2.1 What is job satisfaction

"A man's working life spans forty to fifty years. In the main, he keeps his nose to the same kind of grindstone for that period of time. Thus, it is important to consider what makes grindstone attractive—what satisfaction can be found in jobs (Darley and Hagenah, 1955)?

Roe (1956) states "In our society there is no single situation which is potentially so capable of giving some satisfaction at all levels of basic needs as is the occupation."

There is a distinction between overall job satisfaction and satisfaction with particular facets of one's job. The satisfaction definitions also differ in the kinds of facets they include and in what they meant by a facet. Some measure satisfaction in different need areas (Porter, 1961) while other measure satisfaction with such concrete job factors as pay and promotion (Smith, Kendall and Hulin, 1969). Some of the definitions are direct affect (i.e. satisfaction) ratings while others are statements about the causation of satisfaction. Overall job satisfaction is the sum of job facet satisfaction across all facets of a job.

Job satisfaction has also been operationalized as the sum of goal attainment or need fulfillment when summed across job facets. In Porter's (1961) terms, goal attainment or
Fulfillment can be thought of as the response to "How much is there now" item for a particular job facet. Alderfer (1969) measured job facet satisfaction by having subjects agree or disagree on a six point scale with descriptive statements about their jobs. His procedure asked for an 'is now' response. Porter (1961) defines satisfaction as the difference between responses to a "How much is there now" item and responses to a "How much should there be" item when these two items are asked for a number of job facets or needs. The difference between these two types of items is computed and the differences are summed across the job facets to yield a measure of overall job satisfaction.

In the Minnesota studies of work adjustment (Lofquist and Davis, 1969), satisfaction is defined in need fulfillment terms as a "correspondence between the reinforcer system of the work environment and the individual's needs". Locke (1969) also argues for the use of a discrepancy equation. He believes that only unfulfilled desires can cause dissatisfaction and that satisfaction is the result of a comparison between fulfillment and desires or ideals.

A review of all the concepts as reported by Porter (1961) and Pelz and Andrews (1966) suggest that job satisfaction is an internal state of mind within the organism. It can be
explained in terms of the difference between "How much is there now" to "How much should there be?" It is the total effect of different aspects associated with the job.

By job satisfaction in the present study we mean the degree of satisfaction experienced by the scientist towards the job itself.

2.2 Studies to test Herzberg's Job Satisfaction Theory

The pioneering study in the field of job satisfaction was made by Herzberg, Mausner and Snyderman (1959). They invented two terms namely, motivators and hygienes. Characteristics producing satisfaction were referred as motivators and those producing dissatisfaction as hygienes. Herzberg's motivators were mainly needs like self actualization and self realization in work and hygienes consisted of factors in the environment describing job contexts like unbiased supervision, salary and congenial work environment.

Many workers tested the Herzberg dual approach of job satisfaction. The conclusion of these various studies may be summarized as under:

(1) Studies made by Herzberg et al. (1959), Friedlander and Walton (1964), Myers (1964), Saleh (1964) and Schwartz and Stark (1963) suggest that factors causing job satisfaction,
that is, motivators, are different from and not merely opposite to factors causing job dissatisfaction. In contrast, studies by Friedlander (1963), Ewen (1964), Wernimont (1966) state that the two factors, motivators and hygienes, may not be completely independent. The majority of these characteristics proved significant contributors to job satisfaction and dissatisfaction.

(i) Studies by Ewen (1964) also revealed that one single factor can cause both job satisfaction and dissatisfaction in the sample.

(iii) A study by Saleh (1964) on people who were about to retire and asked to look in retrospect to their career, indicated motivators as source of satisfaction and hygienes as source of dissatisfaction. But while looking to the time left before retirement indicated hygienes as source of satisfaction.

The general conclusion of these studies is that one factor may cause job satisfaction in one sample and job dissatisfaction in another sample. Occupational level and age of the respondent to some extent determine whether a particular factor will be a source of satisfaction or dissatisfaction on the job.
(iv) Friedlander (1965) found that for white collar workers, motivators (intrinsic or content factors) were the source of satisfaction and for blue collar ones hygienes (extrinsic or context factors).

(v) Gordon (1965) found that individuals satisfied with motivators did not show better overall job satisfaction than the individuals highly satisfied with hygienes. A positive relationship was found between satisfaction and motivators but not with hygiene and production.

(vi) Halpern (1966) found that respondents though equally satisfied with motivators and hygiene aspects, yet motivators contributed significantly more to overall job satisfaction than did the hygienes.

(vii) Wernimont (1966) reported that people mentioned more motivators than hygienes in describing both job situations. Both motivators and hygienes can be sources of job satisfaction and job dissatisfaction.

(viii) Schwartz et al. (1963) found that motivators generally associated with pleasant experiences and hygienes with unpleasant experiences, the results are in conformity with those reported by Halpern (1966).
2.3 Occupational level and job satisfaction

Studies made by Centers (1948) and Jurgenson (1947) showed that job motivation varied at different occupational levels. Centers and Bugental (1966) found out in studies on job motivation that people in higher occupational levels valued intrinsic job components like self expression, interest, value of work etc. At lower occupational levels, extrinsic job components (pay, security etc.) were more valued. Confirming the findings of Centers (1966) in another way, Friedlander (1965) and Armstrong (1971) found that job content factors are more important at higher occupational levels while job context factors are more important at lower occupational levels.

2.4 Context and Content related factors and job satisfaction

Friedlander (1964) observed that job content factors, that is, feelings of achievement, use of best abilities, challenging assignments, growth on the job and recognition were ranked most important for both job satisfaction and dissatisfaction regardless of the occupational level. Job context factors, that is, employee benefits, effect of job on home life, merit increases, working conditions and technical
competence of the supervisor were ranked least important for both job satisfaction and dissatisfaction. Chowdhry and Lahiri (1965) reported that skilled workers valued content related factors as sources of satisfaction and dissatisfaction. Zanders (1974) studied changes in the attitudes of relocated workers. Subjects reported that they preferred previous employment because of opportunity for interruptions in the task, independence in work performance and the new one because of the tempo of the work, fixed time of the work periods, regard of the importance of the task, abilities of co-workers, contacts with the foreman, physical conditions of work and higher wages (context related factors mainly).

2.5 Pay and opportunity for advancement and job satisfaction

Singh and Wherry (1963), Kapur (1967), Desai (1968), Mukherjee (1968), Vaid (1968) and Goyal (1969) found that majority of the workers valued pay and opportunity for advancement. They were satisfied with other aspects of the job but not with pay and opportunities for advancement. Mantovani (1972) studied the industrial workers and found that the need for the opportunity to work in a safe and wholesome physical environment was regarded as more important than the preference for steady work with good pay and possibility for promotion. Lahiri (1965) and Ganguli (1967) found that salary and security ranked important among the satisfied workers.
while the latter author observed further that people were mostly dissatisfied with their job because of inadequate pay and allowances. Kapoor (1967) found that education, skill, place of birth and income were related to job satisfaction. Atira (1970) found that achievement, responsibility and advancement were contributing towards job satisfaction. Salary and possibility of reaching the top of the occupational ladder and recognition were found to act as satisfiers.

2.6 Sex and job satisfaction

Kuhlen (1963) found that occupation is psychologically more important to men than women. Male respondents placed greater value on the opportunity to use their skill. Hardin et al. (1951) and Jurgenson (1947) observed that women valued good coworkers and men placed higher value on opportunity to use talent or skill, thus supporting Kuhlen's study. Petty and Lee (1975) studied the relationship between supervisory leadership and subordinate satisfaction for different groups. They found that relationship was significantly higher for female subordinates with female supervisors. Though not significant there was a tendency for male subordinates to have lower satisfaction with female supervisors. Hamner et al. (1974) examined the way the sex and race of the rater and the
ratee influence assessments of ratee performance on a work sampling task. Results indicated that sex, race and stereotypes do influence assessments of behaviour on a work sampling task. Mathewset al. (1974) observed in their study on Air Traffic controllers that more women than men felt that co-workers discriminated against women. Discrimination against women by management as well as supervisors was reported.

2.7 Intrinsic and Extrinsic rewards and job satisfaction

Mannheim (1975) studied the relationship between specific job rewards and work role centrality for 5 major occupational categories. For each occupational category work centrality was related to intrinsic, material, social and hygienic rewards. For all groups, the strongest relationship was found with intrinsic rewards. Aldag et al. (1975) examined the differences between older and younger employees in the levels of satisfaction. Their findings refute the popular stereotypes that older employees place more importance on extrinsic rewards (high pay and job security) than do younger employees. Duerr (1974) concluded that incentives are often misdirected and can cause poor employee performance. Misdirected incentives may arise from 3 factors, the measurement systems, the reward systems and the personal characteristics of the executives.
2.8 Mental health and job satisfaction

Korn (1965) found that those workers who experienced dissatisfaction in their jobs were also unhappy with their lives. The analysis was based on correlations between job and life satisfaction. Iris and Barrett (1972) examined the relationship between job satisfaction, job importance and life satisfaction for the two samples differing in their level of job satisfaction. The results supported the interrelationship between the three factors, i.e. job satisfaction, job importance and life satisfaction. Job importance was of value in understanding the interrelationship between job and life satisfaction. Guha (1965) found negative correlations between job satisfaction and neurotic personality traits and positive relationship with extraversion. Kroes et al. (1974) investigated the health consequences of psychological job stress. The most frequently mentioned stressers by the subjects were: administrative policies, lack of support from higher level managers, complaints of work ambiguity and decisions based on insufficient information. Bosseel (1974) investigated the causes of fatigue and boredom in assembly line workers performing a monotonous task in social and solitary situations. He found that fatigue was caused due to the reduction of task motivation and boredom resulted due to incongruity between alternative behaviour tendencies and work situation. Boredom
was associated with neuroticism in the social situation and with extraversion in the solitary situation. Tampey (1974) hypothesized that work is a means of survival and a source of pleasure, gratification, social status and feeling of personal worth, thus essential for good mental health. In cases of serious working troubles, he emphasized the need for leisure and the complexities of work functions.

Schletzer (1966) tested professional graduates using Strong Vocational Interest Blank as a predictor of job satisfaction. In all the cases, relationships between interests and job satisfaction score were found testifying the hypothesis that job satisfaction in a certain occupation is related to 'congruent' or appropriate interests in that field (Strong, 1959).

Pelz (1966) on the basis of results of a study with scientists and engineers showed that effective scientists were self-directed but were not fully in agreement with the organisation in terms of interests. Baird (1976) tested the hypothesis that on stimulating jobs, satisfaction would be positively related to performance. But the results were contradictory. Satisfaction with work related with performance only in non-
stimulating jobs. Steers (1975) studied the effects of need for achievement on the job performance-job attitude relationship. Before need strength variations were considered, overall performance was found to be weakly related to job satisfaction but not to job involvement. However, when the sample was split into high and low groups, performance was found to be significantly related to both satisfaction and involvement for high subjects but not for low subjects. The findings of Kanungo et al. (1975) support the view that the employee's attitudes of job involvement can act as a moderator variable and can influence the employee's cognitive evaluation of the importance of various job factors. However, job involvement attitude does not influence either actual satisfaction on the job or the strength of the employee's various needs.

Biesheuvel (1975) argues that because work motivation whether in response to environmental or work intrinsic factors arises from needs which differ from person to person and according to circumstances, there is no justification for singling out the intrinsic factors as motivators and for describing people who are motivated by environmental factors as "hygiene seekers". He propounded psychological theory which sees dissatisfaction and satisfaction as the mental states,
respectively before and after the gratification of a need. Bjork (1975) describes research in a Swedish plant in which assembly line workers assumed increasing responsibility for controlling the work situation. The data suggested that people are capable of controlling their own work situation but that behaviour change requires an extensive learning process. Orpen (1975) tested the expectancy theory of job satisfaction. He observed a strong correlation between attitudes and performance indicating that attitudes determine performance.

Weintraub (1973), in his study, 'the profession as a source of satisfaction' discussed previous investigations dealing with job satisfaction conducted by Vroom, Herzberg, Maslow, Porter and Dunnette. His view was that explanation of the psychological mechanism of job satisfaction should be sought experimentally by studying the motivational process in all its stages, satisfaction being only the final stage.

Chesnik and Phelan (1974) found that the amount of need satisfaction was positively related to occupational level and negatively related to hierarchical level of the need. Male ratings of the importance of each need were positively related to hierarchical level of the need. Females rated security as their most important need although it is low on Maslow's hierarchy.
Ivancevich (1974) studied effects of 4 day 40 hour work week by comparing experimental and control subjects on measures of job satisfaction, anxiety, stress and performance. The analysis indicated that workers in the 4 day 40 hour division were more satisfied with personal worth, social affiliation, job security and pay, experienced less anxiety, stress and performed better with regard to productivity than their control group (5 day 40 hour) counterparts.

Organisational climate and job satisfaction

- Schneider and Snyder (1975) showed that (a) climate and satisfaction measures were correlated for people in some positions but not for others (b) people agree more on the climate of their agency than they do on their satisfaction (c) neither satisfaction nor climate are strongly correlated with productivity data (d) satisfaction, but not climate is correlated with turnover data.

Absence and job satisfaction

- A study by Sinha and Singh (1961) has shown that absenteeism and the employee turnover are excessive when the employees experience dissatisfaction at work. Baum and Youngblood (1975) examined the impact of organizational control based on the the
concept of "legal compliance" on absenteeism and performance. The results showed that a control policy based on legal compliance significantly improved attendance and performance and did not alter satisfaction levels.

2.12 Job performance and Job satisfaction

Studies by Lawler and Porter (1967) reported a positive relationship between job satisfaction and job performance. Studies by Herzberg et al. (1957) revealed weak positive relationship between job satisfaction and productivity. The employee dissatisfaction has been related to non performance variables such as absenteeism, turnover, accident and emotional instability. Kurlloff (1963) found that satisfaction felt by a worker in doing his job tends to enhance his work output. Vroom (1964) found weak relationship between job satisfaction and job performance of employees. Wilol (1970) and Waters and Roach (1971) found inverse relationship between job satisfaction and turnover by workers in their job. In regard to the job satisfaction of agricultural extension officers, a study conducted by Kolte (1972) in Community Development Blocks of Rajasthan showed that there was positive relationship between job satisfaction and job performance effectiveness. Chakravarty (1971) found that 53% of the agricultural extension
officers were satisfied and 47% were dissatisfied in their jobs. Kolte (1972) found that only 50% of the agricultural extension officers had job satisfaction above average while the remaining were below average.

2.13 Job components and Job satisfaction

Regarding the components of job satisfaction, McGregor's (1960) study revealed that job satisfaction depended upon the aesthetics of the work, place, opportunities to face job challenges, power over one's environment and the excitement of risk taking. Sarkar and Patnaik (1966) found that village level workers attached maximum importance to opportunities for promotion, salary according to work and achievement, recognition for good work and participation in decision making. Sharma (1969), on the basis of his studies with agricultural extension officers and other extension workers, concluded that some job satisfaction was noted in regard to guidance and supervision received from higher officers. Workers had low satisfaction in such aspects as promotion, job authority and incentives for meritorious work.

It is apparent from a review of the studies that the area
of job satisfaction as a field of investigation has gained considerable importance. The absence of unanimity in the findings of different studies indicates the need for further empirical evidence. Most of the studies cover the industrial workers and hardly any pertains to the scientific staff. The present study shall add further evidence to the existing one and serve as a pioneering one for the scientific staff in India.

2.14 Job satisfaction measurement techniques

Job satisfaction has been measured through various procedures. The important among them are:

Factor analysis

Friedlander (1963), in a study with engineers, supervisors and salaried employees of a large manufacturing company, employed the factor analysis procedure of a 17 item questionnaire measuring the importance of various job characteristics to employee job satisfaction. Ewen (1964), in his study with insurance agents who were divided into an experimental sample and a cross validation sample, applied the factor analysis of a 58 item attitude scale completed by the experimental sample. Ladahl (1964), in a study with 50 male autoassembly workers and 29 female electronics assembly workers, applied the factor analysis of data obtained from a content analysis of interviews.
Dunnette (1965), in a study with state executives, sales clerk, secretaries, engineers and research scientists, salesman, army reserve personnel and adults enrolled in a supervision course, employed factor analysis of questionnaire sorts of two sets of 36 statements (equated for social desirability for highly satisfying and highly dissatisfying job situations).

Friedlander (1965), in a study with civil service workers, employed factor analysis of a 14 item questionnaire measuring the importance of various job characteristics to satisfaction and dissatisfaction.

Content analysis

Schwartz, Jemusaitis and Stark (1969) worked with male supervisors employed by public utility companies. They used content analysis of written stories describing pleasant and unpleasant job experiences. Myers (1964), in a study with scientists, engineers, manufacturing supervisors etc., applied the content analysis of Herzberg, like interviews. Saleh (1964) with managerial employees used Herzberg like interview and a 16 item job attitude scale presented in a paired comparison format. Evans (1970) found that individuals with low self esteem display a tendency towards defensive behaviour.
when ascribing satisfying experiences to themselves and their work and bad experiences to the environment. This selective application of the model has been highlighted by Rul in and Blood (1968) and Reif and Luthens (1972).

**Rating scales**

Bosen (1963), in a research study of personnel of varying specialities, educational levels and organisational levels, used the rating scale in which the respondents rated the importance of the absence of 118 items to their desire to leave their present position. Friedlander (1964), in a study with students, used the technique where respondents rated the importance of 18 variables to job satisfaction and job dissatisfaction. Gordon (1965), in a study with life insurance agents, used the rating scale where respondents rated their degree of satisfaction and dissatisfaction with 54 items. Halpern (1965) used the rating scale with college graduates working in various occupations. Respondents rated satisfaction with motivators, hygienes and overall job satisfaction on respondent’s best liked job. Wernimont (1966) in a study with accountants and engineers used rating scale for self description of past satisfying and dissatisfying job situations using both forced choice and free choice items.
Friedlander and Walton (1964) in a study with scientists and engineers used the semi-structured interviews in which the respondents were asked for the most important factors keeping them in the organisation and factors that might cause them to leave the organisation.