CHAPTER IV
CHAPTER IV

METHODOLOGY

4.0.1. Introduction

After the problem of the study was formulated and types of information needed were decided, the questions that which have the relevant information and where they would be available was determined, the researcher proceeds to investigate the research problem "Enrolment and academic achievement of scheduled castes in higher education of Assam". Gorden rightly says, "After the problem of the study is clearly formulated and the types of information needed are specified as precisely as possible, the next steps is to determine the types of respondents required, with the ideal types of respondents decided upon, it is then necessary to determine the means of locating and contacting them". The procedure to be adopted in a research study may differ according to the nature of the study, type of phenomenon under study and the researcher himself, yet certain basic principles may be followed for the accuracy of the study. Thus in order to know the enrolment and academic achievement of scheduled castes in Higher education of Assam, a system research procedure is followed by the researcher. Moreover as observed by Bajpai "The best person to narrate any event is the person who has the personally involved in it" and therefore, researcher had collected the secondary data from the attendance register, admission register, records, list of scholarships for SC students, government report, census report, result register, result sheets, Annual report etc. of the universities and the colleges. The primary data had been collected through information scheduled, questionnaire and problem check list. The researcher developed the research tools with the help of the experts' opinion. The research tools are applied among the SC students and the principals of the colleges along with the Directors of the SC/ST Cell /IQAC in the Universities for the present study. After preliminary preparations and decisions, the next step was to select sample and population followed by construction of research tool for the present study, pre testing, data collection and analysis and description of the same.
The present research study is all set to find out the Enrolment and Academic achievement of scheduled castes in Higher education of Assam. In this study the dependent variables and the independent variables are used to know the enrolment and academic achievement of scheduled castes, problems of SC students, reaction about the plans and policies of the government in higher education of Assam.

4.0.2. Design of the research study

The present investigation was undertaken primarily to study different variables such as enrolment, academic achievement, social problem, economic problem, academic problems, dropout, Government policies regarding scheduled castes, problems and reactions of scheduled castes and principals and directors towards the higher education of Assam in relation to the enrolment and Academic achievement of scheduled castes in higher education of Assam.

In this chapter an attempt has been made to explain the designed of the study which includes details as the locale of the study, sample, variables studied, its scoring procedure, data processing and statistical techniques are used.

4.0.2.ii. Locale of the study

The present study covers 3 universities, 68 colleges, 1473 numbers of scheduled caste students (who enrolled in 2010), Principals of the 68 colleges, Directors of the SC/ST Cell/IQAC of the 3 Universities of Assam. The necessary data for the study has been collected from all the sample colleges and universities of Assam.

4.0.2.ii. Variable studied

The objectives formulated in the chapter I made it evident that this study would involve the collection of data and information of different variables selected for investigation. These may be listed as followed.

4.0.2.ii.a. Dependent Variables-

- A measure to assess the enrolment of scheduled castes male and female in Higher education of Assam.
• A measure to assess the academic achievement of scheduled castes male and female in Higher education.
• A measure to assess the rate of drop out of scheduled castes male and female in Higher education.
• A measure to determine family size, family type, and economic condition, educational qualification of parents, accommodation and communication of scheduled castes in higher education of Assam.

4.0.2.ii.b. Independent Variables-

• A measure tool to assess the academic problems, social problems, economic problems, institutional problem of scheduled caste students in Higher education of Assam.
• A measure to assess the reaction of the Principal and the Director to the government plans and policies for scheduled castes and its implementation in colleges and in universities of Assam.
• A measure to assess the reaction of scheduled castes students to the government plans and policies in Higher education of Assam.

4.0.3. Methodology

Descriptive survey method is used to study the research problem, as it aimed at identifying and measuring the enrolment and academic achievement of scheduled castes in higher education of Assam. The term survey is originated from old French word surveyor, which means look carefully. Thus survey means look carefully and thoroughly at. The term descriptive survey method means an investigation of the opinion or experience of a group of people, based on a series of questions in descriptively. Deceptive survey research is characterized by classification of data relevant to the variables studied. It is non experimental research. It deals with the relationships between variables. Descriptive research investigates and involves measurement, evaluation, classification, analysis, comparison etc. it is concerned with condition and relationship that exist, opinion that are held, process that are evident or tends that are developing. It is primarily concern with the present, although as they related to correct condition.
This study is also proposed to comparison study of enrolment and academic achievement of scheduled castes Male and Female in higher education of Assam.

4.0.4. Procedure followed in securing data

Data collection means obtaining information relevant to the subject matter. The out of order data collection methods are liable to cause of false, imprecise or incomplete data analysis. Therefore, the main emphasized devotion has been to the method of collection of the data rather than the method of analysis. Every subject is selected as a sample by personally and individually on the basis of information scheduled for getting accurate information, problem checklist for giving right responses, provides questionnaire to the scheduled castes student in colleges and universities to know social, academic, economics and institutional aspects of them in higher education. Researcher prepared the researcher tools in English language because; he used it among the students in higher education of Assam. The researcher meets sample population individually and collects the information. He has gone to field individually to collect the data from selected sample. The subjects were requested to answering the questioning honestly and not to conceal the facts and their secrecy was assured, in this regard he has prepared the unbiased questions for research tools. They were assured that the information given by them would be treated as strictly confidential and would be used for purposes other than that of research. Before asking them to reply the questions, the respondents were convinced fully and requesting them to cooperative, they ultimate agreed to supply the required information.

In the questionnaire, information scheduled and Problem check list, the respondent are requested the same procedure to give accurate responses. In the questionnaire, social, academic, economic, institutional aspects are included. So, the scheduled caste students in higher educational institution are requested to provide the correct answers to the questions for the research. Information scheduled and Problem checklists are also used to collect the information regarding scheduled caste students in the colleges and universities in Assam.

The researcher has gone individually to the selected universities to meet the Director of SC/ST Cell/IQAC to collect the information about UGC and state government scheme for the benefit of scheduled caste students. Investigator has also gone to the sample colleges to meet the Principals to know about the UGC scheme and Government plans and policies
regarding scheduled castes are availing or not to benefits of SC students in their higher education of Assam, in this regards researcher has collected information from the Directors and the Principals.

Researcher has found the academic achievement of the scheduled castes in higher education of Assam on the basis of final result of graduation and post graduation examination. The examinations in the higher education institution are conducted by the respective universities. The researcher has also found the dropout rate of scheduled castes on the basis of result of the examination. The researcher had found the enrolment of the scheduled castes student from 2001 to 2010 in both graduation and post graduation course but in respect of academic achievement the researcher has found the result of 2003 to 2010 for graduation and post graduation. Because the students those who take admission in the year 2001 they will appear their final examination in 2003 in UG level and in 2002-03 in PG level.

4.0.5. Target Population

Population refers to any collection of special group of human being or non human being, in simple meaning population is all the inhabitants of a place, a particular group within the total inhabitants of a particular area. In statistical point of view, population means the whole of the total quantity of living or non-living things. Generally it means the aggregate or totality or whole of something, or total number of things being, matters etc. A research population is generally a large collection of individuals or objects that is the focus of a scientific inquiry. It is for the benefit of the population that researches are done.

Population is the quantity research; the whole universe that never can be studied within a limited time. Therefore research study definite necessary population is selected for all. The population of particular problem of investigation may be of two types - Finite population is the limited number of individual, member’s things, objects, or units and Infinite population is unlimited numbers of individuals, members, things, objects, or units.

The study covers the enrolment and academic achievement of scheduled castes in higher education Assam. So, it is finite population.
The population for the present study has been defined as the total number of Scheduled caste students of Graduation and post graduation classes of Assam. There are 6 universities and its 346 affiliating general colleges of Assam. Private colleges and Universities, Medical colleges, engineering colleges, technical colleges, Institute for national importance, deemed universities along with the students of these institutes are not included in the population for the sake of convenience.

So, all the scheduled castes students present in Arts, Science, and commerce/management stream of all the 346 affiliating colleges and the 10 universities are also the Population for the present study.

4.0.6. Sample

A sample is a finite part of a statistical population whose properties are studied to gain information about the whole (Webster, 1985). When dealing with people, it can be defined as a set of respondents (people) selected from a larger population for the purpose of a survey. Sampling is the work, process, or technique of selecting a suitable sample, or a representative part of a population for the purpose of determining parameters or characteristics of the whole population.

A population is a group of individuals’ persons, objects, or items from which samples are taken for measurement for example a population of presidents or professors, books or students.

Social phenomenon being very vast, it is practically impossible to contact each and every person who formed part of the problem of the study. It was therefore, researcher decided to study reasonable number of representative scheduled castes student of 1473 from amongst the whole of the SC population. After the pilot study, it is found by the researcher that some of the districts of Assam like - Cachar, karimganz, Hailakandi, Morigoan, Bongaigoan, Nagoan, Lakhimpur, Sivsagar Jorhat, Kamrup, have the higher number scheduled castes population than other districts of Assam are living. So, the researcher selected as many as colleges from this districts. The selection of the subject matter and the sample was guided by the delimitation of the study.
For the purpose of gathering detailed and relevant information required for the present study Random sampling method was followed and effort was made to secure as large and represented sample as the circumstances permitted. For practical reason it was decided to study a sample of 3 universities out of 6 Universities and 68 colleges (20% of affiliated colleges from each 3 universities) out of 346 affiliated colleges, Arts, Science, and Commerce/ Management courses have selected randomly for the purpose of the study. The present problem is also confined to both male and female Scheduled caste students in higher education of Assam. In this regard researcher has selected 1473 numbers (25% of total enrolment in 2010 in graduation and post graduation classes) of Scheduled caste students. In the study, 68 Principals of the Colleges, 3 Directors of SC/ST cell/IQAC from the three universities, are taken for the purpose of the research. Questionnaire, problems check lists, and information scheduled was used to collect data.

The selected numbers of Universities and its affiliated colleges for the study are mentioned followed.
Table NO.1. Sample of the Universities and the Colleges in Assam

Sample of the universities and the colleges in the state of Assam for the study have been given follows.

<table>
<thead>
<tr>
<th>Name of the Universities</th>
<th>Name of the affiliated Colleges under the concern University</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSAM UNIVERSITY</strong></td>
<td>1) GC College, 2) Silchar College, 3) lala rural college, 4) Karmganj College, 5) Cachar College, 6) Radhamadhav College, 7) Ramkrishna College, and 8) Janata College</td>
</tr>
</tbody>
</table>
Above table shows the sample of universities are 3 and sample of affiliating colleges' are 35 from GU, 25 from DU and 8 from AU which constitutes of 68 number of total college for the study.

Table No. 2. Final sample of the Colleges and Universities in Assam

Final sample of the colleges and universities in Assam for the present study is mentioned follows.

<table>
<thead>
<tr>
<th>Under Gauhati University</th>
<th>Under Dibrugarh University</th>
<th>Under Assam University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of colleges 177</td>
<td>Total number of colleges 127</td>
<td>Total number of colleges 42</td>
</tr>
<tr>
<td>Sample taken 20% out of 177 colleges = 35 colleges</td>
<td>Sample taken 20% out of 127 colleges = 25 colleges</td>
<td>Sample taken 20% out of 42 colleges = 8 colleges</td>
</tr>
<tr>
<td>Total number of University = 3, total Number of colleges = (35+25+8) = 68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The courses for the study are Arts, Science, Commerce and Management.

Periods for the study – 1. Enrolment from 2001 to 2010

2. Academic achievement from 2003 to 2010

The above table shows the final sample of colleges and universities for the study. Researcher has taken 35, 25 and 8 affiliating colleges under GU, DU and AU respectively along with 3 universities for the study. The courses for the study are Arts, science and Commerce/ Management and the periods of enrolment from 2001 to 2010, for academic achievement from 2003 to 2010.

So, as the title indicates the research covers the student population of scheduled castes studying in different type of colleges and universities of Assam. Since the academic achievement of scheduled castes at the final examinations conducted by the university is sought to be studied, the sample of students studying in graduation and post graduation level in Arts, Science and commerce/management stream in sample colleges and universities.
From the colleges and universities 1473 (20% SC students out of total SC enrolment in the year of 2010) numbers of Scheduled castes student constituted sample, one student constituted one sample for the research. A visual picture of the composition of the sample is presented in the above table no.1 and following table no.2.

**Table No.3. Final sample of the SC students in higher education:**

The final sample of SC students in higher education of Assam for the study has been tabulated for the study as follows.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total enrolment of SC students in 2010</th>
<th>25% of total SC students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauhati University</td>
<td>347</td>
<td>3078</td>
</tr>
<tr>
<td>Colleges under GU</td>
<td>2731</td>
<td></td>
</tr>
<tr>
<td>Dibrugarh University</td>
<td>205</td>
<td>1758</td>
</tr>
<tr>
<td>Colleges under DU</td>
<td>1553</td>
<td></td>
</tr>
<tr>
<td>Assam University</td>
<td>328</td>
<td>1051</td>
</tr>
<tr>
<td>Colleges under AU</td>
<td>723</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table reveals the final sample of the study is 1473 number of Scheduled caste students out of SC population in 2010 in the colleges and universities for the study.

**4.0.7. Sampling procedure**

Random sampling method is used in this study. The selected sample colleges and general courses (Arts, Science and Commerce) are affiliating by Gauhati University, Dibrugarh University and Assam University, and Arts, Science Commerce/management courses and
the universities are considered for the study. Under Gauhati University there are 177 general affiliating colleges, 127 general colleges under Dibrugarh University, and 42 general colleges under Assam University. The researcher has selected 35 colleges under Gauhati University, 25 under Dibrugarh University, and 8 under Assam University as sample and out of 6 universities 3 universities are selected by the researcher for the study. The sample colleges and universities provides Arts, science, commerce, medicine, engineering, Technical etc education in Assam, the researcher had chosen only general courses (Arts, Science and Commerce stream). So, the researcher had taken enrolment, academic achievement, and dropout of scheduled castes in this sample colleges and universities of Assam.

The researcher has adopted the same procedure to obtain data as well as information at degree level and post graduate level. The researcher used the problem check list, and Questionnaire among the scheduled castes in higher education of Assam. The principals of the 68 sample colleges and directors of SC/ST cell of the 3 universities have been chosen as institutional sample, and the data are obtained through the information schedule according to the objectives of the study.

4.0.8. Research tools for data collection

The construction of a research tool for data collection is the most important facet of research because findings or conclusions is based upon the type of information that the researcher had collected, and the data are collected totally dependent upon the tools of the research. The research tool provides the input into a study and therefore the quality and validity of the output (the findings), are solely dependent on it. So, the research tool should be - Clearly define and individually list all the specific objectives or research Questions for the study, for each objective or research questions, list all the associated questions that the researcher want to answer through the study, take each research question listed in chapter I and list the information required to answer it, formulate questions to obtain this information.

The researcher used the following research tools for data collection –
4.0.8.1. Problem Check list

The term check means examine the accuracy, quality or condition of the problem. List is a
term, which has originated from a French word listed. List means a number of connected
items or names written as series. Thus, checklist is a list that consists of a list of items with
examines the accuracy, quality, or condition of it. The checklist is a form of questionnaire in
the form of a set of categories for the respondent to check. At the time of respondent, the
respondents are to response the checklist items depending on the research problem. The
Problem check list is given appendix - 2, p.-xxi

4.0.8. i.a.Construction of problem checklist

Researcher has constructed the Problem check lists to know the problem of SC in higher
education of Assam. In this regard he has prepared 20 questions to know about the
academic problems, social problems and economic problems of scheduled caste students
in their higher education of Assam. In this regard, researcher tested the reliability and
validity of the research tool for the final using. He has prepared the Problem check lists in
simple English, unbiased word and he does not used the religious sentimental word.

4.0.8. i.b.Problem check list and scheduled castes student

In the research work, the researchers have used the problem checklist among the 1473 number
of SC students to collect information for the study. In the study, researcher used 20 questions
for the sample to check the answer. They are asked to put tick mark against the correct
responses of always, sometime, and never. Researcher has prepared the problem checklist
according to the objectives of my study.

4.0.8. i.c.Administration

Researcher has given the Problem check list to the scheduled castes student directly for
their responses. For the positive responses 3 marks is given and 2 for some times and 1
for negative responses. He requested the SC students to provide co-operation for getting
some information and feedback from them. In each statement Yes, Sometimes, Never and
appropriate box have been given against each question. He said, “Please read the
statements carefully and provide actual response as per the nature of problems by putting
tick marks in the relevant places”. Researcher assured them that the information supplied
by them will be kept confidential and only used for Research purpose.

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After the pilot study of the research tool problem checklist, necessary 20 statements are retained and 10 unnecessary statements are avoided by the researcher.

4.0.8.ii. The Questionnaire

Questionnaire is originated from French word. The term questionnaire means a set of printed questions which is written for survey. It is an important research tool, which is generally used in normative survey research. The term normative means relating to or setting a standard or norms. Each and every question is consisted of a pre-determined set of questions that have close relationship with the problem to be studied to be research. The questions are generally selected from the literature that is reviewed for the study of selected problem. Review related research helps to determine the questions that are to be selected for preparation for research tool.

A questionnaire is an important tool of research study. It is used for factual information from the respondents is desired. Questionnaires are often sent by mail to respondents and some time gives the respondent personally, and return of the answers is voluntary.

4.0.8. ii.a. Construction of the Questionnaire

Researcher has constructed the questionnaire to know the problem of SC in higher education of Assam. In this regard he has prepared 40 questions to know about the academic problems, institutional problems, social problems and economic aspects of scheduled caste students in their higher education of Assam. In this regard, researcher standardized the research tool for the final using. He has prepared the questionnaire in simple English, unbiased word and he does not used the religious sentimental word.

4.0.8. ii.b. Questionnaire and scheduled castes student

For present study, Questionnaire is used among the 1473 number of SC students of the colleges and the Universities to know about different aspects of in society, economic factors, educational opportunities and institutional facilities, reading environment, home related problem etc. The questionnaire is very simple and easy to give response. After the pilot study, researcher used only appropriate 40 questions (9 academic related Questions, 17 institutional, 4 economic, 9 social and 1 other question) and it has been constructed in simple English language, specific, short, easy to understand and objective and attractive. Great care has been taken to include questions related to the objectives of the study. Researcher prepared the
Questionnaire according to the objectives of the study. The Questionnaire has been enclosed in the appendix –3, p - xxi

4.0.8.ii.c. Administration of the Questionnaire

Initially researcher tried to collect data through questionnaire to analysis of two objectives. One is to study the problems of scheduled castes in higher Education of Assam. Another is to study the Government Policy for scheduled castes with respect to admission, financial facilities and institutional facilities in higher Education of Assam.

In this study, the researcher personally gave the questionnaire to the scheduled caste students in higher education of Assam and he also mailed some questionnaire to the scheduled castes student those who left the university and College hostel. The researcher had collected their address from the office of colleges and universities. The Questionnaire are presented in a good order and arranged properly for the study. The questionnaire consists of a set of questions presented to a respondent for answers. The respondents read the questions, understand what is expected and then write down the answers themselves. The researcher used the questionnaire cum information scheduled to collect information of scheduled castes student regarding social problems, economic, academic and institutional problems that they are faced in their study.

Questionnaire are developed and tested carefully before being used on a large scale. Researcher standardized the research tool. The questionnaire was administered through personal contact and it aims at collecting relevant information. Questionnaire are presented to the research sample directly or by indirectly or by post to the search sample. The respondent can answer the question freely. Researcher has given the questionnaire to the scheduled castes student directly or indirectly for their responses. For the positive responses 3 marks is given and 2 for some times and 1 for negative responses. He requested the SC students to provide co-operation for getting some information and feedback from them. In each statement Yes, Sometimes and Never and appropriate box have been given against each question. Researcher said, “Please read the statements carefully and provide actual response as per the nature of problems by putting tick marks in the relevant places”. Researcher assured them that the information supplied by them will be kept confidential and only used for Research purpose.

After the pilot study the researcher found that to study the different aspects of society, economic factors, academic facilities and institutional opportunities, using questionnaire
is the important tool to study the aspect of Scheduled castes in higher education of Assam. Thus the researcher decided to collect the data through the questionnaire. After the pilot study of the research tool questionnaire, necessary 40 statements are retained and unnecessary 20 statements are avoided by the researcher.

4.0.8.iii. Information Schedule

Researcher has prepared the information schedule according to the objectives of the study. He has given the information schedule to the Principals and Directors of IQAC/ST/SC cell to collect the information regarding the Government as well UGC scheme related to the SC students in higher education of Assam. As a research tool, Information schedule is based for collect information.

4.0.8. iii.a. Construction of information schedule

Researcher has constructed the information schedule to know the UGC or Governmental plans and policies of SC in higher education of Assam are implemented or not. In this regard he has prepared 12 questions for the study. The researcher standardized the research tool for the final using. He has prepared the information schedule in simple English, unbiased word and he does not used the religious sentimental word.

4.0.8. iii.b. Information schedule and scheduled castes

The information schedule was used at first pre-tested on the sample with 20 questions in colleges and universities. The information schedule is used for data collection is given appendix - 4, p -xxii It contains 12 questions. The expected answer categories are also given there in. first of all the different aspects of the problems were determined, secondly, it was decided that what information is necessary for valid generalization on each aspect. The third step was forming of actual questions and their expected answer categories and to give a definite form.

4.0.8. iii.c. Administration of information schedule

Initially the researcher used the same questionnaire to the principals of the colleges and directors of the SC/ST cell in the universities. During the pilot study the researcher found that the principals and directors are not interested to fill up the questionnaire. Thus the researcher decided to use information schedule instead of questionnaire to know necessary information.
required by the researcher. Researcher has given the schedule to the 68 principals of the 68 colleges and 3 Directors of SC/ST Cell or IQAC of the 3 universities directly. For the positive responses 3 marks is given and 2 for some times and 1 for negative responses. He requested the principals and Directors to provide co-operation for getting some information and feedback from them. In each statement Yes, No, Sometimes and appropriate box have been given against each question. He said, “Please read the statements carefully and provide actual response as per the nature of problems by putting tick marks in the relevant places”. Researcher assured them that the information supplied by them will be kept confidential and only used for Research purpose.

After the pilot study of the research tool, necessary 12 statements are retained and 8 unnecessary statements are avoided by the researcher and the researcher standardized the tool.

4.0.9. Scoring

The items of the research tools as – questionnaire, information schedule and problem checklists, were - valued for the positive statements 3 is given to the responses indicating agree/always/yes, 2 for disagree/sometime/ and 1 for strongly disagree/no/never and for the negative statement valued of 3 strongly disagree 2 for no and 1 for never. Thus each student can be assigned sample quantitative scores for the measurement of the subject’s reaction. In the present study total 12 statements were taken for information schedule, 20 statements for problem checklist, and 40 statements were taken for Questionnaire. Statements are particularly for the problems of education, economic, social, and institutional of the scheduled castes in Higher education of Assam, after discussion with the expert the research tools are used for the present study.

4.0.10. Data and its nature

The present study is an analytical one for data collecting. The researcher has used field study and survey methods. Proper tools and techniques had to be designed before setting out for field study. It was decided to use information scheduled for Principal of the colleges and director of SC/ST cell of the Universities were prepared, after pre-testing the same through a pilot study. The relevant data were collected from the head of the colleges
and universities with the help of standardized information schedule. The researcher used
the Attitude scale, Problem check list, Questionnaire schedule among the sample
scheduled caste students in colleges and universities for collecting the relevant data. The
research tools were in English and questions were put to the respondents in English,
depending on the actual need.

Besides the data collection from the sample, the researcher had long conversations with
variety students of the colleges and universities, Principals, and Directors of SC/ST Cell.
The conversation proved to be very useful as they tended to throw valuable light on
certain aspects of the problem.

Table No.4. Methodological Description of the study

Description of the tools or techniques, source of data and nature of data are
shown in the following table.

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Objectives</th>
<th>Description of the tools/techniques</th>
<th>Source of data</th>
<th>Nature of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>To study the enrolment and progress of Scheduled Castes in higher education of Assam.</td>
<td>Official, records, websites, attendance register, result sheets, Annual report, college prospective, and census report.</td>
<td>Secondary</td>
<td>Quantitative</td>
</tr>
<tr>
<td>2.</td>
<td>To study the dropout rate of scheduled castes in higher education of Assam.</td>
<td>Result of the colleges, annual report, and official records.</td>
<td>Secondary</td>
<td>Quantitative</td>
</tr>
<tr>
<td>3.</td>
<td>To study the problems of scheduled castes in higher Education of Assam.</td>
<td>Questionnaire and problem checklist.</td>
<td>Primary</td>
<td>Quantitative and qualitative</td>
</tr>
<tr>
<td>4.</td>
<td>To study the Government Policy for scheduled castes with respect to admission, financial facilities and institutional facilities in higher Education of Assam.</td>
<td>Official records, websites, census report, Information schedule.</td>
<td>Primary and secondary</td>
<td>Quantitative and qualitative</td>
</tr>
</tbody>
</table>
The above table reveals objectives, description of tools and techniques, source of data and nature of data for the study.

4.0.10. i. Primary data
Primary data had been collected from different aspects of scheduled castes such as academic problems, social problems, economic problems, institutional problems of scheduled castes student in higher education of Assam. Primary data were collected with the help of different research tools like - information scheduled, Questionnaire and Problem check list were constructed. Similar schedule were prepared to collect data from the population of colleges and universities.

4.0.10. ii. Secondary Data
Besides primary sources, a variety of other secondary sources were also tapped. Whatever published research documents available in the various libraries, web sites were collected. Data both published and unpublished were also gathered from the government and departmental records, colleges and university records, District Gazettes, Census report, hand book, News paper Journal etc.

4.0.11. Pilot study
Before applying the information schedule, Problem check list and Questionnaire are used on the samples and selected the population for the research study, it was pretested as a trial to gain specific knowledge of the subject and to get an idea of the problems likely to be faced during the main survey. In the pre testing, same procedure was followed which was intended to be adopted in the actual survey. The people interviewed on the pre test were similar in characteristics to the respondents who were interviewed in the final investigation.” A pilot study is taken after it has been completed; Pilot study is the “Preliminary study of the universe in question to get an early idea about it”. After pre testing or pilot study was cover, necessary amendments were made in the research tools for the study and the defects, discrepancies and other problems and difficulties were tried to be removed, and then utilized for interview of the sample scheduled castes in higher education.
The Questionnaire is used to study the different aspects related to the SC students in their higher education of Assam. The problem check list is used for the study of social problems, economic problems, academic problem, and institutional problems for higher education of scheduled castes student in the colleges and universities. The information schedule is used to Principals of colleges and Directors of SC/ST cell of the Universities to know about the information related UGC scheme and Government plans and policies to the development of scheduled caste students in the colleges and universities for pilot study.

After a preliminary survey of the sample area, few colleges and universities having high enrolment of Scheduled Caste students in general courses (Arts, Science, & Commerce) were selected purposively. The data had been collected from both Primary and secondary sources. Primary data were collected through interview, observation, group discussion, schedule and Questionnaire methods. Secondary data were also collected from Books, various government records, records of the colleges and universities, from the journals, magazines, Newspapers, websites, Statistics hand book, census report etc. The primary data had been collected by the information schedule, Questionnaire and problem check list. The research tools are used among the scheduled castes students, principals and directors of SC/ST Cell of the colleges and universities, Libraries.

4.0.12. Analysis of Data

Hand and computer scoring was done by the researcher for the study. Scoring was done by strictly in accordance with the direction of the manual of the respective tools. The tools were printed which were given the subjects to fill up the information. Data will be analyzed manually as well as by the computer with help of advanced statistical techniques.

4.0.13. The master sheet

Having, thus, scored each test for all the scheduled castes students in higher education (college and university) of degree and post graduate classes students, master sheets were
prepared by transferring scores of the students test wise and dimensions wise. These master sheet, tools are placed at Appendix. 5, 6, 7, and 8 p-xxvi, xxix, xxx, and xxxii

4.0.14. Statistical analysis

Several objectives are underlying for the study which were stated in the first chapter. These determined the nature of statistical analysis used in this study. As the survey research the Hypothesis is not determined by the researcher. The statistical analysis has been described in the next chapter of analysis and interpretation of the data as following objective wise.

The first objective of the study was to survey the enrolment and progress of Scheduled Castes in higher education of Assam. This has been done on the basis of admission register, college records and final result, annual report, result register of the colleges and universities for each variable presented under Appendix – 5, p - xxvi and appendix 7 p-xxx.

The second objective of the study was to survey the dropout rate of scheduled castes in higher education of Assam. The rate of drop out is determined on the basis of repeat or regular examination result of the universities. This has been done on the basis of academic achievement out of the total enrolment are tabulated in the presented Appendix – 6, p - xxix and appendix 8 p-xxxii.

The third objective of the study was to survey the problems of scheduled castes in higher Education of Assam. This has been done on the basis of research tools presented under Appendix – II p-xxii.

The fourth objective of the study was to survey the Government Policy for scheduled castes with respect to admission, financial facilities and institutional facilities in higher Education of Assam. This has been done on the basis of interview scheduled of principal and Directors of colleges, universities respectively which is presented under Appendix – 4, p-xxii.

After the pilot study, the next important process namely item analysis was carried out carefully with a view to find out the difficulty index and discriminatory power of the test. After reviewing the different techniques used to find out the discriminatory power and difficulty index of the items.
On the basis of the collected information and data the analysis of the study has been done by using percentage; mean, graphical representation, pie diagram, bar diagram, histogram.

4.0.15. Validity

The researcher used the questionnaire, information scheduled and problem checklist to study the social problems, academic problems, economic problem of SC students and academic facilities, institutional facilities, admission policy of government as well as UGC scheme related to scheduled castes student in higher education of Assam. He has given the research tools to the expert of Assam University to prove the validity of the research tools. After had proved the validity of the research tools he used it to collect the data for the study. Researcher ensured the face validity and content validity duly been taken care of while finalizing the tools.

Thus this chapter with detailed account of all the tools used in this study very much highlights the significance and appropriateness of the tools administered as well their utmost utility in this investigation.

In the next chapter of the study analysis and interpretation of the data is discussed.