The main objective of the study was to investigate the relationships among the Intelligence, Aptitude, Personality, Academic Achievement and Occupational Choice of the Polytechnic students. On the basis of the results obtained, it may be possible to get a comprehensive picture of the factors that influence the Occupational Choice of the polytechnic student and his success in the technical courses, so that the causes of wastage in these institutions can be analysed. It is not only essential for finding appropriate ways of reducing the wastage of human potential and other resources of the country but also that the students may achieve the due benefit of the resources created at great cost. The performance of a student also reflects his adjustments in his emotional, social and intellectual life as a whole, therefore, the search for such relationships becomes all the more important. India is shifting to 10+2 pattern of educational system. Patil (1977) has rightly pointed out the importance of the new system of education that 'It is not some second rate type of education for students coming from the poor rural areas and if properly implemented, 10+2+3 pattern of education well be the answer to our growing economy and progress being made in science and technology. In the present system of education also, the student is supposed to take a specific combination of subjects of study for different areas of further education.

The present study is thus aimed at analysing and discussing the occupational choices of the students opting for Technology group of occupations, their academic achievements and their relationships
to Intelligence, Aptitude and Personality Patterns.

The hypothesis framed elsewhere (Chapter III) were based on the review of work done in India and other countries related to the present investigation. A comprehensive investigation among these variables has been found lacking which stands as a lacuna for the educational and vocational guidance of the students particularly in India where a student has to make a decision for choosing a specific stream of courses for further education after 10+ stage. The results of the study may explain the various combinations and relationships of the variables i.e., Intelligence, Aptitude, Personality, Academic Achievements and Occupational Choices which may be useful to the potential candidates for vocational stream for Technical Education. These results may also serve a useful purpose to the parents, teachers and the counsellors for the adequate guidance to the students striving to join higher and other educational courses.

(A) Occupational Choice of Polytechnic Students

The polytechnic students are undergoing an Occupational Course of study to become technicians. The way how this choice was made by them will have certain influence on their adjustment and performance on jobs. It will be so appropriate to analyse and discuss the occupational choice made by the polytechnic student. The students joining the polytechnics have already taken one tentative decision for coming to the basic science group of courses with mathematics. These courses at the earlier classes might have
been taken as a result of suggestions from their parents. After having joined this course, they should have formed crystallised judgement about their involvement. Ginsberg (1951) also pleaded that the individual in the age range of 17 yrs+ is at the 'realistic' stage of occupational choices. So, they should give a clear choice for the group (Technology) which they have already chosen.

On the basis of the means obtained on the groupwise choices of occupations for the present sample (N=335), Technology group has been liked maximum with mean of 25.90 on Semantic Differential Scale for Occupational Choices. 'This group includes occupations concerned with production, maintenance, transportation of commodities and utility. Here are occupations in Engineering, Crafts and Machine Trades' (Mohan and Banth, 1977). The results show a clear preference for the Technology group of occupations (Table I and Graph I). The sample of the polytechnic students is in the age group of late adolescence, it is so expected that they will give a realistic pattern of occupational choices (Ginsberg, 1951). These subjects are already undergoing the occupational course to become technicians. Thus, if they give first choice for the Technology group, it will show that they had a definite decision which they have implemented. The very fact that they had Science group of subjects (Science and Mathematics) at the Matriculation stage is indicative of their orientation to such courses. The decision at the realistic stage is, the implementation of the 'tentative stage' of occupational choice as
advocated by Ginsberg (1951). At the eleventh class stage, i.e., 15+ yrs, Reddy (1973) has reported that there seems to be an awareness on the part of students to choose occupations which will suit their value orientation. Parmeswaran et al. (1968) found that responses to vocational interests revealed patterns in line with the courses of study for Engineering and Science groups. This trend was also seen in the study reported by Mohan and Rashmi (1977) in which they found that students studying in Library Science Courses (Occupational) gave first preference to the course that they were undergoing. The students in the professional courses have revealed that the choices made are realistic regarding their occupational careers.

The scores on the Semantic Differential Scale for Occupational Choice on eight groups for each of the branches support the findings that at this age range the students in the polytechnics have made up their minds for this occupational course. The Electrical Engineering and Mechanical Engineering samples have given first preference to Technology group with maximum score of 26.00 and 25.87 respectively. The Graph No. II-a, clearly depicts the differences of the scores on occupational choices. The Bar diagrams for the occupational choices show that Technology Group is followed by Arts and Entertainment.

Another interesting feature of the Occupational Choices is depicted in the levelwise scores of the Occupational groups. The highest score is 29.11 goes in favour of the Technology group Level I. The occupations at level I of the Technology group may be
of an Engineer, Technologist etc. at high professional level which demand first degree or postgraduate and further higher degrees of education. This pattern of the choice for the Technology group at level I also support the results that the choice made is for the Technology group.

The Graph No. II showing means of the levelwise scores on the Semantic Differential Scale for Occupational Choices depicts that scores on level I are highest in all the groups of occupations except in the social service. Mohan and Walia (1976) and Mohan and Randhawa (1977) also concluded similar patterns of results for the preferences by students to the occupational choices. They found that the students in high schools gave most of the choices for level I on SD80C.

Scrutinising the results of the separate branches on SD80C (levelwise), the most preferred occupations are in the Technology group at level I in Electrical and Civil Engineering Branches with mean scores of 29.77 and 29.24 respectively. The score on the Mechanical Branch for the Technology group level I is second in preference in this classification (Table III). The levelwise means of the choices lend support that the students have made up their mind and are clear about the broad category of the occupational group (Technology) that they would pursue. The preference for the first level may be due to the social status, social desirability and attractiveness of positions at first level of the choice. This may, however, be also due to the idealism in the
adolescents and higher level of aspirations which they generally have. The adolescent is a period of transition from fantasy to realism in life. The fantasy stage may prolong because of its make believe thinking and pseudo satisfaction through imagination for the future life plans. Reddy (1973) concluded that out of the thirty types of occupations, the top preferences go to Doctor and Engineer in case of high school students. The technical course gets seventh rank in their study. In general, the adolescent is influenced by the social desirability of the job.

The least preferred group of occupations is Outdoor group with mean of 23.38. It includes occupations primarily concerned with cultivation, preservation and gathering crops, of Marine, of land and water resources, of minerals and forest products (Mohan and Banth, 1975). It may be indicative that the sample gives least preference to jobs which are unrelated to the present courses in which they are getting training.

The least preferred level in Technology group is level III with mean score of 22.12 on SDSOC. This level of Technical jobs include skilled and craft level of occupations. This trend shows that the students at this age group tend to have higher aspirations rather than choosing occupations at the lowest level. This actual level of the technician jobs are in the middle level of occupations. These jobs are in supervisory cadre, and include such position as Supervisor, Shift Incharge, Foreman, Overseer, Section Incharge and Technical Assistant etc. They aspire to move higher than the actual
level of jobs at present and would like to move upward in their professional growth in life plans. Three levels of occupational choices were considered in this study. Because students preparing for the supervisory cadre may not prefer occupations far below the courses they are already undergoing. Mohan and Banth (1976) found that the means at the fourth level of occupations are too low for group of University students. The fourth level may not serve any useful purpose.

On analysing the intercorrelation matrices of the occupational choices (8 groups x 3 levels) given by the whole sample shown in Table XII, it is found that at level I, Business Contact and Organisation have positive correlations, .19 and .26 with Technology group at Level I. The correlation coefficient between Technology and Business Contact indicate that the students would also like to go in for entrepreneurship activities of their own. They may set up and manage some industry for production of technical goods or equipment at large scale. The correlation between Technology and Organisation is .26 (significant). The results on factor analysis show that Technology level I and Organisation level I form one factor. Thus, the choice given at level I for Technology support that these students would also like the high position at executive level in the technical organisation or industry.

The analysis of intercorrelations among the SDSOC (8 groups x 3 levels) further indicate that the correlation clusters are formed with the group of occupations falling next adjacent to the group in order of the occurrence of group (Table XII). This pattern of
correlation forms a diagonal with most of the groups. These results obtained support the circumplex hypothesis (Osipov, 1966) for these patterns show choices of adolescents in groups next adjacent to the group being examined. Most of the correlations between Social Service group and Business Contact are positive and significant which range from .02 to .32. The Business Contact group has most of the correlations positive (.01 to .22) with Organisation group. So, Organisation group (3 levels) has most of the correlation with Technology group of occupations (3 levels) ranging from .12 to .26 which are significant. The Technology group also shows positive correlation with Outdoor which is just next adjacent to it. The most of the correlations range from .10 to .38, which is definitely in accordance with the circumplex hypothesis. On the same pattern, the 'Outdoor', 'General Culture' and 'Art and Entertainment' are related positively.

The General Culture and Arts and Entertainment groups show positive correlation based on circumplex hypothesis and they also form a single factor on factor analysis. As both the groups have common nature of activity, i.e., imparting and developing cultural aspects, Mohan and Walla (1976) also reported that General Culture and Arts and Entertainment form one factor of the choice of occupations as these are sufficiently involving similar aspects of activity of the person. There was hardly any factor which could be stated to involve more than one group specifically in any of the levels.

The results on the whole show that the polytechnic students (Age range 18 yrs+) definitely give a specific choice pattern for an
occupation which they would like to choose. These findings have been substantiated by levelwise means, groupwise means and intercorrelations among the scores of SD80C (8 groups x 3 levels) (Table XXII). The students may also like to take up some enterpreneur activity in the field related to engineering areas or work at executive levels in technical organisations.

The results regarding the Occupational Choices bring out that the polytechnic students have taken up their decisions for the Technology group of occupations. It is further indicated that they would also like to move to higher positions in the technical area or in some organisations.

In order to see how far the preference (Technology) is related to various psychological factors, the results of the present study are discussed. Our ensuing discussions will unfold the relationship of some of these factors as related to Occupational Choices.
Most often the vocational courses and particularly, engineering oriented ones demand general ability (Intelligence as well as special abilities for the success of a person on such courses and jobs. The review of the literature reveals that both of these factors play vital role in determining the success of a person on occupational courses. At the school leaving stage a student has to make a choice for his further education. This choice will determine the future occupational line of the individual. This choice is a crucial decision which must be based on rational and scientific ground. Thus, to help and guide the school leaver in his further choice of occupational courses it may be essential to probe into the contributions of his general and special abilities in such decisions. This is possible if the data for the guidelines of optimum level of these abilities required for such courses and jobs is available to the students and guidance workers. In India, work in this area is perhaps lacking. In this study an attempt is made to unfold the available levels of the abilities of the polytechnic students so that some guidelines may be made available for reference. The results of the present study are discussed here to analyse the available ability levels of the students and compare these with students of some other courses of study.

(i) Intelligence

The mean score on Intelligence test, Standard Progressive Matrices for the whole sample is 46.57 and means for the sample of three branches (Electrical, Civil, Mechanical) of engineering are
Comparing the means of this group with other groups using SPM, it is indicated that the polytechnic students are quite comparable with the same age group of other courses of study. The scores on SPM range from 45.17 to 47.29 for the age group 18+ yrs fall in percentile range above 50 as per Manual (Raven 1960). The polytechnic student is above average in the population. Mohan (1976) reported the mean score of general academic students of 15 to 20 yrs age group (male sample) to be 47.38 using SPM Mohan and Walia (1976) observed that the mean score on SPM for high school students in age range of 15 to 1 to be 47.73 on the whole sample. The mean for the Government School pupils was 45.13. Mohan and Kumar (1976) reported mean score of 47.08 on SPM for the University group of students. Mathur reported the I.Q. of polytechnic students to be 107. Taking 107 on the general grouping of I.Q. ranges it comes to be in the group of average score which may be approximately compared with the SPM average range in percentiles. To get the ability levels of the more successful students, the sample was divided into high and low achievers. The scores of SPM for the high achieving group can be used for predicting the success of the students. The scores of the low achievers could be indicative of the low achievement and the need for Guidance and Counselling. These scores could be used for predicting performance even at the time of admission. The said differences of means on SPM scores were further elaborated by taking the subsample of high and low achievers. The mean score of the high achievers is 48.12 on SPM and the mean score for low achievers is 45.57. The differences between
the means of high and low achievers are significant for the whole sample. The branchwise mean scores of high achievers on SPM for Electrical, Civil and Mechanical Engineering are 45.24, 47.62, and 49.86. The mean scores for the low achievers on SPM for Electrical Civil and Mechanical Engineering branches are 43.73, 45.40 and 45.86 respectively. These differences of means are also significant for the Mechanical Branch. The highest mean on SPM is for the Mechanical branch and lowest for Electrical Engineering. These differences between the branches may be due to the fact that most of the bright boys after the Pre-technical course of the three year diploma course opt for Mechanical Engineering, because of the expected more job potential of the Mechanical Engineering group. The branches of engineering courses are allotted on the basis of Academic Achievements at Pre-technical course. Students scoring high marks opt for the Mechanical Branch. The correlation between Academic Achievement and Intelligence being positive, it may be said that bright students opt for Mechanical Engineering.

The same argument may hold good for the Civil and Electrical Engineering branches. It may be briefly said that the polytechnic student is quite comparable with the average of the general population sample. He is having the general ability of the average + of population of his age level.

(ii) **Aptitude**:

Taking the other dimension of the ability, i.e., Aptitude, the results of the whole sample on the four tests of Aptitude (Space Relation, Numerical Ability, Mechanical Reasoning and Abstract Reasoning) are elaborated and discussed here. The results
obtained may bring out the levels of abilities (Aptitude) of the polytechnics and for the different branches of the polytechnic courses. These results for the high and low achievers may be used as guidelines to predict the successful students and those who would require special attention by the teachers.

The scores on Spatial Relations tests for the whole sample is 26.28. To see the differences of the means more sharply and their levels of abilities of more successful students, the sample was divided into high achievers and low achievers. The score of the subsample for the high achievers would serve as useful predictor of the performance of the student. The means of high achievers for the whole sample on Spatial Relations is 30.53. The mean for the low achievers for the whole sample is 22.37.

The means of the SR in all the three branches of Electrical, Civil and Mechanical Engineering are 24.18, 26.01 and 28.20. The means and t-ratio on SR score is highest for the Mechanical Engineering branches in the branchwise sample and in the subsample of high and low achievers in the three branches. The use of Spatial Relations ability is maximum for the Mechanical Branch sample. They have to deal more with shapes, forms, designs, angles and perceptual judgements in comparison to other branches. The t-ratio between Mechanical and Electrical branches is significant which shows Mechanical Branch people have significant higher means on SR. The means of the high achievers in these branches are 28.24, 27.41, and 35.97, whereas the means for the low achievers are 19.70, 20.26 and 26.78 respectively. The t-ratio between high and low achievers
on the whole sample and in branches on SR are significant, which
clearly depict the relation of SR with the success of student.
The results of the scores on Space Relations are above the average
of the equal age range of the sample in other courses of study.
Mohan and Rashmi (1977) reported the means of the scores on Space
Relations Test for the group of Library Science course Students are
21.36 and 23.00 for graduate and postgraduate sample. In another
study Mohan and Randhawa (1977) found the mean scores in percentage
for the high school boys for Government School is 25.12. The scores
of the present sample is quite comparable with these samples. The
mean score reported on form 'A' of SR Test for the Connecticut
Technical Schools (DAT Manual L & M, Table 49) is 33.9. The scores
of the mean Indian sample in comparison to this sample is less.
It may be due to the lack of facilities to Indian boys which help
in getting more scores on the Aptitude tests. The mean scores for
the Technician in percentile equivalents of average score on the
D.A.T. (Form A & B) for students tested in 1947 and in relation to
Occupational Field in 1955 is 48, which is higher than the Indian
sample score in percentile as 35 (Percentile taken from Form A
table of DAT for Grade 9). These results show that the comparing the
score with the general courses students in India the mean scores
of the polytechnic student of SR is higher than other sample.

The second test for measuring the aptitude of the polytechnic
students for the Engineering Courses was Numerical Ability Test
(DAT, Form 'A'). Numerical Ability is common to all the courses,
however, it may be required more by the Civil Engineering for the
computational work. The mean score on Numerical Ability for the whole sample is 23.28. The mean score for the whole sample of high achievers and low achievers is on the Numerical Ability are 25.38 and 21.92 respectively. The t-ratio of the high achievers and low achievers on the whole sample is significant which clearly shows the significance of contribution of NA on the achievements of the students. The branchwise mean score on NA for the three branches are 22.96, 24.54 and 22.44. The t-ratios for the Civil and Mechanical Branches are significant. Means of high achievers on the branchwise sample are 23.72, 27.14 and 25.55. The mean score is highest for the Civil Engineering Branch. The mean score for the low achievers or the branchwise sample are 22.47, 22.00 and 20.86. Even in the low achiever, Civil Engineering students have highest mean. The t-ratios between the high and low achievers in the samples of the branches are significant between Civil/Mechanical Engineering. This clearly shows that the Numerical Ability required for the Civil Engineering is more than other branches.

The mean scores of the Indian sample of the polytechnic students has higher score on NA than the scores of polytechnic in U.K. The mean score of the polytechnic student of U.K. is 18.3 (Entwistle, Nisbet, Entwistle and Cowell, 1971). The scores on Numerical Ability for the University students of U.K. is 21.0 which is again less than the sample of the polytechnic students in India. Mohan and Hashmi (1977) reported that the mean score of the Library Science Course graduate and postgraduate students on NA are 19.88 and 18.72. These are also less than the polytechnic sample here. Percentile equivalents of
the average score on NA (DAT) for Form A & B for students tested in
1947 in relation to occupations they adopted in 1955 for technician
is 45, which is also less than the scores on Numerical Ability
(L & M Manual) in the present sample. These scores are also
comparable with the non-degree technical courses students having
percentile of 62. The mean score on NA for the Connecticut Technical
students of grade 9 is 13.5 (DAT Manual L & M). These scores are far
less than the mean score of polytechnic student on NA. Mohan and
Randhawa (1977) reported the mean score of the Government School boys
on NA. The percentage given is 31.68. Whereas the percentage score
of the polytechnic student on NA is 58. On the whole the polytechnic
students score on NA are very high in comparison to the polytechnic
sample of U.K. and the Technical School Students of U.S.A. The
comparative score with General Course Students shows that these
polytechnic students are very superior on NA. The scores of the
high achievers show that the polytechnic student has necessarily
to have higher level of scores to become successful during the
course. Thus, the students having high score on NA will be
successful in the Engineering Oriented Courses at this level because
they have to deal a lot with the computational reasoning as well
as manipulation. The Civil Engineering people perhaps do more with
these abilities.

The third test used to assess the Engineering Aptitude of
a student was Mechanical Reasoning (DAT). The relevance of this
test has been proved in the review of the literature.
The mean score of the whole sample on MR is 23.57. The score for the high and low achievers of the whole sample are 25.67 and 21.62. The differences of the means of the high and low achievers are significant for the whole sample. The mean scores obtained branchwise on MR are 23.63, 22.04 and 24.87 for the Electrical, Civil and Mechanical Engineering subjects respectively. The mean scores of high achievers on MR in the three branches - Electrical, Civil and Mechanical Engineering are 23.66, 22.04 and 24.87 respectively. The t-ratios between Mechanical, Civil Engineering is significant. The means of high achievers on three branches are 26.21, 22.86 and 26.94. The means of low achievers on MR in the three branches are 20.17, 20.94 and 22.19. The t-ratios between the high and low achievers in Electrical and Mechanical branches are significant. The means on MR for the Mechanical Branch are highest in the branchwise sample and the subsample from the branches. It is evident that Mechanical Engineering Branch involves none of the MR ability than the other branches. It is otherwise quite basic ability for all the engineering branches.

The comparison of scores of MR with other available data scores that Polytechnic students do better on MR. Mohan and Kumar (1976) reported mean score on MR for the University Male students to be 20.27. This score is far less than the mean of the whole sample. Whereas the means of the subsample of high achievers is further more in the present study.

Mohan and Randhawa (1977) reported mean score of 25.3 percentage in sample of high school boys from the Govt. schools. The
percentage score of the present sample on MR is 34.0. These scores are very high in comparison to the general academic courses. In one of the studies on by authors of D.A.T. (Manual L & M) on Connecticut Technical subjects based on grade nine students on MR, 31.4. This score is higher than the sample in this work. The difference of scores with the foreign sample may be due to the reason advocated that the environmental facilities for such tasks may be influencing the test scores.

The scores on Abstract Reasoning Test (which is associated with use of symbols, logical reasoning and finding relationships in figures and planning etc.) are very much used in tests of Engineering Aptitude. This is sufficiently a common ability equally useful for all these branches of Engineering. The mean score on AR for the whole sample is 25.45. The scores for the high and low achievers for the whole sample are 26.67 and 23.63. The t-ratio between the high and low achievers for the whole sample is significant. The scores taken for the branchwise sample are 25.66, 25.03 and 25.59 for Electrical, Civil and Mechanical Branches. The mean scores for the high achievers on AR for the three branches are 25.21, 25.95 and 28.33. The mean scores for the low achievers on these branches are 24.33, 22.17 and 24.50. The t-ratio obtained for the branchwise general sample show that the differences between the means are not significant in any of the sets of the branches.

This shows that AR is a common ability required and useful equally well for all the branches. The t-ratio obtained between high achievers and low achievers for Civil Engineering and Mechanical Engineering are significant.
The comparison of the scores with some of the studies done using AR in various areas reveal that the polytechnic students do equally well as students in most of the other courses. Mohan and Bashmi (1977) reported mean score of 26.47 and 24.84 for B.Lib. and M.Lib. students on AR. Mohan and Sandhya (1977) reported mean score of 42.28 percent on AR. The score of the present sample on AR 50.14 (percent). Comparison with the general course student shows that polytechnics do better on AR than General Course students. The scores on subsample of high achievers further show that the polytechnic students have higher scores on AR. The students who will do better on AR must have higher scores on AR. The extreme group sample depicts that highest score among the higher achievers on AR is for the Mechanical Engineering.

The score for the low achievers is also highest Mechanical Engineering Branch (24.50). It may be due to the fact that AR has positive correlation with SPM. The score Mechanical Engineering Branch is highest on SPM.

The intercorrelations of the Aptitude test scores on the Whole Sample are positive and most of these are significant. The intercorrelations of the branchwise sample are also positive. The intercorrelations of high achievers for all the aptitude tests are positive and significant for the Whole as well as Branchwise sample.

The intercorrelations between Intelligence and Aptitudes are generally positive and significant in the Whole and Branchwise sample. This shows that both these abilities go together for the
Engineering students. The factor analysis by Varimax Rotation has shown that all the aptitude test form one factor in general sample as well as subsample of high achievers.

The factor analysis has revealed another important and significant aspect that Intelligence forms one factor with aptitudes in the whole sample.

The various scores for high and low achievers may serve as guidelines for the various levels of abilities more desirable for the polytechnic students. The scores on the low achievers may be indicative of the need of special attention and counselling for the such students by the authorities. The results have depicted clearly the various ability levels of the polytechnic students. The polytechnic student is Average + on Intelligence and Aptitude Tests. His performance on Intelligence and Aptitudes is better than the equivalent general academic courses. The comparison with foreign student shows the lower level of performance, which may be due to reasons already advocated. The most important aspect of these findings have been the levels of abilities (Intelligence and Aptitudes) for the high and low achievers in the polytechnics. These scores may be useful in predicting the degree of success of the students in such courses.

(a) Intelligence and Occupational Choice

Intelligence is one of the important variables expected to influence the occupational choices of the individuals. Different jobs may demand different level of intelligence. High ability individuals may tend to choose jobs at higher levels. The lower ability people
may choose jobs at low level. If the boys are not chosen on the basis of the Intelligence level, there may be many misfits. A person with high ability choosing low ability jobs will find it boring and devoid of any challenge. The person with low ability aspiring for high ability courses/jobs will be an utter failure. In this way it will be interesting to probe the relation of Intelligence and success on jobs. Another important aspect related to these areas is, how far Intelligence influences the Occupational Choice of the individual? The full utilisation of human potential can be made of the Intelligence and the Occupation chosen are sufficiently matching. The relation of Intelligence with Occupational Choice as unfolded by the results will be discussed here.

The intercorrelations of Intelligence with Occupational choices on three levels of occupational groups are less than .11. Most of the correlations are zero. The correlation of Intelligence with Technology is (.01 to .06) almost zero. The results indicate that there is hardly any relationship between these two variables in this case. This sample from the technical education institutes have given their preference on SDSOC for the Technology group. From the results, it is observed that the choice for the occupational career has not played any significant role in determining this choice. Mohan and Walia (1976) found that Intelligence has not shown any relation in the occupational choices of the students at high school level.
The low correlation between Intelligence and Occupational Choice in samples obtained by Mohan and Valia (1976) and the present sample may be due to the reasons that there is no procedure or agency whereby the adolescents may know their ability level and correspondingly make appropriate choices. Another reason may be that the Occupational group matching to the ability may not be available to the student. The selection to the polytechnic course is made on the basis of Academic Achievements obtained in the eleven years school learning examination. The qualifying marks are 45% for the general students and even 40% in various cases of reserved quota so the candidates joining the polytechnic may be of varied level. Due to lot of rush in various professional courses and lack of guidance students of varied ability level tend to join the polytechnic course. However, the mean score of 46.57 on Intelligence for the whole sample indicates that the level of polytechnic student is fairly above average which corresponds to the norms of percentiles by Raven (1960) for this age level. Mohan (1976) reported mean score of 47.38 for age group of 15-20 yrs for male sample on SPM. In the same study she found the mean score of 42.60 on SPM for the age group of 10 to 15 yrs. and 45.40 for the age group 20 to 25 yrs. The present group is quite comparable with the similar age range of the sample from general course of study.

Malhotra (1974) reported mean score of 50.13 on SPM for the sample of University students. Mohan and Kumar (1976) reported mean score of 47.08 on SPM on another group of University students.
Mohan and Walia (1976) in another study found the mean score of the total sample of high school students on SPM to be 47.73 and the score for Government School boys was 45.13. However, Proctor (1920), Gribbons and Lehnes (1966) have reported their findings that relationship between Intelligence and Occupational Choice is positive.

In one of the studies (Vohra, 1975) reported that polytechnic students join the technician courses mainly because of economic reasons. It further makes clear that Intelligence plays very small role in selecting the Occupational courses in India and in this case of Technology group of courses. Due to the huge unemployment in all the areas, students try to rush for the courses giving less regard to suitability. The admission procedure in the selection of the polytechnic students is mostly arbitrary. Hardly any consideration is given to Intelligence for the course. The achievement marks which are sometimes considered, range in polytechnic from 40% to 80%. Due to such rush in the various professional courses, students would like to become first secure by accepting the admission wherever possibly it is available. So, the relationship between Intelligence and Occupational Choice may be quite less.

(b) Aptitude and Occupational Choice

In specific tasks as engineering, special abilities are equally important as the general ability in the success of the person on these jobs. Special abilities inherent in the person determine his potential and orientation to specific tasks. The
person may take up these activities more often which are related
to his inherent abilities (Aptitude). He may search out such
activities which give him pleasure and happiness. He will tend to
engage himself more in such activities. In this process the
Occupational Choice of a person which will determine the nature
of the job that the person is likely to take up may be influenced
by aptitudes.

In the present study an attempt has been made to investigate
the relationship between these two variables. The results obtained
are discussed here. Four sub-tests (Space Relations, Numerical
Ability, Mechanical Reasoning and Abstract Reasoning) of D.A.T. were
used as tests of Aptitude for the Engineering students. Their
relationship with Occupational Choice was measured by using Semantic
Differential Scale of Occupational Choices.

The intercorrelations among the Aptitudes and Occupational
Choice taken for level I, level II and level III of Occupations
show that most of the correlation are low. Most of the inter-
correlations between Aptitude (SR, NA, MR, AR and Occupational Choice)
are low for all the other groups of occupations except Technology.
The results show that correlation with Technology at level I is
significant. Most of the other correlations are insignificant except
for the Science -.13 at group level III. The intercorrelation of
NA with General Culture group level II is .16 (significant). The
intercorrelation of Space Relation with Technology group level I
is .12 (significant).
The correlation of Numerical Ability with Occupational Choices is .20 which is significant. The intercorrelation of Abstract Reasoning with the expressed Occupational Choice level II is .16 which is significant. Analysing all the correlations the Mechanical Reasoning has no correlation with any group at any of the levels. There is a positive correlation between Technology level I and Space Relation. Technology level II is found to have a positive correlation with Numerical Ability and Abstract Reasoning.

The technician level courses are engineering courses thus the correlation with three aptitudes generally used in engineering courses show that the Occupational Choices are affected by the aptitudes of the person. Factor analysis show that the Aptitude form one factor group. So, these factors have a common role to play in the choice of engineering courses. Leffel (1939) found that boys who planned to enter technical profession made significantly high scores on O'Rourke's Mechanical Aptitude Test.

(C) **Personality of the Polytechnic Student**

The discussion on the abilities of the polytechnic students reveals that certain level of these abilities (general and specific) are asset to the student. Another important correlate of the success of the polytechnic student is his personality. Personality patterns determine the reaction and adjustment modes of the individual to various situations. Certain attributes of personality may be more useful in the conduct of specific tasks than others. It will be quite useful to discuss the Personality pattern of the polytechnic
Two major dimensions - the Extraversion/Introversion and Neuroticism of personality have been focussed by Eysenck (1947, 1955, 1960, 1964). The mean scores on the two dimensions - Extraversion and Neuroticism on EPI (1964) for the whole sample (N=335) are 11.23 and 10.25. The mean Lie Score obtained is 5.31 for the whole sample. Branchwise means of Electrical, Civil and Mechanical Engineering on Extraversion range from 11.01 to 11.48. Whereas the means on Neuroticism dimension taken branchwise (Electrical, Civil and Mechanical) range between 9.49 to 10.60. The Lie Score on the separate branches range between 5.12 to 5.77.

The comparison of the scores of the whole polytechnic students sample with the adolescents in general education shows that the polytechnic students score relatively more on Extraversion (11.23) and less on Neuroticism (10.25). The average scores Extraversion and Neuroticism are 10.0 and 11.0 (Kumar,1974).

Entwistle, Mabit, Entwistle and Cowell (1971) reported that the mean scores of polytechnic students on Extraversion is 14.9 and on Neuroticism 13.0 in U.K. sample.

Jessup, Gilbert and Helen (1971) reported 12.01 as the mean score on Extraversion for a group of trainees selected for pilot. Muthayya (1970) reported mean score of 10.27 on Extraversion for administrators executives. The mean scores obtained by Mohan and Kumar (1976) using EPI on sample of age range of 18 years to 25 years was 14.3 for Extraversion. Mohan and Jaspal (1974) reported...
mean scores on Extraversion and Neuroticism for group of University students be .12, .07 and 9.06 respectively. Kumar (1976) found the mean scores on Extraversion and Introversion to be for college students to be 12.53 and 11.61 respectively using MPI. Mohan (1976) reported the average scores on Extraversion and Neuroticism using MPI for age range of 10 to 15 yrs, 15 to 20, 20-25 to be 14.66, 27.60, 28.04, 10.50, 16.02 and 17.60.

The task description of technician reveals that major group of probable attributes a technician must possess may include the persistence to do hard work on complicated tasks and on machines, skills to handle the material and the social skill to motivate the people to work, supervise to manage the craftsmen under him and maintain the social relations. He plays the key role of maintaining the liaison between top management, professional technologists and the low level workers and craftsmen. He should be able to adjust socially with superior and junior. He needs to be less emotional rather calm. His level of occupation, i.e., supervisory (Overseer, Supervision) falls among next to engineer and technologist in the Mohan & Banth, classification of occupations (1956). The level of hierarchical position of technician in India is next to technologist, Sen & Mukherjee (1965).

It is predicted that people who will be less emotional will be able to adjust better in the discharge of his functions as a Supervisor. The person who can show concern for others will be successful. These students who have given Technology as the first professional choice and are undergoing the course leading to
become technicians at supervisory level will be doing better. These findings are in concurrence of the hypothesis constructed. Gupta's (1971) findings that engineering students had least score on Neuroticism in comparison to other student equally support the findings. He further reported that those students scoring high on Neuroticism preferred sedantry type of occupations such as teaching, writing and painting. Whereas the persons scoring high on extraverts prefer sales, commerce and trade type of occupations.

The average score of 11.23 for the combined sample on Extraversion is not too high if we compare it with sample of common population of 12.07 (Jessup & Gilbert and Helen, 1971). The branch-wise score on Extraversion ranges from 11.01 to 11.48 and for the Neuroticism it ranges from 9.49 to 10.60. The pattern of Extraversion Introversion and Neuroticism are sufficiently identical with whole sample. In fact such score is contributing to the success of the person as a technician and as a student of technical courses. During the training course, these students have to work hard on difficult complex subject matter which needs long hours sittings. In the laboratory and workshop they have to work on heavy machines for long. They need to understand and do jobs on these machines.

(a) Personality and Occupational Choice

The review of the literature brought out the importance of various psychological factors (Intelligence, Aptitude, Personality and Academic Achievements) which influence the Occupational Choice of the individual subject. The behaviour traits of an individual are due
to the dispositions the individual possesses to like certain situations on nature of tasks, more than others. So, to say that the Personality make up of a person determines his responses to various situations in daily living. Such behaviour tendencies will explore the ways in which these can be fulfilled more than others. Such situations may be provided by the Occupation that individual may take up. Thus, the individual may base his occupational choices on his Personality characteristics. In this study, relationship of Personality and Occupational Choice has been attempted and the results of the analysis are discussed here.

The correlation of Extraversion with Technology group at level I is .01 very low. Whereas the correlation of Extraversion with Technology at level II is .04 and with level III.08. The correlation of Extraversion dimension with levels of occupational choice is zero.

On the pattern of these results of correlations with Extraversion, the correlations of the Neuroticism with Technology group are also very low. The correlations between Neuroticism and Choices for Technology group of occupations level I is -.13. The correlations for Technology group level II and Neuroticism is -.10 and for level III and Neuroticism, the correlation is -.11. These mostly results are not significant. The negative correlation obtained with Neuroticism indicate that people with high score on Technology will have low score on Neuroticism. The Neuroticism dimension have high drive and emotionality may not tend to take up jobs requiring long
hours of persistence, hard work, going through meticulous details
of calculations and inspecting and interpreting drawings and plans.
Technician's job is middle level supervisory and management position
who needs to maintain social relations, co-ordinate the work of
top management and work, Motivate the craftman and do other such
tasks of production, repair and maintenance of machinery.

Mohan (1977) found that the Indian executive are more
introverted than British General Management Group (Eysenck, 1967).

Muthayya (1970) reported mean score (10.27) on Extraversion
of senior administrators/executives in various organisation.
Mohan & Mohan (1977) (in press) studied the personality pattern of
police administrators, Executive and I.A.S. Officers. They reported
that Indian Executives are more introverted.

Mohan (1977, in Press) reported that students of occupational
course (MBA) had higher score on Extraversion than the general
academic courses. But the tendency of results may be inferred that
people with high scores on Neuroticism will opt for this group of
occupations quite rarely.

On the whole the results indicate that there is no definite
relation with Extraversion. Neuroticism is negatively related to
Technology. Neuroticism will have low preference for technical
group at the technician level of jobs.

(b) Personality and Academic Achievements

The performance of the Individual in any situation or task
is dependent on his behaviour characteristics, i.e., the typical ways
of responding of the individual. Some people may be having traits to work patiently for long hours on difficult and complex situations. Others may not have similar traits. These behaviour traits are likely to affect the performance of the individual on academic situations. In the present study relationship of Personality dimensions of Extraversion/Introversion and Neuroticism with Academic Achievements of the polytechnic students will be discussed on the basis of results already obtained.

Examining the means of high achievers (11.06) and low achievers (11.88) on Extraversion, for the whole sample shows that the individuals having low score on Extraversion have high Academic Achievements. The intercorrelations of Extraversion dimension of Personality with the Academic Achievements for the whole sample is -.11 significant. In order to investigate the relationships more sharply, the sample was divided into high and low achievers on the basis of the academic achievements. These extreme groups are expected to reflect the relationships more appropriately and may be used as reference for the relationships of personality and Academic Achievements. The correlation between Academic Achievements (External) and Extraversion of the high achievers for the whole Sample is -.01. The correlation between Academic Achievements and Extraversion for low achievers is on the whole sample is -.28. These results unfold that Academic Achievements are having negative correlation in this sample.
Examining the means of high achievers on Extraversion (11.06) and of low achievers (11.88) on the whole sample, it becomes further clear that students having high score on Extraversion tend to be low achievers and those who are having low score on Extraversion have high Academic Achievements.

Taking the branchwise intercorrelation between Extraversion and Academic Achievements, for the three branches range from -.04 to -.16. All these correlations are negative. These results indicate that the trend of correlation between Academic Achievements and Extraversion is negative. The intercorrelations between Academic Achievements and Extraversion of the high achievers and low achievers for the separate branches may bring out definite relationship. The correlation between Academic Achievement (External) and the Extraversion is -.25 (which is significant) of the high achievers for the Electrical Branch. The intercorrelation of these two aspects of over achievers for the Civil Engineering Branch is .14 (insignificant). The correlation between these two aspects of high achievers for Mechanical Engineering is .07 (Insignificant).

The intercorrelation between Academic Achievement and Extraversion of the low achievers for the Electrical Engineering is .28, which clearly strengthens the results that Extraversion and Academic Achievements are negatively correlated. The intercorrelations between Academic Achievement and Extraversion for the low achievers for the Civil and Mechanical Engineering are -.38 and -.31 (significant). The results found in most of the
samples have been negative with Academic Achievements. These two results may need special investigation.

The means of scores on Extraversion for the subsample taken branchwise range from 11.27 to 11.70 for the high achievers whereas the scores of low achievers in three branches range from 11.51 to 11.86. These results too prove that the Extraversion is negatively related to Academic Achievements. The t-ratio between high and low achievers for the whole sample on Extraversion is 2.15 (significant). It shows that the differences between means on Extraversion are significant. This lends support that high achievers have low scores on Extraversion. The t-ratios in the branchwise sample also show that the differences are significant on Extraversion between the high and low achievers. The reasons for the negative correlation of Academic Achievements and Extraversion have been explained by Eysenck (1957, 1966a) stated that individuals in whom reaction inhibition (Ir) is generated quickly and dissipates slowly are predisposed to develop extraverted patterns of behaviour whereas the individuals in whom Ir (reactory inhibition) is generated slowly and dissipated quickly are thereby predisposed to introverted patterns of behaviour. The differences in the individuals regarding the proportion of excitatory and inhibitory responses in the cortical activity affects the performance especially with regard to conditionability. Extraverts would have difficulty to be conditioned and Introverts would find ease in being conditioned. The ways in which these differences might effect achievements are quickness in establishment of learning responses and slowness of work decrement.
These differences for preference of speed and accuracy effect the setting up of higher level of aspiration. It means that Extraverts would give poor performance on the Academic scores on the Engineering Education. Finlayson (1970) suggests that introverts obtained higher marks than Extraverts. Entwistle and Welsh (1970) reported that mean scores of high achieving students on Extraversion 17.5 and of low achieving it was 17.8. On Neuroticism the mean scores of high achieving is 10.9 and low achieving 12.7 students. Hamilton (1946) and Eysenck (1947) reported the positive correlation between Academic Achievements and the Introverts. Broadbent (1958) reported that low extraversion is asset to high academic achievements. Savage (1962) also reported that Extraversion is negatively related to Academic Achievements. The results are also confirmed with an American Sample (Bendig, 1960). Elliot (1972), Eysenck and Cookson (1969) tried to relate academic achievements not only with Extraversion but with task difficulty. Entwistle, Misbet, Entwistle and Cowell (1971) reported that the correlation between Academic Achievements of polytechnic sample with Extraversion -.02. Cowell and Entwistle (1971) reported negative correlation of -.54 with Academic Achievements on Ordinary National Certificate in Engineering at technical college. Engineering Education is certainly a difficult course, the nature of curriculum demands long hours of work both at desk and at machines equipment tools. It does demand a lot of persistence and careful concentration. Thus, the person having low score on Extraversion/Introversion dimension may be able to do well on the Academic Achievements in these courses. These are in accordance to the explanation by Eysenck's view point that extraverted patterns of behaviour are
resultant to generate Ir quickly and dissipate slowly which affects the performance especially with regard to his condition-ability. Extroverts may have some difficulty while introverts get conditioned easily. The ways in which these differences might affect the achievements are quickness in the establishment of learning responses and slowness of work decrement, preference for speed and accuracy, setting up higher level of aspiration. Mohan (1976) reported that Introverts do better on Academic Achievements than the Extraverts.

On the other dimension - Neuroticism, the correlation between Academic Achievements and the Neuroticism on the whole sample is -.19. The correlation is negative and significant. In order to establish the definite relationship between Academic Achievement and the Neuroticism, the subsample of high and low achievers was obtained. The intercorrelation between Academic Achievement and Neuroticism is -.21. Both the results show that Neuroticism is also negatively related to the Academic Achievement in the present sample.

The means of Neuroticism of high and low achievers are 9.25 and 10.81 for the whole sample clearly depicts that those who are highly emotional tend to low achievers. Low scores on Neuroticism is related to high Academic Achievements. The differences of the means is significant which confirms that the Neuroticism is negatively related to Academic Achievements as unfolded in the whole sample. Taking the branchwise results, the intercorrelation between Neuroticism and the Academic Achievements are -.05, -.22 and -.29 for Electrical, Civil and Mechanical Engineering. The
correlations for Civil and Mechanical Engineering Branches are significant.

The results support the conclusion that Neuroticism and Academic Achievements have a negative relationship. The branchwise correlations for the subsample of high and low achievers are further expected to establish similar relationship. The inter-correlation of Neuroticism and Academic Achievements in the three branches - Electrical, Civil and Mechanical - for the high achievers are -.02, -.15, -.03 respectively. All these correlations are negative which further strengthen the conclusion.

The means of Neuroticism for high and low achievers in the three branches of Engineering (Electrical, Civil, Mechanical) are 9.14, 9.14, 8.72 and 9.83, 10.40, 11.64. These means bring out clearly that low achievers have higher means on Neuroticism and high achievers have comparatively low means on Neuroticism. The difference of means is significant for the Mechanical Branch. So, these results confirm that the Academic Achievements and the Neuroticism dimension of Personality are negatively correlated.

For technician type of jobs, a moderate score on Neuroticism will provide corresponding drive without affecting the drive level. So, the score on Neuroticism just below the average level be an asset for the success on the training and on jobs. The student in technician courses has to do work on Electrical, Civil and Mechanical Engineering types of machines and materials which are quite complex. Many a times the situation may be quite risky and in such situations highly emotional students may
be involving themselves in dangerous traps. The characteristics of Neurotic persons include quick responsiveness of a person and the likelihood of breakdown in case of stress. The general nature of Neuroticism is assessed as instability, unadaptability, depressed moods and weak dependable attitudes, narrow interests and symptoms of breakdown. The results support the hypothesis that the students scoring high on Academic Achievements obtain low scores on Neuroticism.

Studies by Savage (1962) and Child (1964) support the results that the Academic Achievements and Neuroticism have negative correlations with each other. Entwistle and Entwistle and Cowell (1971) found a correlation of -.07 between the Academic performance scores of level and the Neuroticism on Polytechnic Sample Jensen (1973) also reported negative correlation of Academic Achievement and Neuroticism. The drive is always desired to do or undertake a task but the high drive level affects the performance adversely. For simple problems Neurotics have been found to do better. Child (1964, 1966), Kumar (1974) have supported the results that high emotionality has adverse effects on performance of the children. Savage (1962), Entwistle and Walsh (1969), Eysenck and Cookson (1969) and Mohan (1976) support the thesis that tasks which are complex and difficult in nature like Technician Courses will be affected adversely by high drive level in accordance with Eysenck's Theory of Personality.
The human differences in various situations have generally been attributed to the differences of Intelligence, but another important aspect of the human being is his Personality. Personality is the typical and consistent mode of behaviour in response to the environment. In order to explain the human differences it will be appropriate to consider the influences of Intelligence as well as Personality. It may be quite interesting to understand first the relation of Intelligence and Personality in multifaced activities of daily life. It may also be true that the differences in the functioning of intellect might be related to Personality dimensions of Neuroticism and Introversion/Extraversion (Eysenck 1967). Eysenck (1967) further quoted that Farley (1966) found persons average on Neuroticism being superior in performance of Intelligence tests to those with high or low scores on Neuroticism. The relationship of E/I and Intelligence is found to be linear and negative.

In the present study an attempt is made to find the nature of relationship between Intelligence and Personality in students the Vocational Courses at the polytechnic level.

(i) **Personality and Intelligence**

The coefficient of correlation for the Whole Sample between Extraversion and Intelligence is −.06 which is almost zero. Considering the relationship in each of the branches (Electrical, Civil and Mechanical), results obtained show a correlation ranging from −.02 to −.15. The correlation with Electrical Group is significant.
The correlation in the sub-sample was also obtained for high achievers and low achievers separately to establish the relationship of Intelligence and Personality. The sub-sample score brings out relationships into sharp focus which can very easily be accepted between the various variables. The correlation in high achievers for the total high achievers sample was $-0.14$, whereas the correlation of high achievers in separate branches range from $-0.06$ to $-0.25$. The relationship with Civil and Mechanical Engineering are significant. The correlation with low achievers in separate branches range from $-0.25$ to $-0.01$. The branchwise correlation for the Electrical Branch is $0.24$ for the low achievers. This relationship shows that the low achievers have positive significant correlation with Extraversion.

These correlations show that Extraversion and Intelligence are negatively correlated and most of the correlations are significant. The correlation with low achievers for the Electrical Branch also support the results that the correlation between Intelligence and Extraversion dimension of Personality is negative.

These results are due to the massed practice effect of the Intelligence tests on SPQ. It is difficult task of problem solving on SPQ. It does need persistence and lot of concentration therefore extroverts on such tasks would generally perform poorer than introverts because of their slow excitation and quick dissipation of Ir (Eysenck and White, 1964).

Mohan (1967) reported that the relation between Extraversion and SPQ did not reach significance level. Entwistle and Welsh (1970)
reported that the high ability group has mean scores of 17.5 on Extraversion. The mean score of low ability group is 17.8 on Extraversion. The means show that the high ability group has low score on Extraversion whereas the low ability group showed high means on Extraversion.

The correlation between Intelligence and Neuroticism is zero. Taking the branchwise results the correlation ranges from .04 to -.13. The relationship between Intelligence and Neuroticism seems to be negative. Correlations in the sub-sample also indicate that there is negative correlation with Intelligence. Mohan and Kumar (1976) also found that Intelligence is negatively correlated with Neuroticism. Mohan (1976) reported the correlation between Intelligence and Neuroticism is negative. Entwistle and Welsh (1970) reported that the high ability group of school students had mean of 10.9 on Neuroticism whereas the mean score on low ability was 12.7 on Neuroticism. These means show that score on Neuroticism in case of high ability group is low and for the low ability group the mean on Neuroticism is more. This supports the contention that Neuroticism has negative association with Intelligence.

The results on Extraversion and Neuroticism are negative in this sample of students preparing for complex and difficult tasks as explained by Eysenck's viewpoint.

(ii) Personality and Attitude

The personality dimensions of Extraversion and Neuroticism have shown negative correlation with the Intelligence of the individual. The individuals performance is not only due to his general Intelligence domain but specific factors too play significant role in his cognitive
domain. Spearman (1927), Thurstone (1938), Vernon (1950), Guilford (1965) have advocated different number of specific abilities in their theories of Intelligence. These factors operate in combination with others in work situations. The common cluster of specific factors which go to contribute to the performance of the person will be helpful in explaining relationship of his Personality, and Aptitude that go to make his specific and unique adjustments, and performance on jobs or occupational courses. The nature of relationship between Personality (Extraversion/Introversion and Neuroticism) and Aptitude for the Engineering course will be unfolded here.

The Personality determines the adjustment or behaviour pattern in the work situations whereas the aptitude determines the performance level. It is interesting to discuss the relation between aptitude and Personality on subsequent effect on the adjustment on performance in technician courses which are just the technical or engineering courses at the diploma level. Extroverts have shown negative correlation with all the tests of aptitudes. Coefficient of correlation for the whole sample of Extraversion with the Space Relation (-.10), Numerical Ability(-.09), Mechanical Reasoning (-.14) and Abstract Reasoning (-.01) are shown in Table VIII. The relationship so obtained with one also mostly negative except with Numerical Ability. The coefficient of correlation with SR(-.05) Mechanical Reasoning(-.00), and Abstract Reasoning(-.03). Though the correlations are negative but quite low here. The correlation
indicated with the Numerical Ability (.09) is again very low. For results on both the dimensions Extraversion and Neuroticism have similar patterns of negative correlations with aptitudes. Mohan and Kumar (1976) reported that Introverts do better on Mechanical Reasoning tests. Similarly the correlation of Numerical Ability with Extraversion is negative as reported by Entwistle et al. These four subjects are the components of DAT. So, we can say that the present sample too has shown negative trends with the aptitudes. These are due to the reasons that Personality theory as conceived by Eysenck (1957, 1960, 1964) that person with quick Ir and its slow dissipation will prove less competent on the complicated and difficult tasks such as Engineering/Technology occupational courses. The Ir balance is related to conditionability and performance. So, for the level of performance on technician courses will naturally be related to the basic performance potentials. On the same lines the negative relationship with the Neuroticism holds the explanation correct. Thus, the hypothesis framed is supported well by the results.

(D) Academic Achievements and Vocational Choice

In the age of competition, people work hard to get examination grades for getting admission in various courses. The review of studies have also shown that high achieving students tend to join higher level positions.

The relationship of occupational choice and the Academic Achievements show (Tables XIII, XIV, XV) that in case of the present sample there is very low correlation between them. The correlation
of occupational choice for Technology Group at level I (Table XIII) and Academic Choice is \( .11 \). But at level II and level III of the occupational choice, the coefficient of correlation with academic achievements is \( .05 \) and \( .02 \). These correlations are insignificant. It means that the students have not related these choices to their academic achievements. Mossin (1949), Wingent (1973), Mohan and Randhawa (1977) reported that the academic achievements did not play significant role in the Occupational Choices of the students for the various groups of courses. Singh (1967) reported that high school students were studying courses which they did not like and which seemed not to be in line with their vocational choices. These results indicate that there is no correlation between the Extraversion scores and the Occupational Choices. In India, the relationship of the academic achievements and the Occupational Choices for the middle level of occupational courses are as expected there will be low correlation between the two. The admissions for the courses are made without any hard and fast criteria of the academic achievements or otherwise. The range of average marks of the student in the polytechnic in the qualifying marks is for \( 40\% \) to \( 80\% \) (official records). Due to heavy rush for admissions and restricted capacity of seats, economic reasons of the students and such other reasons make the students to secure admission in any possible vocational course that may come in their way. Many students who fail to join the I.I.Ts and Engineering Colleges will come to join the polytechnics (Education Commission,1960). The lack of proper informations of
the suitability and availability of the jobs based on various academic grades are also lacking with the students coming out of the portals of schools and particularly with rural backgrounds (Reddy 1973). Lack of guidance facilities thus play a disastrous role in the inadequate choices of the students in relation to their academic achievements at this stage of decision making process.

(E) Ability and Achievement

The level of performance of a person on a task will be dependent on the ability he possesses. Different tasks may demand general as well as special abilities in varying amount. The academic achievements have been reported to be related to the Intelligence as well as aptitudes of the persons.

In the present investigation, the mean scores of high achievers on Intelligence is 48.12 for the whole sample, whereas the mean scores of the low achievers on Intelligence is 45.57. The means of high achievers on Intelligence taken branchwise range from 45.24 to 49.86 and the means of low achievers on Intelligence range from 43.73 to 45.86. These results have been depicted in the Graph No. III.

The t-ratio between high and low achievers on Intelligence on the whole sample is 2.71 which is significant at .01. The t-ratios between low and high achievers of the three branches on Intelligence range from -.81 to 2.82. It is significant in Mechanical Engineering. These results show that the Intelligence is related to the achievements of the students.
The correlation between the Academic Achievements and Intelligence for whole sample are .07 and .21 for the internal and external Achievements respectively. The branchwise intercorrelations range from .15 to .25 on the external achievements which further lend support to the results that Intelligence and Academic Achievements have positive correlation. The intercorrelation between Intelligence and Academic Achievements for the sample of each of the branches range from .15 to .25 which are significant. The intercorrelations between internal achievement for high achievers and low achievers on the whole sample is .14 for external achievement. The correlations for the low achievers is .05. Examining the intercorrelations of these two variables in the branches, it is found that the correlations range from .10 to .23 in the high achieving group. The correlation in the low achievers range from -.05 to .12. The results taken branchwise for the low achievers are not significant.

These relationships suggest that the intelligence has positive intercorrelation with the Academic Achievements of the students in the polytechnic. Vernon (1958), Brown (1970), Mohan (1976) reported that Intelligence and Academic Achievements have positive correlation. Thus, the Intelligence influences the achievements of the students in the polytechnics. Dosanjh (1958) has used SPM to predict the performance of technical group at the higher secondary school level. Mohan (1976) reported positive relationship between Intelligence and Academic Achievements at all age levels. Mohan and Randhawa (1977) also reported positive
relationship between Intelligence and the Academic Achievements of the students at the high school level. These results support the hypothesis that the Intelligence and the Academic Achievements (External Exams) are significantly related.

The low correlation with the Academic Achievements (Internal) are attributed to the low range of marks which they have got on examinations conducted by their Institutes.

The factor analysis did not show that these two variables have a common factor. The relationship of ability with Academic Achievement when considered from the aptitude angle, these reveal overall relationship between the two variables. The results show that the correlation between aptitudes range from .10 to .24 with the Academic Achievements (Internal) and .19 to .24 with Academic Achievements (External) with the whole sample. The coefficient of correlation is highest for Space Relations and Academic Achievement and minimum for the Abstract Reasoning in case of External Academic Achievements.

The branchwise correlation obtained between the Aptitudes and the Academic Achievements support the results of the Whole Sample. The relationship between Space Relation and Academic Achievement in Electrical, Civil and Mechanical Branches range from .28 to .17 in the external assessment and .11 to .21 in the internal assessment. The correlation for Numerical Ability and the Academic Achievements range from .18 to .23 in external and .05 to .34 for internal. Similarly the relationship between Mechanical Ability and Academic
Achievements range from .08 in case of Civil to .35 in Electrical Engineering Branch. The relationship of Abstract Reasoning with Academic Achievements are also positive and mostly significant except with the Electrical Branch. These results are similar to the pattern of relationship of Intelligence and Achievement. The general as well as special ability are positively related to the Academic Achievement in the technical courses.

The t-ratio obtained between high and low achievers on sub-tests (Space Relations, Numerical Ability, Mechanical Reasoning Abstract Reasoning) of aptitude on the whole sample range from 2.77 to 3.94. All these ratios are significant at .01 level. The t-ratio between high and low achievers when considered branchwise also support the results of the whole sample that the differences in the mean on Aptitudes of high and low achievers are significant. In Mechanical Engineering all the four t-ratios on SR, NA, MR and AR are significant. Similar tendency is general in other branches of the sample. It was found that engineers were high on NA, AR and MR (Super & Crites, 1962).

Gupta (1971) used to DAT predicting success of engineering group students in the schools. Sharms (1971) used the aptitude tests for predicting the technical potential at delta level.

The results bring out that the ability (Aptitudes) are positively related to the Academic Achievements of the students in the Engineering Institution at this crucial stage of diploma level.