtained was 0.81 which when corrected by Spearman-Brown Prophecy formula increased to 0.90. Yet another method i.e. Cronbach’s alpha coefficient accessing the internal consistency of the instrument for the total scale was found to be 0.87, indicating a high degree of internal consistency for group analysis.

**Reliability of the Tool in the Present Study:** To test the reliability of the scale in the present study, the investigator used split-half method by using Spearman-Brown Prophecy formula. The computed value of Spearman-Brown Prophecy formula was 0.71, which was quite satisfactory.

**Validity:** To calculate the validity, two groups of students were divided one having more anxiety behavior and the other having less anxiety towards math. To judge the validity t-test of both of groups of students was calculated. The value of t-test was 14.50 which was significant at 0.01 level. The concurrent validity of the instrument was also tested by comparing it with the Fennema-Shaerman attitude scale. The concurrent value was calculated -0.41 which showed that students who had more favorable attitude towards math experienced less math anxiety. This result shows that the MAS is a bi-dimensional and valid instrument to measure math anxiety with both positive and negative effects.

**Scoring:** The responses categories are on a 5-point Likert’s scale and the scheme of scoring responses categories involved differential weighting such that the response category. The weighting for different response categories are given below:

- Strongly Disagree – 1
- Disagree – 2
- Undecided – 3
- Agree – 4
- Strongly Agree – 5
In the negative items the weighting for different response categories are given below:

Strongly Disagree – 5
Disagree – 4
Undecided – 3
Agree – 2
Strongly Agree – 1

The range of the scores was from 14-70 with 42 mean and high scores would indicate high math anxiety.

**Time Limit:** The time limit for the test is only 20 minutes.

### 3.7 DATA COLLECTION

It is necessary to adopt or evolve a systematic procedure to collect essential facts. After finalizing the tools and size of sample, the next step was to collect data from the selected sample. In order to fulfill this purpose, the investigator visited personally to different selected secondary private and government schools affiliated to H.B.S.E. (Bhiwani) with the prior permission of the her supervisor and chairperson, Department of Education, Kurukshetra University, Kurukshetra. Then the investigator met and discussed in detail the purpose of investigation with the Principals of selected schools and took permission to collect data from IX class students. The students were informed about the purpose behind this whole exercise and were assured that their responses would be kept confidential and would be used for research purpose of intended study only. The instructions were clearly explained and their doubts, if any, were removed. While distributing the tools to the students the investigator briefed the students on how to answer the questions and also assist them if they have any problems to understand the questions. The prescribed time in the tools were given to the students to answer the questions. After the completion of the test, questionnaires were collected from the students. Then the investigator made sure that all the questions had been responded and the respondents gave only single answer for each question. The researcher thanked the teachers and students for their cooperation.
3.8 SCORING PROCEDURE

After collecting the data from the students with the help of selected tools, collected data was scored in the following manner:

3.8.1 Scoring pattern of mathematical achievement test

Each correct response was assigned one mark while the incorrect ones were assigned zero marks. The achievement score of a subject is the sum total on all the items of the test. Theoretically the range of scores on this scale extended from 0 to 60.

3.8.2 Scoring pattern of problem solving ability test

There are 20 problems in the test. Each problem has four alternatives answers. Out of these four answers only one is correct. If the pupil writes the correct answer he should be given one mark, and if he writes a wrong answer zero should be given. In the end all the marks should be added. Theoretically the range of the score is 0 to 20.

3.8.3 Scoring pattern of mathematical attitude and mathematical anxiety scales

There are 40 questions in mathematical attitude scale and 14 questions in mathematical anxiety scale. The range of the scores is 40 to 200 of mathematical attitude scale and the range of the mathematical anxiety scale is 14 to 70. Both of the scales’s responses categories are on a 5-point Likert’s scale and the scheme of scoring response categories involved differential weighting such that the response category. The weighting for different response categories are given below:

Strongly Disagree – 1
Disagree – 2
Undecided – 3
Agree – 4
Strongly Agree – 5

In the negative items the weighting for different response categories are given below:

Strongly Disagree – 5
Disagree – 4
Undecided – 3
Agree – 2
Strongly Agree – 1

3.9 STATISTICAL TECHNIQUES USED

To fulfill the objectives of the study, the obtained data was processed, analyzed and interpreted by the investigator by applying the following statistical measures:

1) To understand the level of various variables techniques of mean, standard deviation, range and percentage was used.

2) To check the normality of the data Q-Q plot was employed.

3) To find out the relationship between various variables Pearson's product moment co-efficient of correlation was employed.

4) Multiple regression equation was used to predict dependent variables from independent variables.

5) To find out the differences between school type, gender and locality with respect to different variables t-test was employed.