RESULTS
The present investigations was undertaken to study the effect of personality, intelligence, induced stress and sex on the three types of problem solving tasks. Six problem solving tasks were used to gauge this effect. The performance was assessed in terms of trials and time taken for problem solving squares, prisoners problem, sorting cards problem and Hanfmann-Kasanin problem and only time was noted for candle stick problem. In anagram problem solving task the index of performance was number of anagrams correctly solved. In the present study 15 anagrams were given to each subject with single, double and triple shifts to be solved within 10 mts.

Means were calculated for the various conditions i.e. two groups of personality, three groups of intelligence, two groups of stress and two groups of sex, for each of six problem solving tasks (See Table IV). To find out the significance of differences between the said means, and their interactions, a four way analysis of variance A x B x C x D (Edwards, 1968) was applied separately for each of the problem solving tasks. The details regarding each analysis are given as under:

**Analysis of Data on Anagram Problem Solving Task**

The comparison of means on correct responses, for the two groups of personality for anagram problem solving task indicates that introverts are performing better than extraverts by solving more anagrams correctly (See Table IV).
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Problem Solving Tasks</th>
<th>Responses</th>
<th>IN</th>
<th>EX</th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th>Stress</th>
<th>No Stress</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anagrams Problem</td>
<td>Right Responses</td>
<td>13.77</td>
<td>12.92</td>
<td>14.18</td>
<td>13.32</td>
<td>12.53</td>
<td>13.10</td>
<td>13.60</td>
<td>13.75</td>
<td>12.95</td>
</tr>
<tr>
<td>2</td>
<td>Candle Stick Problem</td>
<td>Time Taken</td>
<td>2.58</td>
<td>2.95</td>
<td>1.83</td>
<td>2.80</td>
<td>3.67</td>
<td>3.16</td>
<td>2.37</td>
<td>2.55</td>
<td>2.98</td>
</tr>
<tr>
<td>3</td>
<td>Problem Solving Squares</td>
<td>Trials</td>
<td>5.70</td>
<td>6.75</td>
<td>4.72</td>
<td>5.71</td>
<td>8.26</td>
<td>6.90</td>
<td>5.56</td>
<td>5.66</td>
<td>6.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time</td>
<td>8.80</td>
<td>9.80</td>
<td>7.53</td>
<td>8.71</td>
<td>11.66</td>
<td>9.95</td>
<td>8.65</td>
<td>8.55</td>
<td>10.05</td>
</tr>
<tr>
<td>4</td>
<td>Prisoners Problem</td>
<td>Trials</td>
<td>7.59</td>
<td>9.81</td>
<td>6.81</td>
<td>8.77</td>
<td>10.53</td>
<td>9.70</td>
<td>7.70</td>
<td>7.53</td>
<td>8.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time</td>
<td>5.42</td>
<td>7.25</td>
<td>4.77</td>
<td>6.20</td>
<td>8.05</td>
<td>7.02</td>
<td>5.65</td>
<td>4.86</td>
<td>7.81</td>
</tr>
<tr>
<td>5</td>
<td>Sorting Cards</td>
<td>Trials</td>
<td>3.90</td>
<td>4.35</td>
<td>2.60</td>
<td>3.85</td>
<td>5.95</td>
<td>4.40</td>
<td>3.85</td>
<td>3.70</td>
<td>4.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time</td>
<td>5.13</td>
<td>5.70</td>
<td>3.60</td>
<td>5.02</td>
<td>7.62</td>
<td>5.80</td>
<td>5.02</td>
<td>4.86</td>
<td>5.96</td>
</tr>
<tr>
<td>6</td>
<td>The Hanfmann-Kasanin Problem</td>
<td>Trials</td>
<td>3.65</td>
<td>5.09</td>
<td>3.55</td>
<td>4.43</td>
<td>5.13</td>
<td>4.68</td>
<td>4.06</td>
<td>4.06</td>
<td>4.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time</td>
<td>4.65</td>
<td>6.05</td>
<td>4.55</td>
<td>5.43</td>
<td>6.08</td>
<td>5.65</td>
<td>5.05</td>
<td>5.05</td>
<td>5.66</td>
</tr>
</tbody>
</table>

IN = Introverts; HI = High Intelligence
Ex = Extraverts. AAI= Above Average Intelligence
AI= Average Intelligence
The means of three groups of intelligence show that high intelligence group is better than above average intelligence and average intelligence groups. The above average intelligence group is giving better performance than average intelligence group on anagram problem solving task (See Table IV).

The means on the variable of stress indicates that no stress group is better than the induced stress group on anagram problem solving task (See Table IV).

From the comparison of means for two groups of sex, it is observed that males are performing better than females on anagrams problem solving task (See Table IV).

To find out the significance of difference between the means of said conditions, analysis of variance of the order of $2 \times 3 \times 2 \times 2$ was applied (Edwards, 1968).

The analysis of variance yielded highly significant F-ratio of 24.463 for the difference between the means of two personality groups on right responses to solve anagram solving task (See Table V) indicating the better performance of introverts over extraverts. For comparison of means (See Table IV).

The F-ratio for the differences between three groups of intelligence is 30.748 significant at .005 level (See Table V). The highly significant F-ratio indicates the better performance of high intelligence group over the other groups. The above
### TABLE - V

Summary of ANOVA on Anagrams Problem Solving Task (Right Responses)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>43.350</td>
<td>1</td>
<td>43.350</td>
<td>24.463</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>108.975</td>
<td>2</td>
<td>54.487</td>
<td>30.748</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>15.000</td>
<td>1</td>
<td>15.000</td>
<td>8.465</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>38.400</td>
<td>1</td>
<td>38.400</td>
<td>21.670</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>9.925</td>
<td>2</td>
<td>4.962</td>
<td>2.800</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.016</td>
<td>1</td>
<td>0.016</td>
<td>0.009</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>0.416</td>
<td>1</td>
<td>0.416</td>
<td>0.234</td>
<td>NS</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>0.525</td>
<td>2</td>
<td>0.262</td>
<td>0.147</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>0.075</td>
<td>2</td>
<td>0.037</td>
<td>0.020</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>0.266</td>
<td>1</td>
<td>0.266</td>
<td>0.150</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.308</td>
<td>2</td>
<td>0.154</td>
<td>0.086</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>0.358</td>
<td>2</td>
<td>0.179</td>
<td>0.101</td>
<td>NS</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.016</td>
<td>1</td>
<td>0.016</td>
<td>0.009</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>0.058</td>
<td>2</td>
<td>0.029</td>
<td>0.016</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.108</td>
<td>2</td>
<td>0.054</td>
<td>0.030</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error within</td>
<td>382.795</td>
<td>216</td>
<td>1.772</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>600.591</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
average group is performing better than average intelligence group. For the comparison of means (See Table IV).

Duncan's Analysis

Duncan's multiple range test was also applied in the present investigation in order to find out the significance of differences between three levels of intelligence on all the six problems. The F-ratio for the main effect of intelligence turned out to be highly significant at .005 level of significance on all the six problem solving tasks. The rationale for using Duncan's analysis according to Edwards (1968) is: suppose we have tested a set of K means by analysis of variance and have concluded that the means differ significantly, this alone is not satisfactory. What we would like to know is, how the means differ? Are there significant differences between some of the means and not between the others?

Duncan's Analysis for Anagrams Problem Solving Task

The multiple comparison of three means on the variable of intelligence presented in Table VI for anagrams problem indicates that high intelligence group with highest mean scores of 14.187 is performing better than the above average intelligence group and average intelligence group at .01 level. Similarly above average intelligence group with mean scores of 13.325 is also performing better than average intelligence group.
at .01 level of significance. The F-ratio for the main effect of intelligence is already significant at .005 level of significance. For details of analysis of variance (See Table V).

Table VI

Duncan's Multiple Range Test Applied to the Difference Between Three Means of Intelligence on Anagrams Problem

(Right Responses)

<table>
<thead>
<tr>
<th></th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th>Shortest significant Range (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>14.187</td>
<td>13.325</td>
<td>12.557</td>
<td>.05* .01**</td>
</tr>
<tr>
<td>14.187</td>
<td></td>
<td></td>
<td></td>
<td>1.65** R₂.102  .134</td>
</tr>
<tr>
<td>13.325</td>
<td>.862**</td>
<td></td>
<td></td>
<td>.788** R₃.107  .140</td>
</tr>
</tbody>
</table>

The analysis of variance yielded highly significant F-ratio of 8.465 for the differences between means of two groups of stress on right responses to solve anagrams (See Table V). The ANOVA signifies the better performance of no stress group over the induced stress group. For means See Table IV.

The mean differences on anagrams solving task also show the superiority of males over females. The F-ratio of 21.670 is significant at .005 level (See Table V). This can be
confirmed through the means (See Table IV).

**Analysis of Data on Candle Stick Problem Solving Task**

From the inspection of means on time taken for the two groups of personality for candle stick problem solving task, it is observed that introverts are performing better than extraverts by taking less time to solve candle stick problem solving task (see Table IV).

The comparison of means of three groups of intelligence indicates that high intelligence subjects are better than above average intelligence and average intelligence subjects. Above average intelligence subjects are also giving better performance as compared to average intelligence group on candle stick problem solving task by taking less time to solve it (see Table IV).

The means on the variable of stress indicates that no stress group is taking less time to solve candle stick problem than the induced stress group i.e. no stress group is better than the induced stress group (see Table IV).

From the comparison of means for two groups of sex, it is found that males are performing better than females on candle stick problem solving task by taking less time to solve it (see Table IV).
Analysis of variance yielded highly significant F-ratio of 18,027 for the differences between the means of two personality groups for time taken to solve candle stick problem solving task (see Table VII) indicating the better performance of introverts over extraverts. This may be confirmed through the means (see Table IV).

The F-ratio for the differences between three groups of intelligence is 144.399 significant at .005 level (see Table VII). The highly significant F-ratio indicates the better performance of high intelligence group over the other groups i.e. above average intelligence and average intelligence groups. The above average group is performing better than the average group. For the comparison of means (see Table IV).

Duncan's Analysis for Candle Stick Problem

The multiple comparison of three means on the variable of intelligence presented in Table VIII for candle stick problem indicates that high intelligence group with highest mean scores of 1.837 is performing better than the groups of above average intelligence and average intelligence groups at .01 level of significance. Similarly above average intelligence group with the mean scores of 2.800 is also performing better than average intelligence group at .01 level of significance. The F-ratio for the main effect of intelligence is already found to be
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean of Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>8.437</td>
<td>1</td>
<td>8.437</td>
<td>18.027</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>135.158</td>
<td>2</td>
<td>67.579</td>
<td>144.399</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>37.604</td>
<td>1</td>
<td>37.604</td>
<td>80.350</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>10.837</td>
<td>1</td>
<td>10.837</td>
<td>23.155</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>0.325</td>
<td>2</td>
<td>0.162</td>
<td>0.346</td>
<td>N.S.</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.037</td>
<td>1</td>
<td>0.037</td>
<td>0.079</td>
<td>N.S.</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>0.004</td>
<td>1</td>
<td>0.004</td>
<td>0.008</td>
<td>N.S.</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>0.058</td>
<td>2</td>
<td>0.029</td>
<td>1.061</td>
<td>N.S.</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>0.325</td>
<td>2</td>
<td>0.162</td>
<td>0.346</td>
<td>N.S.</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>0.004</td>
<td>1</td>
<td>0.004</td>
<td>0.008</td>
<td>N.S.</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.025</td>
<td>2</td>
<td>0.012</td>
<td>0.025</td>
<td>N.S.</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>0.158</td>
<td>2</td>
<td>0.079</td>
<td>0.168</td>
<td>N.S.</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.037</td>
<td>1</td>
<td>0.037</td>
<td>0.079</td>
<td>N.S.</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>0.058</td>
<td>2</td>
<td>0.029</td>
<td>1.061</td>
<td>N.S.</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.025</td>
<td>2</td>
<td>0.012</td>
<td>0.025</td>
<td>N.S.</td>
</tr>
<tr>
<td>16</td>
<td>Error within</td>
<td>101.293</td>
<td>216</td>
<td>0.468</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>294.385</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
significant at .005 level of significance in analysis of variance (see Table VII).

**Table VIII**

*Duncan's Multiple Range Test Applied to the Difference Between Three Means of Intelligence for Candle Stick Problem (Time)*

<table>
<thead>
<tr>
<th>Groups</th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th>Shortest significance Range (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>1.837</td>
<td>2.800</td>
<td>3.675</td>
<td>.05*</td>
</tr>
<tr>
<td>R1.838</td>
<td>.963**</td>
<td>1.838**</td>
<td>R2.210</td>
<td>.276</td>
</tr>
<tr>
<td>2.800</td>
<td>.875**</td>
<td>R3.221</td>
<td>.288</td>
<td></td>
</tr>
</tbody>
</table>

Analysis of variance yielded highly significant F-ratio of 80.350 for the differences between the means of two groups of stress for time taken to solve candle stick problem (see Table VII). The ANOVA signifies the better performance of no stress group over the induced stress group. It is also confirmed through the means Table IV.

The mean differences on the candle stick problem solving task indicate the superiority of males over females (see Table IV). This is substantiated through a highly significant
F-ratio of 23.155 significant at .005 level. For the details of analysis of variance (see Table VII).

**Analysis of Data on Problem Solving Squares**

On the variable of personality the comparison of means shows that introverts are performing better than extraverts on trials as well as time taken on the problem solving squares (see Table IV).

The comparison of means on trials as well as on time taken, for three groups of intelligence, indicates that high intelligence subjects are giving the best performance followed by above average and average intelligence groups respectively on both trials and time taken. For means (see Table IV).

The means for both trials and time taken on the variable of stress indicate that the subjects under task oriented instructions are performing better than the subjects under stressful instructions on problem solving squares (see Table IV).

On the variable of sex the comparison of means show that males are performing better than females on trials as well as time taken on the problem solving squares (see Table IV).

Analysis of variance yielded highly significant F-ratio of 122.955 and 76.036 for the differences in the two groups of personality on both trials and time taken respectively, which
are found to be significant at .005 level (see Tables IX and X). The ANOVA signifies the better performance of introverts over extraverts for both trials and time taken on problem solving squares. For means (see Table IV).

Analysis of variance yielded F-ratio of 495.453 and 465.413 for the differences between the three groups of intelligence on trials as well as time taken respectively to solve problem solving squares (see Table IX and X). The highly significant F-ratios which are found significant at .005 level indicate the better performance of high intelligence group over the other groups. The above average group is performing better than the average intelligence group. For comparison of means (see Table IV).

**Duncan's Analysis for Problem Solving Squares**

The multiple range analysis for the problem solving squares on trials and time taken on the variable of intelligence presented in Table XI show that the subjects of high intelligence group with higher mean scores of 4.72 and 7.537 for trials and time taken respectively are performing better than the subjects of above average intelligence and average intelligence groups at .01 level of significance. Similarly the subjects of above average intelligence with the mean scores of 5.71 and 8.712 for trials and time taken respectively are performing
### TABLE - IX

Summary of ANOVA on Problem Solving Squares (Trials Taken)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>66.150</td>
<td>1</td>
<td>66.150</td>
<td>122.955</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>533.108</td>
<td>2</td>
<td>266.554</td>
<td>495.453</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>106.666</td>
<td>1</td>
<td>106.666</td>
<td>193.263</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>77.066</td>
<td>1</td>
<td>77.066</td>
<td>143.245</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>6.775</td>
<td>2</td>
<td>3.387</td>
<td>6.295</td>
<td>P .005</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.016</td>
<td>1</td>
<td>0.016</td>
<td>0.029</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>0.016</td>
<td>1</td>
<td>0.016</td>
<td>0.029</td>
<td>NS</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>52.108</td>
<td>2</td>
<td>26.054</td>
<td>48.427</td>
<td>P .005</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>0.108</td>
<td>2</td>
<td>0.054</td>
<td>0.100</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>5.400</td>
<td>1</td>
<td>5.400</td>
<td>10.037</td>
<td>P .005</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.508</td>
<td>2</td>
<td>0.254</td>
<td>0.472</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>0.108</td>
<td>2</td>
<td>0.054</td>
<td>0.100</td>
<td>NS</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.816</td>
<td>1</td>
<td>0.816</td>
<td>1.516</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
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<td>2</td>
<td>1.737</td>
<td>3.228</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
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<td>2</td>
<td>0.104</td>
<td>0.193</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error within</td>
<td>116.394</td>
<td>216</td>
<td>0.538</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total 968.922 239
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1</td>
<td>59.004</td>
<td>76.036</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>722.633</td>
<td>2</td>
<td>361.316</td>
<td>465.613</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>102.704</td>
<td>1</td>
<td>102.704</td>
<td>132.350</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>136.504</td>
<td>1</td>
<td>136.504</td>
<td>175.907</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>5.433</td>
<td>2</td>
<td>2.716</td>
<td>3.500</td>
<td>P .05</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.337</td>
<td>1</td>
<td>0.337</td>
<td>0.434</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>0.104</td>
<td>1</td>
<td>0.104</td>
<td>0.134</td>
<td>NS</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>27.033</td>
<td>2</td>
<td>13.516</td>
<td>17.417</td>
<td>P .005</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>11.633</td>
<td>2</td>
<td>5.816</td>
<td>7.494</td>
<td>P .005</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>10.837</td>
<td>1</td>
<td>10.837</td>
<td>13.965</td>
<td>P .005</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.300</td>
<td>2</td>
<td>0.150</td>
<td>0.193</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>0.233</td>
<td>2</td>
<td>0.116</td>
<td>0.149</td>
<td>NS</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.004</td>
<td>1</td>
<td>0.004</td>
<td>0.005</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>44.100</td>
<td>2</td>
<td>22.050</td>
<td>28.414</td>
<td>P .005</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.233</td>
<td>2</td>
<td>0.116</td>
<td>0.149</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error within</td>
<td>167.695</td>
<td>216</td>
<td>0.776</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total** | 1288.787 | 239 |
better than the subjects of average intelligence (see Table XI). The main effect of intelligence is significant at .005 level of significance (see Tables IX and X).

### Table XI
**Duncan's Multiple Range Test Applied to the Difference Between Three Means of Intelligence on Problem Solving Squares (Trials and Time)**

<table>
<thead>
<tr>
<th>Trials</th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th><strong>Shortest significance Range (R)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>4.72</td>
<td>5.71</td>
<td>8.26</td>
<td><strong>0.05</strong> <strong>0.01</strong></td>
</tr>
<tr>
<td>4.72</td>
<td>.99**</td>
<td>3.54*</td>
<td>R_2.224 = .295</td>
<td></td>
</tr>
<tr>
<td>5.71</td>
<td>2.55**</td>
<td>R_3.236 = .307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>7.537</td>
<td>8.712</td>
<td>11.662</td>
<td><strong>0.05</strong> <strong>0.01</strong></td>
</tr>
<tr>
<td>7.537</td>
<td>1.175**</td>
<td>4.125**</td>
<td>R_2.271 = .357</td>
<td></td>
</tr>
<tr>
<td>8.712</td>
<td>2.99**</td>
<td>R_3.285 = .372</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis of variance yielded F-ratios of 193.263 and 132.350 for the differences between the two groups of stress on
trials as well as time taken respectively to solve problem solving squares (see Tables IX and X). These F-ratios are found significant at .005 level which show the better performance of no stress groups over the induced stress group. It is also confirmed through the means (see Table IV).

The F-ratios of 143.245 and 175.907 are highly significant at .005 level on both trials and time taken respectively on problem solving squares which show the superiority of males over females (see Tables IX and X). This may also be confirmed through the means (see Table IV).

The interaction between personality x intelligence yielded F-ratios of 6.295 and 3.500 significant at .05 level for both trials and time taken respectively (see Tables IX and X). This indicates that difference between the means of two groups of personality is significantly different from the difference between the means of three groups of intelligence. It means that "personality effect is not of the same kind for the different levels of intelligence" Edwards (1968). The means contingency table and t-values for the significant interaction are being presented in Table XII given below:
Table XII

Contingency Table of Means of Two Groups of Personality and Three Groups of Personality and the Respective t-Values for Problem Solving Squares (Trials and Time)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Introverts</th>
<th>Extraverts</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intelligence</td>
<td>4.07</td>
<td>5.38</td>
<td>3.53**</td>
</tr>
<tr>
<td>Above Average Intelligence</td>
<td>5.07</td>
<td>6.35</td>
<td>4.29**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>7.98</td>
<td>8.55</td>
<td>2.31*</td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intelligence</td>
<td>6.98</td>
<td>8.10</td>
<td>3.82**</td>
</tr>
<tr>
<td>Above Average Intelligence</td>
<td>8.08</td>
<td>9.35</td>
<td>4.40**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>11.38</td>
<td>11.95</td>
<td>1.96</td>
</tr>
</tbody>
</table>

The contingency table of means of the respective t-values (see Table XII) and Figure I clearly depict that significant difference between introverts and extraverts exists on all the level of intelligence on trials taken but the effect is more marked at the higher level of intelligence. And on time taken the same trend is being observed but at average level of intelligence the t-value failed to reach its significant level for the differences between introverts and extraverts.
Fig. 1. Interaction of Analysis of Variance of Problem Solving Squares Between Personality x Intelligence
The interaction between intelligence x stress is found significant at .005 level having F-ratio of 48.427 and 17.417 for both trials and time taken on the problem solving squares (see Tables IX and X). This shows that intelligence effect is not of the same kind for the different levels of stress. These significant interactions may also be confirmed through the contingency table of means (see Table XIII).

**Table XIII**

| Contingency Table of Means of Three Groups of Intelligence and Two Groups of Stress and the Respective t-Values on Problem Solving Squares (Trials and Time) |
|---|---|---|---|
| Groups | Stress | No-Stress | t-Values |
| **Trials** | | | |
| High Intelligence | 5.65 | 3.80 | 7.11** |
| Above Average Intelligence | 6.77 | 4.65 | 8.31** |
| Average Intelligence | 8.27 | 8.25 | .07 |
| **Time** | | | |
| High Intelligence | 8.50 | 6.57 | 8.24** |
| Above Average Intelligence | 9.52 | 7.90 | 6.42** |
| Average Intelligence | 11.85 | 11.48 | .91 |
The obtained significant interaction between intelligence x stress can best be depicted through the graphical representation (see Figure II). The interaction clearly depicts that the effect of stress is significantly pronounced in high and above average intelligence groups. Whereas, in the average intelligence groups there are no differences between stress/no stress group for both trials and time taken. For details of t-values and contingency means (see Table XIII).

The interaction between stress x sex yielded F-ratios of 10.037 and 13.965 significant at .005 level for both trials and time taken respectively (see Tables IX and X). This indicates that the effect of stress is not of the same kind for the different levels of sex. The contingency table for means is presented for said interactions (see Table XIV). The figure III clearly reveals that effect of stress is more pronounced in females than in males (see Table XIV for t-values). Interestingly the differences between males and females are more sharp under no stress condition - as signified by higher t-values. This holds good for both trials and time taken on problem solving squares.

Table XIV
Contingency Table of Means of Two Groups of Stress and Two Sexes and the Respective t-Values for Problem Solving Squares (Trials and Time). .05*, .01**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Males</th>
<th>Females</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>6.48</td>
<td>7.32</td>
<td>3.36**</td>
</tr>
</tbody>
</table>
FIG.II. INTERACTION OF ANALYSIS OF VARIANCE OF PROBLEM SOLVING SQUARES BETWEEN INTELLIGENCE X STRESS
The interaction effect of intelligence x stress x sex is found significant at .005 level having F-ratio of 28.414 for time taken on problem solving squares indicating that "the two factor interaction is not of the same kind for the different levels of third factor Edwards (1968)" (see Table X). In other words interaction of intelligence x stress conditions is not of the same kind at the two levels of sex. This is also confirmed from the contingency means table (see Table XV).

### Table XV
Contingency Table of Means of Three Groups of Intelligence, Two Groups of Stress and Two Sexes and the Respective t-Values for Problem Solving Squares (Time) .05*, .01**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Stress</th>
<th>No Stress</th>
<th>Time</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Intelligence</td>
<td>7.85</td>
<td>5.95</td>
<td></td>
<td>7.14**</td>
</tr>
<tr>
<td>Males</td>
<td>8.80</td>
<td>7.50</td>
<td></td>
<td>4.49**</td>
</tr>
<tr>
<td>Above Average Intelligence</td>
<td>8.80</td>
<td>7.50</td>
<td></td>
<td>4.49**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>11.60</td>
<td>9.60</td>
<td></td>
<td>7.18**</td>
</tr>
</tbody>
</table>
The curve and contingency table (see Figure IV and Table XIV) clearly reveal that at the very outset the females are inferior to males and at the same time it can be seen that the effect of stress is more pronounced in females and is nested at the higher levels of intelligence. In females especially the effect of stress is more marked in average intelligence group. For details of t-values which have been computed between various conditions see Table XV.

Analysis of Data on Prisoners Problem Solving Task

The means for the two levels of personality for both trials and time taken indicate that introverts are performing better than extraverts on prisoners problem (see Table IV).

The comparison of means on trials as well as on time taken, for three groups of intelligence, indicates that high intelligence group is performing better than above average intelligence and average intelligence groups. The above average group is
Fig. IV. Interaction of Analysis of Variance of Problem Solving Squares between Intelligence x Stress x Sex.
performing better than average intelligence group on the prisoners problem solving task (see Table IV).

The means on the variable of stress indicate that no stress group is performing better than the induced stress group on prisoners problem for both trials and time taken (see Table IV).

On the variable of sex the comparison of means show that males are performing better than females on trials as well as time taken on the prisoners problem (see Table IV).

Analysis of variance yielded highly significant F-ratios of 183.356 and 181.844 for the difference on two personality groups on both trials and time taken respectively, which are found significant at .005 level (see Tables XVI and XVII). The ANOVA signifies the better performance of introverts over extraverts for both trials and time on prisoners problems. For the comparison of means (see Table IV).

Analysis of variance yielded F-ratios of 171.429 for trials taken and 194.513 for time taken on the variable of intelligence which are highly significant at .005 level on prisoners problem (see Tables XVI and XVII). The highly significant F-ratios reveals the better performance of high intelligence group over the other groups. The above average group is performing better than the average intelligence group. For the comparison of means (see Table IV).
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>297.037</td>
<td>1</td>
<td>297.037</td>
<td>183.356</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>555.433</td>
<td>2</td>
<td>277.716</td>
<td>171.429</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>238.004</td>
<td>1</td>
<td>238.004</td>
<td>146.916</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>329.004</td>
<td>1</td>
<td>329.004</td>
<td>203.088</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>0.700</td>
<td>2</td>
<td>0.350</td>
<td>0.216</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.104</td>
<td>1</td>
<td>0.104</td>
<td>0.064</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>6.337</td>
<td>1</td>
<td>6.337</td>
<td>3.911</td>
<td>P .05</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>13.433</td>
<td>2</td>
<td>6.716</td>
<td>4.145</td>
<td>P .025</td>
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<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>18.633</td>
<td>2</td>
<td>9.316</td>
<td>5.750</td>
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</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>0.704</td>
<td>1</td>
<td>0.704</td>
<td>0.434</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.433</td>
<td>2</td>
<td>0.216</td>
<td>0.133</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>4.900</td>
<td>2</td>
<td>2.450</td>
<td>1.512</td>
<td>NS</td>
</tr>
<tr>
<td>13</td>
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<td>0.504</td>
<td>1</td>
<td>0.504</td>
<td>0.311</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>1.033</td>
<td>2</td>
<td>0.516</td>
<td>0.318</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>1.633</td>
<td>2</td>
<td>0.816</td>
<td>0.503</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error within</td>
<td>350.094</td>
<td>216</td>
<td>1.620</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1817.986</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.No.</td>
<td>Source of Variation</td>
<td>Sum of Squares</td>
<td>df</td>
<td>Mean of Squares</td>
<td>F</td>
<td>Level of Significance</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>----------------</td>
<td>----</td>
<td>----------------</td>
<td>---------</td>
<td>----------------------</td>
</tr>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>201.666</td>
<td>1</td>
<td>201.666</td>
<td>181.844</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>431.433</td>
<td>2</td>
<td>215.716</td>
<td>194.513</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>112.066</td>
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<td>112.066</td>
<td>101.051</td>
<td>P .005</td>
</tr>
<tr>
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<td>Sex (S)</td>
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<td>522.150</td>
<td>470.829</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
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<td>14.933</td>
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<td>7.466</td>
<td>6.732</td>
<td>P .005</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.416</td>
<td>1</td>
<td>0.416</td>
<td>0.375</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>19.266</td>
<td>1</td>
<td>19.266</td>
<td>17.372</td>
<td>P .005</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>0.933</td>
<td>2</td>
<td>0.466</td>
<td>0.420</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>3.900</td>
<td>2</td>
<td>1.950</td>
<td>1.758</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>0.066</td>
<td>1</td>
<td>0.066</td>
<td>0.059</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.433</td>
<td>2</td>
<td>0.216</td>
<td>0.194</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>8.633</td>
<td>2</td>
<td>4.316</td>
<td>3.891</td>
<td>P .05</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.416</td>
<td>1</td>
<td>0.416</td>
<td>0.375</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>1.433</td>
<td>2</td>
<td>0.716</td>
<td>0.645</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.633</td>
<td>2</td>
<td>0.316</td>
<td>0.284</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error within</td>
<td>239.595</td>
<td>216</td>
<td>1.109</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1557.972</td>
<td>239</td>
<td>1.109</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Duncan's Analysis for Prisoners Problem

Multiple range analysis for prisoners problem on trials and time taken on the variable of intelligence presented in Table XVIII, reveals that high intelligence group with highest mean scores of 6.812 on trials taken and 4.775 on time taken differ significantly from the groups of above average intelligence and average intelligence, at .01 level of significance. Similarly, subjects of the above average intelligence group with the mean scores of 8.775 on trials taken and 6.200 on time taken also differ significantly from the subjects of average intelligence at .01 level of significance (see Table XXIII). F-ratio for the main effect of intelligence has already been found to be significant at .005 level of significance in analysis of variance for prisoners problem (see Table XVI and XVII).

Table XVIII
Duncan's Multiple Range Test Applied to the Difference Between Three Means of Intelligence on Prisoners Problem (Trials and Time)

<table>
<thead>
<tr>
<th></th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th>Shortest significance Range (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means</td>
<td>6.812</td>
<td>8.775</td>
<td>10.537</td>
<td>.05*</td>
</tr>
<tr>
<td></td>
<td>6.812</td>
<td>1.963**</td>
<td>3.725**</td>
<td>R2.393 .517</td>
</tr>
<tr>
<td></td>
<td>8.775</td>
<td>1.762**</td>
<td>R3.414</td>
<td>.539</td>
</tr>
</tbody>
</table>
The F-ratios of 146.916 and 101.051 for both trials and time taken are found highly significant at .005 level on the variable of stress (see Table XVI and XVII). The highly significant F-ratios indicate the better performance of no stress group over the induced stress group on prisoners problem. For the comparison of means (see Table IV).

The mean differences on the prisoners problems for both trials and time taken show the superiority of males over females. The F-ratios of 203.088 and 470.829 are significant at .005 level (see Table XVI and XVII). This can also be confirmed through means (see Table IV).

The analysis of variance yielded F-ratios of 3.911 and 17.372 for the interaction between personality x sex have been found to be significant at .05 and .005 level on prisoners problems for trials and time taken respectively (see Tables XVI and XVII). This indicates that personality effect is not of the same kind for the different levels of sex. These significant interactions can also be confirmed through the contingency table.
of means (see Table XIX).

### Table XIX

Contingency Table of Means of Two Groups of Personality and Two Groups of Sex and the Respective t-Values on Prisoners Problems Solving Task (Trials and Time)

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introverts</td>
<td>6.58</td>
<td>8.48</td>
<td>4.52**</td>
</tr>
<tr>
<td>Extraverts</td>
<td>8.60</td>
<td>11.15</td>
<td>6.35**</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introverts</td>
<td>4.23</td>
<td>6.62</td>
<td>8.41**</td>
</tr>
<tr>
<td>Extraverts</td>
<td>5.50</td>
<td>9.02</td>
<td>9.11**</td>
</tr>
</tbody>
</table>

The interaction clearly reveal that (see Figure V) that differences are more pronounced between males and females on extraversion than on introversion dimension as signified through higher t-values on extraversion than on introversion. For details of the t-values see Table XIX.

The interaction between intelligence x stress yielded F-ratio of 4.145 significant at .025 level on prisoners problem for trials taken (see Table XVI). This shows the difference
FIG. V. INTERACTION OF ANALYSIS OF VARIANCE OF PRISONERS PROBLEM SOLVING TASK BETWEEN PERSONALITY X SEX
between the means of three groups of intelligence is significa-

cantly different from the difference between the means of two
groups of stress. The contingency table of means is being
presented for the significant interaction (see Table XX).

**Table XX**

Contingency Table of Means of Three Groups of Intelligence and
Two Groups of Stress and the Respective t-Values on
Prisoners Problem Solving Task (Trials)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Stress</th>
<th>No Stress</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Intelligence</td>
<td>7.95</td>
<td>5.68</td>
<td>4.51**</td>
</tr>
<tr>
<td>Above Average</td>
<td>9.95</td>
<td>5.57</td>
<td>10.13**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>11.20</td>
<td>9.88</td>
<td>2.85**</td>
</tr>
</tbody>
</table>

The said interaction between intelligence x stress is
presented graphically in Figure VI by which it is substantiated
that stress is having its adverse effect more markedly on above
average intelligence than high and average intelligence groups
on trials taken on prisoners problems as computed through
t-values. For details of interaction and t-values (see Table XX)

The interaction between intelligence x sex yielded F-ratio
FIG VI. INTERACTION OF ANALYSIS OF VARIANCE OF PRISONERS PROBLEM SOLVING TASK BETWEEN INTELLIGENCE X STRESS
of 5.750 which is found significant at .005 level of significance on the prisoners problem for trials (see Table XVI). It indicates that the intelligence effect is not of the same kind for the different levels of sex. This may also be confirmed through contingency means Table (see Table XXI).

Table XXI

Mean Scores of Three Groups of Intelligence and Two Groups of Sex and the Respective t-Values for Prisoners Problem Solving

<table>
<thead>
<tr>
<th>Task (Trials)</th>
<th>Males</th>
<th>Females</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intelligence</td>
<td>5.25</td>
<td>8.38</td>
<td>7.00**</td>
</tr>
<tr>
<td>Above Average Intelligence</td>
<td>7.82</td>
<td>9.70</td>
<td>4.05**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>9.52</td>
<td>11.50</td>
<td>4.62**</td>
</tr>
</tbody>
</table>

The said interaction between intelligence x sex can best be depicted through the Figure VII and means contingency tables along with t-values (see Table XXI) that males as a group are better than females on all the levels of intelligence. But the effect is more marked at high intelligence level than for other levels as can be seen through the t-values (see Table XXI).
HI = High Intelligence
AAI = Above Average Intelligence
AI = Average Intelligence

FIG.VII. INTERACTION OF ANALYSIS OF VARIANCE
OF PRISONERS PROBLEM SOLVING TASK
BETWEEN INTELLIGENCE X SEX
The interaction effect of personality x intelligence x sex is found significant at \( .05 \) level having the F-ratio of 3.891 for time taken on prisoners problem (see Table XVII) indicating that the interaction of personality x intelligence conditions is not of the same kind at the two levels of sex. This can also be confirmed from the means contingency table and t-values given in Table XXII.

### Table XXII

**Contingency Table of Means of Two Groups of Personality, Three Groups of Intelligence and Two Sexes and the Respective t-Values On the Prisoners Problem (Time)**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Introverts</th>
<th>Extraverts</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intelligence</td>
<td>2.85</td>
<td>4.10</td>
<td>4.77**</td>
</tr>
<tr>
<td>Males Above Average Intelligence</td>
<td>4.10</td>
<td>5.10</td>
<td>2.73**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>5.85</td>
<td>7.30</td>
<td>4.79**</td>
</tr>
<tr>
<td>Females High Intelligence</td>
<td>5.40</td>
<td>6.75</td>
<td>2.61**</td>
</tr>
<tr>
<td>Above Average Intelligence</td>
<td>6.60</td>
<td>9.00</td>
<td>5.35**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>7.85</td>
<td>11.30</td>
<td>7.71**</td>
</tr>
</tbody>
</table>
The curve and the contingency table of the obtained interaction (see Figure VIII and Table XX) clearly demonstrates that males perform better than females and in both the sexes introversion facilitates the performance of all the three groups of intelligence and on the other hand extraversion seems to be hindering the performance on all three levels of intelligence. The t-ratios as presented in Table XXII for the differences between various conditions. The t-values are consistently significant between introverts and extraverts on all the three levels of intelligence in males as well as in females.

**Analysis of Data on Sorting Cards Problem Solving Task**

The comparison of means on trials and time taken, for the two groups of personality for sorting cards problem solving task indicates that introverts are performing better than extraverts (see Table IV).

The means of three groups of intelligence show that high intelligence group is better than above average intelligence and average intelligence groups and the above average group is performing better than average intelligence group on sorting cards problem solving task for both trials and time taken (see Table IV).

The means on the variable of stress indicates that no stress
Fig. VIII. Interaction of Analysis of Variance of Prisoners Problem Solving Task Between Personality X Intelligence X Sex.
group is better than the induced stress group in both trials and time taken on sorting cards problem solving task (see Table IV).

From the comparison of means for two groups of sex for trials and time taken, it is observed that males are performing better than females on sorting cards problem solving task (see Table IV).

The analysis of variance yielded highly significant F-ratios of 16.735 for trials taken and 16.855 for time taken for the differences between the means of personality groups (see Table XXIII and XXIV) indicating the better performance of introverts over extraverts on sorting cards problem solving task. For the comparison of means see Table IV.

The F-ratios for the differences between three groups of intelligence for both trials and time taken are 315.793 and 291.527 respectively (see Tables XXIII and XXIV). In both the cases the F-ratios are significant at .005 level which indicate the best performance of high intelligence group followed by other groups respectively. And above average group is also performing better than average group. For the comparison of means (see Table IV).

Duncan's Analysis for Sorting Cards Problem

The multiple comparison of three means on the variable of
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>12.150</td>
<td>1</td>
<td>12.150</td>
<td>16.735</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>458.533</td>
<td>2</td>
<td>229.266</td>
<td>315.793</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>18.150</td>
<td>1</td>
<td>18.150</td>
<td>25.000</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>43.350</td>
<td>1</td>
<td>43.350</td>
<td>59.710</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>0.100</td>
<td>2</td>
<td>0.050</td>
<td>0.068</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.266</td>
<td>1</td>
<td>0.266</td>
<td>0.366</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>0.000</td>
<td>1</td>
<td>0.000</td>
<td>0.000</td>
<td>NS</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>0.300</td>
<td>2</td>
<td>0.150</td>
<td>0.206</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>3.700</td>
<td>2</td>
<td>1.850</td>
<td>2.548</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>0.266</td>
<td>1</td>
<td>0.266</td>
<td>0.366</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.233</td>
<td>2</td>
<td>0.116</td>
<td>0.159</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>0.400</td>
<td>2</td>
<td>0.200</td>
<td>0.275</td>
<td>NS</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.016</td>
<td>1</td>
<td>0.016</td>
<td>0.022</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>3.233</td>
<td>2</td>
<td>1.616</td>
<td>2.225</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.033</td>
<td>2</td>
<td>0.166</td>
<td>0.228</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Errors within</td>
<td>156.997</td>
<td>216</td>
<td>0.726</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>697.727</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## TABLE - XXIV

Summary of ANOVA on the Sorting Cards Problem Solving Task (Time Taken)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>19.266</td>
<td>1</td>
<td>19.266</td>
<td>16.855</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>666.433</td>
<td>2</td>
<td>333.216</td>
<td>291.527</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>36.816</td>
<td>1</td>
<td>36.816</td>
<td>32.209</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>72.600</td>
<td>1</td>
<td>72.600</td>
<td>63.517</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>0.633</td>
<td>2</td>
<td>0.316</td>
<td>0.276</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>2.016</td>
<td>1</td>
<td>2.016</td>
<td>1.763</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>0.266</td>
<td>1</td>
<td>0.266</td>
<td>0.232</td>
<td>NS</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>1.233</td>
<td>2</td>
<td>0.616</td>
<td>0.538</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>8.100</td>
<td>2</td>
<td>4.050</td>
<td>3.543</td>
<td>P .01</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>1.350</td>
<td>1</td>
<td>1.350</td>
<td>1.181</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.933</td>
<td>2</td>
<td>0.466</td>
<td>0.407</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>1.733</td>
<td>2</td>
<td>0.866</td>
<td>0.757</td>
<td>NS</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.150</td>
<td>1</td>
<td>0.150</td>
<td>0.131</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>5.700</td>
<td>2</td>
<td>2.850</td>
<td>2.493</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.100</td>
<td>2</td>
<td>0.050</td>
<td>0.043</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error Within</td>
<td>246.993</td>
<td>216</td>
<td>1.143</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1064.322</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
intelligence presented in Table XXV for sorting cards problem on trials and time taken indicates that high intelligence group with the highest mean scores of 2.600 and 3.60 is performing better than the above average intelligence and average intelligence groups at .01 level of significance. Similarly above average intelligence group with the mean scores of 3.850 and 5.02 is also performing better than average intelligence at .01 level of significance. The F-ratio for the main effect of intelligence is already significant at .005 level of significance. For details of analysis of variance (see Tables XXIII and XXIV).

**Table XXV**

Duncan's Multiple Range Test Applied to the Difference Between Three Means of Intelligence on Sorting Cards Problems (Trials and Time)

<table>
<thead>
<tr>
<th>Groups</th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th>Shortest significant Range (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means</td>
<td>2.600</td>
<td>3.850</td>
<td>5.950</td>
<td>.05*</td>
</tr>
<tr>
<td>2.600</td>
<td>1.25**</td>
<td>3.35**</td>
<td></td>
<td>R2.329** 433</td>
</tr>
<tr>
<td>3.850</td>
<td></td>
<td>2.1**</td>
<td></td>
<td>R3.347** 451</td>
</tr>
</tbody>
</table>

| Means  |      |      |      | .05*                          |
|        | Trials |      |      |                               |
| 3.60   | 5.02  | 7.62 |      | R2.329** 433                 |
| 3.60   | 1.42**| 4.02**|      | R3.347** 451                 |
| 5.02   |      | 2.6**|      |                               |
The analysis of variance yielded F-ratios of 25.000 for trials taken and 32.209 for time taken on the variable of stress which are found highly significant at .005 level on the sorting cards problem (see Tables XXIII and XXIV). The highly significant F-ratios reveal the better performance of no stress group over the induced stress group on sorting cards problem. For the comparison of means (see Table IV).

The mean differences on sorting cards problem solving task show the superiority of males over females (see Table IV). This is clearly substantiated through highly significant F-ratios of 59.710 and 63.517 significant at .005 level for both trials and time taken respectively. For detail of ANOVA (see Tables XXIII and XXIV).

Calculated F-ratio of 3.543 is found to be significant at .01 level for the interaction between intelligence x sex on sorting cards problem for time taken (see Table XXIV). It shows that intelligence effect is not of the same kind for the different levels of sex. The means contingency table for the significant interaction is being given for inspection (see Table XXVI).
Table XXVI
Contingency Table of Means of Three Groups of Intelligence of Two Sexes and the Respective t-Values on Sorting Cards Problem (Time) .05*, .01**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Males</th>
<th>Females</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Intelligence</td>
<td>3.28</td>
<td>3.93</td>
<td>1.94</td>
</tr>
<tr>
<td>Above Average Intelligence</td>
<td>4.25</td>
<td>5.80</td>
<td>5.78**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>7.07</td>
<td>8.17</td>
<td>4.90**</td>
</tr>
</tbody>
</table>

The interaction clearly depicts through the plotted curve (see Figure IX) and t-Values (see Table XXVI) that significant differences between males and females exists on above average intelligence and average intelligence groups. On the other hand in high intelligence the effect is not marked because sorting cards problem is an easier task.

Analysis of Data on Hanfmann-Kasanin Problem Solving Task

From the comparison of means on both trials and time taken, for the two groups of personality on Hanfmann-Kasanin problem solving task it is observed that introverts are performing better than extraverts (see Table IV).
FIG. IX. INTERACTION OF ANALYSIS OF VARIANCE OF SORTING CARDS PROBLEM SOLVING TASK BETWEEN INTELLIGENCE X SEX

HI = High Intelligence
AAI = Above Average Intelligence
AI = Average Intelligence
The means of three groups of intelligence for trials and time taken on Hanfmann-Kasanin problem solving task show that high intelligence subjects are performing better than above average and average intelligence groups. Above average intelligence group is also giving better performance than average intelligence group (see Table IV).

The means on the variable of stress for trials and time taken indicate that no stress group is better than the induced stress group on Hanfmann-Kasanin problem solving task (see Table IV).

From the means for two groups of sex, it is observed that males are performing better than females by taking less trials and less time to solve Hanfmann-Kasanin problem solving task (see Table IV).

The analysis of variance yielded highly significant F-ratios of 339.575 and 365.217 for differences between the means of two personality groups for trials and time taken to solve Hanfmann-Kasanin problem solving task (see Tables XXVII and XXVIII) indicating the better performance of introverts over extraverts. For the comparison of means (see Table IV).

The F-ratios for the differences between three groups of intelligence are 139.495 and 147.993 significant at .005 level (see Tables XXVII and XXVIII). The highly significant F-ratios
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>123.266</td>
<td>1</td>
<td>123.266</td>
<td>339.575</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>101.275</td>
<td>2</td>
<td>50.637</td>
<td>139.495</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>22.816</td>
<td>1</td>
<td>22.816</td>
<td>62.853</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>22.816</td>
<td>1</td>
<td>22.816</td>
<td>62.853</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>1.408</td>
<td>2</td>
<td>0.704</td>
<td>1.939</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.266</td>
<td>1</td>
<td>0.266</td>
<td>0.732</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>6.666</td>
<td>1</td>
<td>6.666</td>
<td>18.363</td>
<td>P .005</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>1.008</td>
<td>2</td>
<td>0.504</td>
<td>1.388</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>0.158</td>
<td>2</td>
<td>0.079</td>
<td>0.217</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>2.016</td>
<td>1</td>
<td>2.016</td>
<td>5.558</td>
<td>P .025</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.508</td>
<td>2</td>
<td>0.254</td>
<td>0.699</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>2.558</td>
<td>2</td>
<td>1.279</td>
<td>3.523</td>
<td>P .05</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.600</td>
<td>1</td>
<td>0.600</td>
<td>1.652</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>0.258</td>
<td>2</td>
<td>0.129</td>
<td>0.355</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.025</td>
<td>2</td>
<td>0.012</td>
<td>0.033</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error Within</td>
<td>78.595</td>
<td>216</td>
<td>0.363</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>364.239</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE - XXVIII

Summary of ANOVA on the Hanfmann-Kasanin Problem Solving Task (Time Taken)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personality (P)</td>
<td>117.600</td>
<td>1</td>
<td>117.600</td>
<td>365.217</td>
<td>P .005</td>
</tr>
<tr>
<td>2</td>
<td>Intelligence (I)</td>
<td>95.308</td>
<td>2</td>
<td>47.654</td>
<td>147.993</td>
<td>P .005</td>
</tr>
<tr>
<td>3</td>
<td>Stress (St)</td>
<td>21.600</td>
<td>1</td>
<td>21.600</td>
<td>67.080</td>
<td>P .005</td>
</tr>
<tr>
<td>4</td>
<td>Sex (S)</td>
<td>22.816</td>
<td>1</td>
<td>22.816</td>
<td>70.857</td>
<td>P .005</td>
</tr>
<tr>
<td>5</td>
<td>(P) x (I)</td>
<td>0.775</td>
<td>2</td>
<td>0.387</td>
<td>1.201</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>(P) x (St)</td>
<td>0.150</td>
<td>1</td>
<td>0.150</td>
<td>0.465</td>
<td>NS</td>
</tr>
<tr>
<td>7</td>
<td>(P) x (S)</td>
<td>6.666</td>
<td>1</td>
<td>6.666</td>
<td>20.701</td>
<td>P .005</td>
</tr>
<tr>
<td>8</td>
<td>(I) x (St)</td>
<td>1.225</td>
<td>2</td>
<td>0.612</td>
<td>1.900</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>(I) x (S)</td>
<td>0.158</td>
<td>2</td>
<td>0.079</td>
<td>0.245</td>
<td>NS</td>
</tr>
<tr>
<td>10</td>
<td>(St) x (S)</td>
<td>1.666</td>
<td>1</td>
<td>1.666</td>
<td>5.173</td>
<td>P .025</td>
</tr>
<tr>
<td>11</td>
<td>(P) x (I) x (St)</td>
<td>0.525</td>
<td>2</td>
<td>0.262</td>
<td>0.813</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>(P) x (I) x (S)</td>
<td>2.558</td>
<td>2</td>
<td>1.279</td>
<td>3.972</td>
<td>P .025</td>
</tr>
<tr>
<td>13</td>
<td>(P) x (St) x (S)</td>
<td>0.416</td>
<td>1</td>
<td>0.416</td>
<td>1.291</td>
<td>NS</td>
</tr>
<tr>
<td>14</td>
<td>(I) x (St) x (S)</td>
<td>0.108</td>
<td>2</td>
<td>0.054</td>
<td>0.167</td>
<td>NS</td>
</tr>
<tr>
<td>15</td>
<td>(P) x (I) x (St) x (S)</td>
<td>0.008</td>
<td>2</td>
<td>0.004</td>
<td>0.012</td>
<td>NS</td>
</tr>
<tr>
<td>16</td>
<td>Error Within</td>
<td>69.593</td>
<td>216</td>
<td>0.322</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total 341.172  239
for trials and time taken respectively indicate the better performance of high intelligence group over other groups. The above average group is performing better than average intelligence group. For the comparison of means (see Table IV).

Duncan's Analysis for Hanfmann-Kasanin Problem

The multiple comparison of three means on the variable of intelligence presented in Table XXIX for Hanfmann-Kasanin problem on trials and time taken, reveals that high intelligence group with highest mean scores of 3.550 and 4.45 respectively are performing better than the subjects of above average and average intelligence at .01 level of significance. Similarly, above average intelligence subjects with the mean scores of 4.37 and 5.43 for trials and time taken respectively are giving better performance than average intelligence subjects. F-ratios for the main effect of intelligence is already found to be significant at .005 level of significance. For details of analysis of variance (see Tables XXVII and XXVIII).
### Table XXIX

Duncan's Multiple Range Test Applied to the Difference Between Three Means of Intelligence on Hanfmann-Kasanin Problem

*(Trials and Time)*

<table>
<thead>
<tr>
<th>Groups</th>
<th>HI</th>
<th>AAI</th>
<th>AI</th>
<th>Shortest significant Range (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>3.550</td>
<td>4.437</td>
<td>5.137</td>
<td>.05* .01**</td>
</tr>
<tr>
<td>3.550</td>
<td>4.437</td>
<td>.887**</td>
<td>1.587**</td>
<td>R2 .185 .244</td>
</tr>
<tr>
<td>4.437</td>
<td></td>
<td></td>
<td>.70**</td>
<td>R3 .195 .254</td>
</tr>
</tbody>
</table>

*Trials*

| Means  | 4.45  | 5.43  | 6.08  | .05* .01** |
| 4.45   | 5.43  | .98** | 1.63** | R2 .174 .229 |
| 5.43   |      | 0.63** |       | R3 .183 .239 |

*Time*

The analysis of variance yielded highly significant F-ratios of 62.853 and 67.080 for the differences between means of two groups of stress for both trials and time taken respectively to solve Hanfmann-Kasanin problem solving task (see Tables XXVII and XXVIII). The ANOVA signifies the better performance of no stress group over the induced stress group. For the comparison of means (see Table IV).
The mean differences on Hanfmann-Kasanin problem solving task show the superiority of males over females. The F-ratios of 62.853 and 70.857 are significant at .005 level for trials and time taken respectively (see Table XXVII and XXVIII). This may also be confirmed through means table (see Table IV).

The interaction between personality x sex yielded F-ratios of 18.363 and 20.701 significant at .005 level for both trials and time taken respectively on Hanfmann-Kasanin problem (see Tables XXVII and XXVIII). This indicates that the effect of personality is not of the same kind for the different levels of sex. These results can also be confirmed through contingency table of means (see Table XXX).

**Table XXX**
Contingency Table of Means of Two Groups of Personality and Two Groups of Sex and the Respective t-Values on Hanfmann-Kasanin Problem Solving Task (Trials and Time)

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>t-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trials</td>
</tr>
<tr>
<td>Introverts</td>
<td>3.52</td>
<td>3.80</td>
<td>1.70</td>
</tr>
<tr>
<td>Extraverts</td>
<td>4.62</td>
<td>5.57</td>
<td>5.33**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time</td>
</tr>
<tr>
<td>Introverts</td>
<td>4.52</td>
<td>4.80</td>
<td>1.73</td>
</tr>
<tr>
<td>Extraverts</td>
<td>5.58</td>
<td>6.53</td>
<td>5.68**</td>
</tr>
</tbody>
</table>
The significant interaction clearly depicts (see Figure X) that on introversion there are almost no differences between males and females but on extraversion differences between males and females are significant i.e. extraverted females are significantly inferior to extraverted males. For the details of t-values and means contingency table (see Table XXX).

The interaction between stress x sex is found significant at .025 level having F-ratios of 5.553 for trials and 5.173 for time taken on Hanflmann-Kasanin problem (see Tables XXVII and XXVIII). This shows that the effect of stress is not of the same kind for the different levels of sex. It can be confirmed from the contingency table of means (see Table XXXI).

<table>
<thead>
<tr>
<th>Table XXXI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contingency Table of Means of Two Groups of Stress and Two Groups of Sex and the Respective t-Values on Hanflmann-Kasanin Problem Solving Task (Trials and Time).</td>
</tr>
<tr>
<td>.05*, .01**</td>
</tr>
<tr>
<td><strong>Groups</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Stress</td>
</tr>
<tr>
<td>No Stress</td>
</tr>
<tr>
<td>Stress</td>
</tr>
<tr>
<td>No Stress</td>
</tr>
</tbody>
</table>
**Fig. X. Interaction of Analysis of Variance of Hanfmann-Kasanin Problem Solving Task Between Personality X Sex**
The figure XI and contingency table of means along with t-values (see Table XXXI) indicate that effect of stress is more pronounced in females than in males. Interestingly the differences between males and females are more sharp under the no stress condition - as signified by the higher t-values given in Table XXXI. This holds good for both trials and time taken on the Hanfmann-Kasanin problem.

The triple interactions of personality x intelligence x sex yielded F-ratios of 3.523 significant at .05 level and 3.972 significant at .025 level for trials as well as for time taken respectively on the Hanfmann-Kasanin problem solving task. (see Tables XXVII and XVIII) indicating that the interaction between personality x intelligence conditions is not of the same kind at the two levels of sex. This can also be confirmed through the contingency means table (see Table XXXII).

### Table XXXII

Contingency Table of Means for Two Groups of Personality, Three Groups of Intelligence and Two Groups of Sex and the Respective t-Values of Hanfmann-Kasanin Problem (Trials and Time).

<table>
<thead>
<tr>
<th>Groups</th>
<th>Introverts</th>
<th>Extraverts</th>
<th>Trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Intelligence</td>
<td>2.75</td>
<td>3.80</td>
<td>4.86**</td>
</tr>
<tr>
<td>Males Above Average Intelligence</td>
<td>3.50</td>
<td>4.75</td>
<td>5.16**</td>
</tr>
<tr>
<td>Average Intelligence</td>
<td>4.30</td>
<td>5.30</td>
<td>4.03**</td>
</tr>
</tbody>
</table>
FIG.XI. INTERACTION OF ANALYSIS OF VARIANCE OF HANFMAN-KASANIN PROBLEM SOLVING TASK BETWEEN STRESS X SEX
Table XXXII contd...

<table>
<thead>
<tr>
<th></th>
<th>High Intelligence</th>
<th>Males A.A.</th>
<th>M.F. A.A.</th>
<th>Males A.</th>
<th>M.F. A.</th>
<th>Males A.</th>
<th>M.F. A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>Above Average Intelligence</td>
<td>3.95</td>
<td>5.55</td>
<td>5.11**</td>
<td>4.95</td>
<td>6.55</td>
<td>4.84**</td>
</tr>
<tr>
<td></td>
<td>Average Intelligence</td>
<td>4.35</td>
<td>6.60</td>
<td>10.40**</td>
<td>5.35</td>
<td>7.50</td>
<td>5.67**</td>
</tr>
</tbody>
</table>

The obtained significant interaction clearly depicts that in males as well as in females introversion facilitates the performance of all the three groups of intelligence and the extraversion on the other hand seems to be hindering the performance of males and females in all the three groups of intelligence. For details see Figure (XII) and Table XXXIII.
FIG XII. INTERACTION OF ANALYSIS OF VARIANCE OF HANFMAN-KASANIN
PROBLEM SOLVING TASK BETWEEN PERSONALITY X INTELLIGENCE
X SEX