PREVALENCE OF BEHAVIOR PROBLEMS AMONG CHILDREN WITH DOWN SYNDROME

MS Thesis

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2012

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Thesis submitted to
Department of Psychology
Faculty of Social Sciences
International Islamic University, Islamabad (IIUI)

In the partial fulfillment of the requirements for

Degree of MS (Clinical Psychology)

2012


بسم الله الرحمن الرحيم

Approval Certificate

It has been certified that MS. Thesis Prevalence of Behavior Problems among Children with Down syndrome completed by Amna Hassan, Reg. No 15-FSS/MSPSY/F08 has been approved for the submission to International Islamic University, Islamabad (IIUI) for the partial fulfillment of MS. Degree program.

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This thesis is dedicated to all the people who never stop believing in me and who along with Allah, have been my 'footprints in the sand'

My mother

My father

My husband

& My Cute Little Daughter Zaynab

I remain forever in your debts

And lastly to my Grandfather, who taught me to get up after a fall and start again.

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ACKNOWLEDGEMENTS

In the name of Allah, the most benevolent, ever merciful

I will always remain grateful to Allah for his abundant blessings during the course of this study. As I move towards the final destination of this remarkable journey of learning, I acknowledge the invaluable contributions of my teachers, family and friends.

This endeavor would not have been possible without the guidance and support of my Research Supervisor Dr. Seema Gul. Words are inadequate to express my profound sense of gratitude to her for her patience and support during the course of this study. Her suggestions and comments have helped me immensely to be an independent researcher. She was a true mentor who kept motivating me whenever I was slowing down in the race.

I am deeply indebted to all the institutes of special education, children with Down syndrome and normal children from whom the data for this study was collected, for their co-operation and patience in responding to the research questionnaire.

I remember my family with gratitude, for the love and encouragement I received from them. For my parents, it is a dream coming true. I would really thank to my husband and all my colleagues who have given me constant support during the period of my study.

Lastly, I would like to acknowledge the contribution of those whose names have not been mentioned but who have, nevertheless, played their part in making this research work successful.

Amna Hassan

ABSTRACT

This research aims to study Prevalence of behavior problems among children with Down syndrome and normal children. The study also aimed to explore the relationship between intelligence level and problems in behavior among normal and Down syndrome children. 40 diagnosed children with Down syndrome (N=40), having an equal number of boys (n=20) and girls (n=20) were selected from different NGO's, organizations and special schools of Rawalpindi, Islamabad, Wah cantt and Hazro. 40 normal children (N=40), having an equal number of boys (n=20) and girls (n=20) were selected from different schools of the same cities. The age range of the sample was 8-11 years. Urdu version of Child Behavior Problem questionnaire (Hanif, 1994) was used along with Raven's Coloured Progressive Matrices (RCPM, 1977). Results showed that children with Down syndrome show high score on CBPQ, whereasnormal children show low score on CBPQ. Results also showed that there is an inverse relationship between intelligence level and behavior problems. It is also explored that boys with Down syndrome show more behavioral problems than girls with Down syndrome. Behavior problems were more obvious in Down syndrome children than normal children.

INTRODUCTION

Chapter I

INTRODUCTION

Normality is most often defined as average, ideal or adjustment. Normality as average is a statistical concept that defines the typical behaviors among a group of people as being normal for that group and deviations from typical behaviors is abnormal. Normality as ideal is a state of perfection that people strive for but rarely achieve. Whereas normality as adjustment can be defined as the state of mind that enables a person to cope effectively with life experience, to enjoy interpersonal relationships and to work effectively and more productively to the self established goals. Thus abnormality is that state of mind that impairs one's ability to deal positively with the challenges and opportunities in his or her life.

How people act, move and participate in different activities has a powerful influence on their health. People frequently participate in particular forms of behavior in order to reduce the risk of the diseases, these specific patterns of behavior increase the risk of certain types of behavior. Behavior has both effects on human body, as it can improve one's health like wise it can also destroy one's health.

Normal behavior and abnormal behavior can be regarded as being either continuous or discontinuous phenomena. From the continuous perspective, the difference between the behaviors shown by normal or well adjusted people and mentally disturbed people is quantitative. It means that behavior is presumed to derive from same personality dimensions or personality traits. Abnormal people simply lack some of these personality traits or characteristics due to which they show problems in their behavior. On the other hand, discontinuous perspective defines the differences between the behaviors shown by well adjusted persons and mentally

disturbed persons are qualitative. It means that difference in behavior is presumed to be judged in kind rather than degree (MacFarlane, Allen, & Honzik, 1954).

Behavior is defined as *"the actions or reactions of a person in response to external or internal stimuli, these can be seen, heard, counted, or measured"* (Thomas, Chess, & Birch, 1968). We have experienced a lot of events, and daily routine activities. Most of our actions are determined by these experiences in life. Behavior can be external or internal. External behavior may include doing some action that is obvious and observable such as going to work, crying, talking etc, whereas internal behavior can be something that is latent or unobservable such as having a feeling and thought, sadness, imagination, happiness, frustration etc are internal behaviors because these are hidden and unobservable, these can not be measured unless these exhibit through some external behavior. Healthy behaviors can be learned; many learned behaviors help people to cope with daily challenges and to lead happy and productive lives. However, abnormal behaviors can also be learned, and these abnormal behaviors lead to unhappy and sick lives.

Behavioral Problems:

Usually behavioral problems in children do not indicate any developmental disturbance. Problems in behavior are observed in both normally and abnormally developing children. School aged children are observed with more behavioral problems. Reports indicate that up to 15 to 25 percent of school aged children show behavioral or psychosocial problems (Pachter, Auinger, Palmer, & Weitzman, 2006).

Institute of Human Development at the University of California at Berkeley has first time documented the fact that behavior problems are displayed by normal as well as abnormally

Externalizing Behavior

Externalizing behavior refers to behavior characterized by failure to control emotions and impulses, often resulting in non compliant, aggressive and disturbed behavior. Typically, parents, siblings and friends are the persons most involved in a child's environment and are highly affected from disturbed behavior even more than the child himself.

In the literature different terms have been applied to describe externalizing behavior problems, for example; antisocial behavior, conduct disorders, acting out behavior, aggression, disruptive behavior, or delinquency (Santrock, 2004).

According to Breen and Altepeter (1990), externalizing behavior problems can be distinguished along two dimensions, that is, *socialized* versus *unsocialized behaviors*, and *aggressive* versus *non aggressive* behaviors. The dimension of socialized versus unsocialized behaviors refers to whether or not the child is group-oriented and has good social relationships. The dimension of aggressive versus non aggressive behaviors refers to whether or not the behavior reflects violation of the rights of others and /or violent confrontations with another person (e.g. vandalism, firesetting, theft, breaking and entering versus truancy, lying, running away, substance use etc.).

Coie and Dodge (1998) also describe a classification of externalizing behavior problems along two dimensions. The first dimension runs from overt to covert behaviors and the second dimension consists of more destructive to less destructive behaviors. Thus antisocial behavior can be distinguished from four categories. They are: *aggression* i.e., destructive and overt behaviors such as assault, cruelty, and fighting, *oppositional behavior* i.e., nondestructive and overt behaviors such as temper tantrums, stubbornness, and arguing, *status violations* i.e., non

destructive and covert behaviors such as substance use and truancy, and *property violations* i.e., destructive and covert behaviors such as stealing and vandalism (Breen & Altepeter, 1990; Coie & Dodge, 1998).

Externalizing behavior problems are also known as disruptive behavior disorders. Disruptive behavior disorders are usually started to develop in childhood. The initiative stage of this disorder can be a diagnosed category of oppositional defiant disorder, later it converts into diagnosed category of conduct disorder (Lahey, & Loeber, 1994).

Oppositional defiant disorders are usually referred to as *annoying and irritated* behavior. Mood swings, short temper, tendency to blame others and become innocent every time, actions that make others irritated, and being argumentative are the major symptoms that one shows, included in oppositional defiant disorder category (Lahey, & Loeber, 1994).

A developmental pyramid of disruptive behavior has been observed throughout the lives of individuals i.e. children showing occasionally oppositional behavior in their childhood, have a tendency to proceed into intermediate conduct disorder later in their lives. Some of these children with intermediate conduct disorder in early of their childhoods further proceed to advanced conduct disorder. Thus almost all children with conduct disorders have previously suffered from and still suffer from oppositional behaviors. However, not all children with oppositional behaviors progress to the next levels of intermediate and advanced conduct disorders. There is a continuum from oppositional defiant behavior to the conduct disorder. When children move from one level of disruptive behavior to the next, they add new behaviors to their repertoire while still performing previous lower level behaviors. Research suggests that oppositional behaviors are a less severe form of conduct disorders. The distinction between

oppositional defiant disorders and conduct disorders is supposed to be one of severity, and not a qualitative one (Breen & Altepeter, 1990).

Forehand and Long (1991) suggest that there is a development in externalizing behavior problems, as they state that aggressive behaviors typically start in the preschool years and that noncompliance to parental commands may be at the start of the development of what they call 'aggressive-type problem behavior'.

Most children and youngsters usually do things or show some actions that are harmful and cause troubles and problems sometimes for themselves and mostly for others. If these behaviors occur often, psychiatrists diagnose them as conduct disorders. If these behaviors result in illegal acts by juveniles, society labels them delinquents. Researches reveal that delinquency and conduct disorders are much more common in young boys than girls (Santrock, 2004).

Conduct Disorder:

Conduct disorder refers to age-inappropriate having behaviors and attitudes that are contrary to the expectations and hopes of family, norms, set rules and regulations of society, and personal property of others . Children with conduct problems show a wide range of rule violating behaviors, from swearing and temper tantrums to severe vandalism, theft and assault (Cimbora & McIntosh, 2003).

Conduct disorders can also be referred to an enduring pattern of highly serious violations of the social norms, rules and regulations, and specially rights of other people. Conduct disorder can be categorized into *intermediate* conduct disorder and *advanced* conduct disorder. Bullying, lying, fighting, and setting fires are the behaviors included in intermediate conduct disorders, on

the other hand, cruelty, stealing, running away, and breaking rules are the behaviors included in advance conduct disorder (Lahey, & Loeber, 1994).

As part of growing up, most children and youth break the rules from time to time, they fight, skip school, break curfew, steal, and so on. It is reported that 50 percent of the children age ranges from 4 to 6 years involve in stealing, lying, disobeying, or destroying property at least some of the time. Most of the children aged from four to eighteen years were observed showing a decline in antisocial behavior, but adolescents usually show high rates of antisocial behavior and thus referred to psychological clinics for therapy (Achenbach, 1997).

It has been estimated that about five percent of children show serious conduct problems (Santrock, 2004). These children are often described as showing an externalizing or uncontrolled pattern of behavior. Children who show this pattern often are impulsive, hyperactive, and aggressive and remain indulge in delinquent behaviors. Conduct problems in children are best explained by a confluence of causes, or risk factors, operating over time (Dodge & Pettit, 2003). Most of the time, such behavior problems involve many factors such as children may inherit a short temper or hyperactivity from their parents, sometimes parents become fail to give proper training to their children in order to learn and live according to the norms of society. More often children take influence by their company, it happens that they live in such a company of friends where breaking of laws, and violation of norms would be considered as a norm.

Delinquency is defined as *"a special form of externalizing behavior, in that it refers to a failure to adhere to societal norms and laws, and usually is based on official contact with the courts"* (Breen & Altepeter, 1990; kazdin, 1987). Juvenile delinquency is closely related to conduct disorder. Juvenile delinquency involves broad range of disturbed behaviors including

socially unapproved behaviors such as do bunks from the classes, stealing, and commit crimes on large scale. U.S. government statistics reveal that males are more involved in juvenile delinquency; almost 8 of 10 cases involve males. But now the rate of female delinquents as compare to male has also been increased since the last two decades (Snyder & Sickmund, 1999). Inadequate family support systems are also associated with delinquency. In most of the cases, children become delinquent just because of failure training of parents. Mostly parents do not know how to discourage delinquent and antisocial behavior in their delinquent children whereas, parents of non delinquent children are capable to deal with them and encouraging them to adopt good and socially approved behaviors.

Most authors agree that externalizing behavior is relatively stable over time but also over generations. Although many externalizing behavior decline with age, externalizing behavior problems are relatively stable. Children, who are relatively aggressive at younger age, are still relatively aggressive at a later age. Risk factors that predict long term externalizing behavior problems are early (childhood) onset of the behavior, frequency and severity of the behavior, a variety of many antisocial behaviors (overt as well as covert) and antisocial behavior across various settings such as home and school (Kazdin, 1987; Loeber, 1982; Lytton, 1990; Forehand & Long, 1991; Gardner, 1992).

Factors Causing Child Behavior Problems:

Following are the factors that cause problems in behavior and its persistency.

Dispositional Factors:

Some factors are within the child him/herself, such as heritable characteristics, dispositional factors like a difficult temperament, psychobiological influences like the levels of sex hormones, neuropsychological deficits, and autonomic nervous system activity, and mental processes like intelligence, moral development, or social information processing. Although these factors seem to influence the development of antisocial behavior, but these factors always operate in interaction with the environment. Parental training plays a vital role in enhancing or inhibiting the child's tendencies to for developing antisocial behavior.

Ecological Factors:

Ecological factors and social stressors, such as poverty, large family size, family loss and illness, and inadequate housing also take part in development of problematic behavior. Children born into disadvantaged environment are at relatively great risk for developing behavior problems later in life. Effect of these factors is cumulative. Children born in poverty, and face various stressors related to their family such as loss of loved one or a family member, financial problems or one or more of the siblings experiencing chronic illness have a greater tendency to show problems in behavior than children who experience no or any single stressor. There may also be interactive effects of different factors operating at the same time.

Peer Relationship:

Peer contexts, such as being rejected by peers or being a part of a deviant peer group also influences development of good or bad behavior. Deviant peer groups may become a model and reinforce for the development of antisocial behavior.

Coie and Dodge (1998) reviewed the literature on the development of externalizing child behavior and also paid attention to the role of inheritance and dispositional factors in the child. However, they state that these factors have an interaction with environmental factors in causing behavioral problems. As they say, aggressive behavior is not inherited directly. However, children can inherit a liability for aggressive behavior, and thus may be relatively susceptible to developing behavior problems. Genes constitute biological genotypes that influence physiological hormone levels and central nervous system reactivity. These physiological characteristics may predispose one toward certain behavioral characteristics and cognitive styles such as impulse control, activity level, or frustration tolerance level. Depending on environmental contexts these behavioral and cognitive characteristics might lead to the development of aggressive behavior. Thus, individual genetic differences will play a role in physiological characteristics. Interaction of environmental characteristics and physiological characteristics may lead to individual differences in aggression and antisocial behavior. This analysis shows the complexity of the interaction between genes and environment in the development of child behavior problems.

Developmental Disorders in Children:

Achievement of cognitive, social and emotional milestones at appropriate age is included in the mental development. Mental development is acquired properly by establishing attachments with people and things, maintaining social relationships, and developing effective coping skills when faced with some problems. When a child or adolescent achieves all these milestones without any delay then it is to be said that he/she has sound mental health. Mentally healthy children and adolescents enjoy a positive quality of life; function well and behave properly at

home, in school, and in their communities; and are free of disabling symptoms of psychopathology.

Developmental disorders are the disorders that might occur at some developmental stage of the child, often impair child's language, cognitive, and motor development. Developmental disorder generally recognized before age 18 that remains continue indefinitely and constitutes a substantial impairment in the development. Mental retardation, Down syndrome, Cerebral palsy, Autism and various genetic disorders are generally referred to as developmental disorders. These disorders negatively influence all the abilities and skills of an individual such as ability to live independently may be badly influenced by these disorders. The child is unable to take care of him/herself, he/she is unable to learn effectively, to communicate properly with others, to earn money and to take even a minor decisions.

Normal development involves contributions from both genes and environment. If genes and environment fail to contribute properly their parts in the development then it results in atypical or abnormal development. The whole pattern of developmental pathways is expected to change suddenly by any deletion, duplication or miss positioning of genes attached to chromosomes. This further casts strong effects on some outcomes whereas casts weak effects on others. As compared to other developmental disorders, prevalence rate of Down syndrome is very high. Down syndrome has been reported to affect every 800 live births (Hall, 2004). It is a chromosomal disorder that is genetically identified by the phenotypic features and developmental delay. Three types of Down syndrome are trisomy 21 (presence of 47 chromosomes), translocation (number of chromosomes are normal but the material of extra

chromosome 21 is attached to chromosome 14 or other chromosome), and mosaicism (some cells have 46 and some cells have 47 chromosomes).

Typical features of Down syndrome are excessive and wrinkled neck skin, corners of mouth turned downward, general hypotonia, flat face, dysplastic ear, an abnormally small chin i.e., microgenia (Weiss, 1994), an unusual round face, oversized tongue i.e., macroglossia (Fried, 1980), epicanthic fold of eyelids give the shape of an almond to the eyes, palpebral fissures i.e., a separation exists between the upper and lower eyelids and white spots on the iris of the eye, and gap between first and second toes. Though not all types of Down syndrome children have these features, especially mosaic cases, presence of most of these features along with history of developmental delay is clear indication of Down syndrome. However, these features may vary greatly from one individual to another and, contrary to popular opinion; the level of intelligence cannot be predicted by the number of characteristics presents (Fatima, 2010).

In Pakistan, more than ninety percent of the Down syndrome cases are accurately diagnosed with the help of clinical features in early years of their lives (Ahmed, Ghafoor, Samore, & Chatta, 2004). For more precise diagnosis chromosomal analyses, karyotyping is recommended. Since the test is expensive and clinical diagnosis is usually accurate, children are rarely referred for karyotyping in Pakistan (Fatima, 2010).

Children with Down syndrome often have behavioral and physical problems. They are generally mildly to moderately retarded. Their language is delayed. They use few words and speak less. Their speech is usually unintelligible. The weakness in communication is observed throughout their lives (Dykens, Hodapp, & Evans, 2006). They have tendency to engage in problematic behavior such as doing same thing again and again, disobeying orders, talking with

one self and avoiding others (Feeley & Jones, 2006). Because of number of psychological problems these children need supervision throughout their lives.

These children are also likely to suffer from particular health related problems like congenital heart diseases, hearing problems (Porter, Tharpe, 2010; Sheehan, & Hans, 2006), intestinal problems such as blocked small bowl or esophagus, celiac disease (Zachor, Mroczek-Musulman, & Brown, 2000), eye problems, such as cataracts (Caputo, Wagner, Reynolds, Guo, & Goel, 1989), thyroid dysfunctions (Karlsson, Gustafsson, Hedov, Ivarsson, & Annerén, 1998), and epilepsy (Menéndez, 2005). If people with Down syndrome survive and reach in their middle life then they begin to suffer from an Alzheimer's disease such as dementia (McPhee, Tierney, Lawrence, Papadakis, & Maxine, 1999). They are also more likely to develop chronic respiratory infections (Hall, 2004). Although multiple health related problems lead to shorter life expectancy for these children, if they are properly dealt with these children, they can live a longer life.

Children with Down syndrome usually tend to have lower than average cognitive abilities. Generally these people's cognitive abilities fall in the moderate to severe categories of mental retardation. Some of the individuals that have been supported by their families since their birth, and got proper help of psychotherapists, may show improvement in their behavioral characteristics as well as their cognitive abilities. The average range of IQ of children with Down syndrome is around 50, compared to normal children with an IQ of 100 (Liptak, & Gregory, 2008).

Speech of most normally developed children is fully intelligible and partially logical at the age of four to ten years, however their phonological systems are in a process of being

developed (Coplan & Gleason, 1988). Researchers compare the speech of normally developed children with Down syndrome children, comparable groups were matched on the basis of their mental age. They reported that most of the individuals with Down syndrome express unintelligible and illogical speech throughout their lives even though their mental age may exceed from four years (Kumin, 1994; Pueschel & Hopman, 1993; Rosin, Swift, Bless & Vetter, 1988; Shriberg & Widder, 1990). Long-standing difficulties with intelligibility can presumably be attributed to underdeveloped phonological patterns associated with Down syndrome.

Differences are present among behaviors, intelligence, personalities, characteristics, traits and genetic material of all individuals. Similarly, individuals with Down syndrome also differ from each other, in all these aspects. Behavior patterns, traits and cognitive development of these children quite vary from each other depends upon parental support; enriched therapies and good guidance related to their tasks.

Most investigations to date on behavior problems of children with Down syndrome have focused mainly on prevalence and description. However, several reports have been released indicating that behavior problems of children with Down syndrome reflect the operation of multiple risk factors. Factors implicated by statistical analysis include level of mental retardation, and parent and sibling adjustment (Gath & Gumley, 1986).

A landmark study was conducted by Lapouse and Monk about displaying of problems in behavior by normal children age ranging from 6 to 12 years. They concluded that almost 50 percent of these normal developed children were reported to have various specific fears and frequent temper tantrums, whereas 27 to 30 percent of these children were restless, had

nightmares, or bit their nails. Furthermore, the younger children aged from 6 to 8 showed more behavioral problems than older children aged from 9 to 12 (Lapouse & Monk, 1964).

Role of Family in Behavior Problems:

In the literature, family functioning plays a vital role in child behavior problem. The concept of family functioning is very significant in studying children's behavior, as the family is only responsible for supporting the child in different activities (Petzold, 1998). Family is the source of protection for the child, if the family is strong enough not only financially but also in strength then child has feelings of being secure and one knows that whenever one will fall there is one's family to pick ones up. Family is also responsible for guiding properly to the children, to teach them what is right and what is wrong, to enable them to differentiate between true and false.

It is generally assumed that there are strong and influential links between family functioning and individual behavior, and dysfunctional individuals generally grow up in dysfunctional families (Labate, 1998). Typically, in theories on family functioning, it is emphasized that one part of the family is being connected to other parts of the family functioning and proper functioning is only possible when every part is playing its part appropriately. When one part of the family gets into change it definitely brings about the changing in other parts or sub systems of the family. Family functioning can be described from several viewpoints, for example focusing on parenting styles (Cusinato, 1998), intergenerational relationships (Cicirelli, 1998), family composition and structure (Petzold, 1998), and familial interaction pattern (Brunner, 1998).

According to family systems perspectives, the central ecological context is provided by relational life of families, and in this central ecological context children are being nourished (Minuchin, 1974). Each individual brings his/her own attributes to the family relationships. These attributions and perception of other family members toward attribution together influence the family system.

Family system is affected suddenly after the arrival of a child born with Down syndrome in several ways, from a minor level dyadic conversation about a developmental disorder to the large scale of cultural ideas leading to parental perception about that specific developmental disorder. Family is definitely affected by a child with Down syndrome. It is likely that a child with Down syndrome will show the typical behavioral and cognitive phenotypes. These phenotypes involve weakness and strength in different processes such as delay in information processing, problem in interacting with other people, cannot express their emotions properly, motor coordination is also weak, and usually have low motivation level. When a child will show such patterns of behavior then this pattern affects the behavior of parents in communicating with the child. Thus parents of such children feel decreased satisfaction of parental role and they get low opportunities in other spheres of life such as career success (Scorgie, Sobsey, 2000; Van Riper, 2007). This situation leads toward the parental stress and frustration; sometimes they fail to adapt their behaviors in case of having child with developmental disabilities. In response they suffer with bad mental health and get depression, and anxiety type of disorders. Even mild levels of depression and anxiety can have harmful effects on individuals and on their families (Singer, 2006). When parents fail to adapt themselves in case of having children with some disorder then their bad mental health affects the behavior and cognition of special child negatively. Thus

children with some developmental disorder including Down syndrome show more behavioral problems than normally developed children.

An ambitious and well conducted British research reported by a group of investigators headed by Rutter (Rutter, Yule, Quinton, Rowlands, Yule, & Berger, 1975) identified six family problems associated with normally developed children's behavior problems. Marital discord such as violated relationship between parents, divorce or separation affects child's behavior negatively. If the parents are not financially sound enough and are unable to fulfill even the basic needs of the child, then this economical problem may lead towards the disturbed behavior and child develops feelings of inferiority as well. Large family size also badly affects the child's behavior as parents have less time to pay attention toward child's issues. Parents especially mother's mental state contribute a lot in destroying or improving child's behavior. If mother of a child is suffered from depression, anxiety or any other psychological problem then she will remain indulge in her own problems and complaints and she will be unable to resolve child's problems, or even correct or modify child's disturbed behavior. Problem in the child's behavior has been observed if he has been ever placed in a foster family or removed from home for any purpose including educational purpose. Father's court record or any criminal record also badly influences the behavior of a child. None of these factors alone is significant for causing behavioral problem in child but combination of two or more factors have strong effect on occurrence of behavior problems.

It was reported that the poorer the family's situation and the more stressful their lives are, the greater are the chances of the child to become behaviorally disturbed. Some children are

more vulnerable to stress than others, possibly for constitutional or temperamental reasons (Thomas, Chess & Birch, 1968).

As the child with Down syndrome grows older an increase in parental stress has been observed. Data collected from the families having child with Down syndrome aged 3 years and then recollected the data from same families when the child aged 4 to 6 years. Increase in behavioral problems in children with Down syndrome was reported, that is markedly associated with maternal stress (Eisenhower, Baker & Blacher, 2005).

Role of Personality in Behavior problems:

Each person has certain attitudes and ways of responding to life situations. These styles develop from childhood and makeup the personality. A person's tendency to be active or passive friendly or reserve, social or solitary, inclined to blame others or self blaming, and his sense of humor depends upon individual traits or characteristics which make up the total personality. These personality styles contribute in developing certain behaviors, if these behaviors are not adjustable then causing problems.

A large amount of research has been conducted on personality or motivational styles in mental retardation. This work attempts to examine behavioral tendencies that might be especially dominant in retarded individuals. For the most part, it has accented the moderately and mildly retarded children, for whom specified organic impairment is not an overriding factor.

Comparisons have been made with normal children matched on mental age (same intellectual level) and chronological age. It was reported that retarded children are influenced strongly by past or present social deprivation as compare to normal children. The results of

deprivation can be seen in a sensitivity to authority figures that at first glance appears contradictory. On the one hand, the retarded seem highly motivated to interact with a supportive adult; on the other hand, they seem reluctant to adult interaction. Active seeking of attention and affection had often seen in retarded children as compare to normal ones (Balla & Zigler, 1979).

Children with Down syndrome have strengths and weaknesses in the areas of Intelligence, memory, Information processing, language, social and motor development that is why these areas have been researched more (Byrne, Buckley, MacDonald & Bird, 1995). Personality motivational style is another area that is being given very much significance in the field of Down syndrome. There are certain common qualities in personality styles of children with Down syndrome including affectionate and passive personality style. It was reported that children with Down syndrome show lower levels of activity, less persistence and higher distractibility or lack of concentration than other normally developed children, supporting the passive aspects of personality style of children with Down syndrome (Gunn & Cuskelly, 1991).

However, a great complexity has been observed in the development of personality and styles of motivation in children with Down syndrome over time. Task persistence is found to be very low in individuals with Down syndrome. Sometimes, such children have a strong willed or stubborn personality streak that makes them less persistent in their tasks. They usually indulge in off task behavior, try to ignore the orders of elders, try to keep the attention of other people diverted so that is why others do not ask them to do a particular task, and make delays in obeying the orders of task performance.

Passive personality style, lower task persistence, and stubborn personality streak may be far reaching implications for developmental outcomes so these are not as much researched as

positive personality styles of Down syndrome are researched. Inconsistency in developmental performance of Down syndrome is found that is affected by passive personality style. It has been reported that children with Down syndrome age ranges from 6 months to 4 years express significant regressions on the testing batteries across sessions and it is because children often refuse to remain involve in the particular tasks (Pitcairn & Wishart, 1994).

It is reported that children with Down syndrome, when placed in a challenging and competent situation then they used to avoid the specific task and refuse to do it with frequent negative and positive behaviors than other children. Younger children usually refuse to look at a task, they make lame excuses to avoid the task, started to cry suddenly without any apparent reason (Wishart, 1996; Wishart & Bower, 1984). On the other hand older children with Down syndrome usually try to keep engage researcher with different off task behaviors such as they do some other activity or show some disturbing actions that distract the researcher's attention, suddenly start to clap hands, or laugh. These avoidant behaviors are rational so these are often described as "cognitive avoidant" or "quitting out" behaviors. These are a "unique feature" added in the assessment of personality development of children with Down syndrome.

Effective communication is also a major problem for children with Down syndrome. Understanding and comprehension of children with Down syndrome is much better than the expression of language. They can understand what is being said in a better way, and can perform according to instructions. But they are poorer in talking or communicate their own feelings and emotions to others in an effective manner. A child may express his feelings of anger and frustration by paying no attention, or by showing some aggressive acts. Due to lack of communication, children with Down syndrome feel difficulty in talking about their feelings of

anger, sadness, happiness or loneliness. They can not communicate about things or events that make them angry or annoyed. But changes in their life events such as separation from home, or loss of loved ones or belongings may cause problems in behavior at school or work.

Understanding all important factors that contribute the behavioral problems among children with Down syndrome as well as among normally developed children may offer the researchers a great opportunity to improve the effectiveness of treatment strategies and educational programming in disturbed children and in children with Down syndrome. This may especially be relevant in early intervention settings, where it may be possible to prevent these behavioral problems by properly addressing parents, by understanding their personality traits, by focusing on their peer relationships, by considering their intellectual level, and by realizing that they are not like the normal children, they are special and they require more attention.

Relationship of Intelligence and Behavior Problems:

Cognitive development in children with intellectual impairment has a different age dynamics. Research reported that correlation between chronological age and task performance among children with Down syndrome is positive ($r=0.34$) although it is weaker than that of normally developed children ($r=0.71$) (Gunn & Jarrold, 2004).

Kozulin, Lebeer, Madella-Noja, Gonzalez, Jaffrey, Rosenthall and Koslowsky (2009) administered Raven's Progressive Matrices Colored and WISC-R on children with Down syndrome, Autism and cerebral palsy, to explore the effectiveness, validity and optimal conditions of cognitive intervention program in enhancing cognitive functioning of children with developmental disorders and cognitive ability. They reported that younger children with Down

syndrome aged 7.5 to 10 years show greater scores in Raven Progressive Matrices and Picture completion of WISC-R as compare to children of other developmental disorders. Moreover, their RCPM test scores were higher than older children with Down syndrome aged 13 to 15 (Kozulin, Lebeer, Madella-Noja, Gonzalez, Jaffrey, Rosenthall, & Koslowsky, 2009). It shows that Down syndrome children are eligible to fill in RCPM and other cognitive tests in order to determine their intellectual level.

The morbidity of developmental problems in children shows obvious gender differences in specific aspects. Studies carried out in various countries conform that 4% - 9% of elementary school boys suffer from behavioral and emotional problems (Rutter et al, 1970). According to a survey, conducted in an Australian early primary school, 5.3% of schoolboys had scores within the abnormal clinical range on four of the five subscales of the Strength and Difficulties Questionnaire (SDQ) (Hayes, 2007).

When children enter school, they become increasingly involved in extra familial relationships. Extra familial relationships and co curricular activities also influence the child's manner to behave, and choices they prefer to make. During this time, genetic and environmental influences that contribute to the dissimilarity of individuals growing up together become increasingly important, probably because of the parenting factor or home environment (McLoyd, 1998).

A study of children with Down syndrome in the Greater Manchester area, reported that between 20 percent and 40 percent of these children aged between five and ten years had displayed 'severe behavior problems' (Cunningham, 1986).

Matson and Gorman-Smith (1986) found that 49 percent of normally developed children were identified as aggressive were between the ages of one and ten years. This suggests that the behavior may be most prevalent among pre-adolescent children. It was reported that children with Down syndrome usually use their social behaviors such as clapping hands, and talking a lot to distract the attention of examiner in order to avoid more challenging tasks in laboratory settings (Zickler, Morrow & Bull, 1998).

Liu, Kurita, Guo, Miyake, Ze, & Cao (1999) observed the prevalence rates of behavioral problems among Chinese children, were 12.5% for boys and 8.3% for girls (chi 2 = 14.23, $p < .01$).

Van Gameren-Oosterom, Fekkes, Buitendijk, Mohangoo, Bruil , Van Wouwe (2011) conducted a study with children with Down Syndrome aged 8 years old. They found that these children have an average developmental delay of four years, more often have behavioral and emotional problems, and have a less favorable Health-Related Quality of Life compared with children from the normal population.

McCarthy (2008) conducted a longitudinal study on people with Down syndrome. Same behavior measurement scale was used to assess the behavior of people with Down syndrome in both childhood and adult life. The problem was found in the area of functioning, psychopathology and family environment in their childhood. Children with Down syndrome were found to be at higher risk for severe behaviour disorder that onset in adult life, but may be rooted out from their childhood. Proper intervention from the start of the problemetic behavior can reduce the risk of having behavior disorders.

The level of intelligence quotient of children with Down syndrome usually falls in the range of mild mental retardation to severe mental retardation, with a profile of some strengths and weaknesses. It has been observed that cognitive development start in infancy as a typical development but later it becomes slow gradually that might be related to *delayed rates of brain myelination* during this developmental period (Dunst, 1990).

A significant correlation was found between mental age and numerical ability (Turner, Sloper, Cunningham, & Knussen, 1990). The study was conducted on a sample of 117 children with Down syndrome age ranges from 6 to 14 years. Academic achievement including numerical ability was measured by questionnaires (filled in by the children's teachers) which assessed a range of numerical competencies from "Discriminates between largest and smallest groups of objects" to "Does simple division work". A wide range of numerical abilities were displayed by the children. It was concluded that children with Down syndrome show numerical ability highly correlated with their mental age, i.e. if their mental age is 4 years then numerical ability shown by the child is appropriate according to age but children with Down syndrome have usually less mental age as compare to their chronological age.

Finally, a behavioral phenotype of Down syndrome explains various psychopathological characteristics of such children for example hyperactivity, aggression, stubbornness, disobedience, inattention and impulsivity have all been reported (Fidler, Most, & Philofsky, 2007).

Rationale of the study:

The literature has documented that associated behavioral problems are common in mentally retarded children, particularly in younger and lower IQ children (Ando & Yoshimura, 1978). As Down syndrome is usually diagnosed early, parents of such children are more ready to accept the limitations of their children than is the case with other forms of developmental disorders. Researches demonstrated that children with higher intellectual ability show less number of problems in behavior (Gregory, & Liptak, 2008).

The present study is an endeavor to examine the prevalence of behavior problems among children with Down syndrome. In normal and Down syndrome population estimation of correlation between intelligence and behavioral problems is focused to determine.

Findings of this study will highlight the need to focus upon behavioral problems of children. Children with Down syndrome and normally developed children both have some behavior problems. The findings of the study will provide a guideline for modifying, reshaping and improving the behavior of children and will focus on the need of therapeutic recommendations from the psychotherapist. Findings of the present study will also draw attention toward the role of gender in behavioral problems as gender plays an important role in exhibiting behavioral problems. By understanding the behavioral problems, it will be easy to decide which type of educational and vocational institutes are better for such children. Psychotherapies since their early childhood would be beneficial for such children in controlling their aggression, self injurious behavior, and hyperactivity and withdrawal behaviors. By doing this in time, the behavioral problems in children can be rooted out easily but if these problems

have been ignored since childhood then these become more strong habits of individuals and become challenging for therapy providers and care givers as well.

METHOD

Chapter II

METHOD

Objectives:

Following are the main objectives of the study;

- To study the prevalence of behavioral problems among children with down syndrome
- To study the relationship between intelligence level and behavioral problems among children with Down syndrome and normally developed children
- To study the behavioral problems in relation to different levels of intelligence (i.e. below average and above average) among children with Down syndrome and normal children
- To study the role of gender in behavior problems among children with Down syndrome

Hypotheses:

- Prevalence of behavioral problems will be higher in children with down syndrome than normal children
- There will be correlation between intelligence and behavioral problems among children with down syndrome and normal children
- There will be difference between levels of intelligence (below average, above average) and behavioral problems among children with Down syndrome

- Boys with Down syndrome will show higher behavioral problems than girls with Down syndrome

Operational Definitions:

Operational definitions of key terms are described below;

Behavioral problems:

A behavioral problem in a young child with a developmental delay, for example, is likely to be different from a behavioral problem in an emotionally mature older teen. Knowing what to expect from a child in different phases of his development will help to assess his conduct" (Miller, 2010).

Concerning child behavior problems, there is a general consensus in the literature that a distinction can be made between two major dimensions, that is, externalizing and internalizing behavior (Achenbach, 1966; Breen & Altepeter, 1990; Serbin, Schwartzman, Moskowitz, & Ledingham, 1991; Smets, 1985). In this study, externalizing behavioral problems of children is determined by using Child Behavioral Problem Questionnaire. High score on this questionnaire indicates behavioral problems.Externalizing behavior refers to behavior characterized by failure to control emotions and impulses, often resulting in aggressive, non compliant and disruptive behavior.

Intelligence:

Intelligence can be defined as, "Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment (Wechsler, 1944)."

In this study, intelligence level of children with Down syndrome is determined by using Coloured Progressive Matrices. Scores are calculated in terms of percentiles and cutoff score is 25th percentile. The scores lie at or below 25th percentile show below average intelligence whereas scores lie at or above 75th percentile show above average intelligence.

Sample:

The sample of the present study consisted of 40 normal children and 40 children with Down syndrome. Children with Down syndrome were taken from government and non government schools of special education of Rawalpindi, Islamabad, Wah Cantt and Hazro. Normal children were also taken from governmental and non governmental educational schools of Rawalpindi, Islamabad, Wah Cantt and Hazro. Data was collected on the basis of purposive sampling with the help of standardized scales. Age of the selected sample was 8 – 11 years. Each category of sample had equal number of boys and girls. Sample of Down syndrome children was categorized into two levels i.e. below average and above average intelligence on the basis of Raven's Progressive Matrices Coloured.

Instruments:

Following instruments were used in the present study;

1. Child behavior problem questionnaire developed by Hanif (1994)

2. Raven's colored progressive matrices by Raven (1977)

1. Child Behavioral Problem Questionnaire:

Child Behavior Problem Questionnaire (CBPQ) was developed by R. Hanif in 1994. The questionnaire was developed in Urdu version. It is used to assess the degree of child externalizing behavior problems. Reliability of this scale is 0.84. Age range to fill in this questionnaire is 8 years to 13 years. There are 36 items with seven response categories. These 36 behavioral problems are common among the children of 8 to 13 years old. These seven response categories are "totally false", "false to greater extent", "false to some extent", "do not know", "true to some extent", "true to greater extent", "totally true". The items are scored as 1, 2, 3, 4, 5, 6, and 7 respectively. There is no negative scoring. The cut off score used in the study was 126. High score on this questionnaire i.e., score at or above 126 reveals that the respondent shows more behavioral problems and low score on this questionnaire i.e., score below 126 reveals that the respondent shows less behavioral problems.

2. Raven's Coloured Progressive Matrices:

The Coloured Progressive Matrices is developed by J. C. Raven, J.H. Court and Raven in 1977. It is designed for use with young children under age 12 years, and for clinical work. It can be used satisfactorily with people suffering from physical disabilities aphasias, cerebral palsy or deafness, as well as with people who are intellectually sub-normal. CPM comprises of three sets of twelve problems i.e., 36 items. These sets are arranged to assess the chief cognitive processes of which children aged 12 years of age or less are usually capable. The three sets together provide three opportunities for a person to develop a consistent theme of thought, and the scale of thirty-six problems as a whole is designed to assess as accurately as possible, mental development upto intellectual maturity. The sets of CPM are A, Ab, & B printed on brightly

Coloured backgrounds. Each set consists of twelve problems. Correct response on each problem is scored as 1 and then total score is calculated. Result is calculated in the form of percentile. CPM is designed to assess as accurately as possible a person's present clarity of observation and level of intellectual development. Percentile of scores illustrates the level of intelligence where the individual falls. If child scores at or above 95th percentile then he/she falls in the category of "intellectually superior". If child scores at or above 75th percentile then he/she is said to be "definitely above average". If child scores between 25th and 75th percentile then he/she is said to be "intellectual average". If child scores at or below 25th percentile then he/she falls in category of "definitely below average". If the child scores at or below 5th percentile then he/she will be "intellectually detective".

Procedure:

The test booklet comprised of two scales including Raven's Coloured Progressive Matrices (RCPM) and Child Behavior Problem Questionnaire (CBPQ) (Urdu version). The children with Down syndrome were approached individually. The consent of participation was taken from institutions and trusts, from where the sample was collected. Chairpersons of all institutions and trusts were assured that the information obtained from subjects will be kept confidential and anonymous and will only be used for research purpose only. Behavior Problem questionnaire was filled by teachers of children with Down syndrome. The teachers were asked to fill up the questionnaire while keeping in view the behavior of children with Down syndrome. Following instructions were given to them;

> "By considering their behavioral problems, marked tick against one of the given category i.e. "totally false", "false to greater

extent", "false to some extent", "do not know", "true to some extent", "true to greater extent", "totally true".

Coloured Progressive Matrices was administered on children with Down syndrome to determine their intelligence level. Following instructions were given to them;

"Looked at this" (the upper figure was pointed) "it was a pattern with a piece cut out of it. Each of these pieces (each piece in turn was pointed) was the right shape to fit the space, but only one was the right pattern".

The researcher re-demonstrated the problem where it was needed. When children pointed toward the right option then they were scored as 1 against each problem and when they failed to answer then they were given zero score. Raw scores of RCPM were used in this study to determine the level of intelligence.

Normally developed children were also approached individually. Researcher approached them in schools and took special permission from the principal of the institute to go in the class room and asked the children to fill the performas of relevant scales in the class room. Instructions about the statements of the Child Behavior Problem Questionnaire were read to respondents and they were encouraged to ask any question regarding the ambiguity of the items. Respondents were asked to read carefully each item of the Child Behavior Problem Questionnaire one by one, and tick the answer which they think is the correct and appropriate. They were asked to fill all items attentively. Colored Progressive Matrices was administered to determine the intelligence level of the children. Following instructions were given to the subjects;

"Looked at this" (the upper figure was pointed) "it was a pattern with a piece cut out of it. Each of these pieces (each piece in turn was pointed) was the right shape to fit the space, but only one was the right pattern".

Data Analysis:

The data was analyzed with the help of SPSS. Different statistical techniques used in this study. Chronbach Alpha reliability was analyzed to find out the reliability of the scale for the present population. To determine the prevalence rate of behavioral problems, frequency and percentages were calculated for children with Down syndrome and normal children. To discover the relationship between variables, correlation coefficient was determined for children with Down syndrome as well as for normally developed children. To compare the difference between levels of intelligence t-test was calculated for both samples.

RESULTS

Chapter III

RESULTS

Table 1:

Alpha reliability coefficient of Child Behaviour Problem Questionnaire (CBPQ) & Raven's Coloured Progressive Matrices (RCPM) Scale (N=80)

Scale	No. of Items	Alpha
CBPQ	36	.90
RCPM	36	.93

Note: CBPQ = Child Behavior Problem Questionnaire; RCPM = Raven's Coloured Progressive Matrices

Table 1 shows that Chronbach alpha reliability of Child Behaviour Problem Questionnaire is 0.90 and Chronbach alpha reliability of Raven's Coloured Progressive Matrices is 0.93. It indicates that both the scales are reliable instruments in measuring the degree of behavioral problems and intelligence level among children with Down syndrome and normal children.

Table 2:

Frequency and percentages of Behavior problems among children with Down syndrome and Normal children (N = 80)

	Children with Down syndrome				Normal Children			
	f	M	SD	%	f	M	SD	%
High Behavior Problems	24	156.2	9.82	60%	1	137.0	0.00	2.5%
Low Behavior Problems	16	108.0	9.42	40%	39	90.6	10.72	97.5%

Table 2 shows frequency, mean, standard deviation and percentage of behavior problems among children with Down syndrome as well as normal children. Results show that 60% children with Down syndrome have high behavioral problems while 40 % have low behavioral problems. Rate of high behavioral problems are shown by 2.5% normal children and 97.5% normally developed children show low behavioral problem. Prevalence of behavior problems in children with Down syndrome is more than prevalence in normal children.

Table 3:

Correlation between Behavior problems and Intelligence of children with Down syndrome (N= 40)

Scale	RCPM r
CBPQ	-.60**

***p < 0.01*

Note. RCPM = Raven's Progressive Matrices Coloured; CBPQ = Child Behavior Problem Questionnaire.

Table 3 represents significant negative correlation between behavior problems and intelligence level of children with Down syndrome. It represents that children with Down syndrome have low intelligence level and show more behavioral problems.

Table 4:

Correlation between Behavior problems and Intelligence of Normal children (N= 40)

Scale	RCPM r
CBPQ	-.67**

**$p < 0.01$

Note. RCPM = Raven's Progressive Matrices Coloured; CBPQ = Child Behavior Problem Questionnaire.

Table 4 represents significant negative correlation between behavior problems and intelligence level of normal children. It represents that normal children have above average intelligence level and show less behavioral problems.

Table 5:

Mean, Standard Deviation and t-values of Below average and Above average intelligence of children with Down syndrome (N=40)

	Below average intelligence		Above average intelligence						
							95% CI		Cohen's d
Scale	*M*	*SD*	*M*	*SD*	*t (n=40)*	*p*	*LL*	*UL*	
CBPQ	147.25	22.23	112.91	15.53	4.84	.00	20.00	48.66	1.79

df =38

Note. CBPQ = Child Behavior Problem Questionnaire; CI= Confidence Interval; LL=Lower Limit; UL= Upper Limit.

Table 5 shows the differences in the mean scores of two groups based on intelligence i.e. above average (n=12) and below average intelligence (n=28) of children with Down syndrome. The significant t-value indicates that children with Down syndrome having below average intelligence express more behavioral problems than the above average intelligence. Both levels of intelligence of children with Down syndrome show different scores on Child behavior problem questionnaire. Results are statistically significant at 0.01, level of significance.

Table 6:

Mean, standard deviation and t-test of behavior problems of boys and girls with Down syndrome (N=40)

	Boys		Girls			95% CI			Cohen's d
Scale	M	SD	M	SD	t (n=40)	LL	UL	p	
CBPQ	147	23.18	126.9	24.75	2.65	4.74	35.45	0.01	0.83

df = 38

Note. CBPQ=Child Behavior Problem Questionnaire; CI= Confidence Interval; LL=Lower Limit; UL= Upper Limit

Table 6 shows that the children with Down syndrome have a significant gender difference in expressing problems in behavior. The results are statistically significant at 0.01, level of significance. Significant t-value indicates that the boys with Down syndrome show higher behavior problems as compare to girls with Down syndrome.

DISCUSSION

Chapter - IV

Discussion

Down syndrome is most carefully and widely researched disorder among the developmental and genetic disorders that have been discovered. From approximately 50 years, the description and features of children with Down syndrome have been under consideration and were discovered from longitudinal and cross sectional samples. A behavioral phenotype for Down syndrome has been described in the areas of cognitive, social, linguistic, motor, and psychopathology. The scientific accomplishments achieved to date within the developmental approach to intellectual disability are remarkable and have played a critical role in advancing the study of the Down syndrome behavioral pattern (Fidler, Most & Philofsky, 2007).

The present investigation examined the prevalence of behavior problems of children with Down syndrome between ages of 8 and 11 and their relationship with the intellectual level. Although correlational in nature, the investigation's goal was to explore the difference in prevalence rate of behavior problems expressed by normal children as well as by the children with Down syndrome. Raven's Coloured Progressive Matrices and Child Behavior Problem questionnaire were used. Reliability of both the scales was found to be statistically significant (Table 1). Results of the present study indicate highly significant correlation between behavioral problems expressed by normal children and children with Down syndrome and their intelligence, which shows that both variables are inversely correlated.

The condition of Down syndrome was first described by John Langdon Down, also identified characteristic behaviors (Down, 1866). Some of the behavioral trends cited with regularity include affectionate nature, even temper, and propensity to imitation (Gibbs & Thorpe,

1983). Behavior problems of children of school age (i.e., 4 to 16) with this syndrome have also been examined in some depth over the last fifty years. On average, one quarter to one third are reported as having significant conduct and emotional problems, with non compliance, aggression, and hyperactivity most prominent (Cuskelly & Dadds, 1992; Gath & Gumley, 1986).

Ratings by parents and teachers of school age children have typically involved use of instruments originally developed for use with children ranging from middle childhood through adolescence (Quay, & Peterson, 1983; Rutter, Tizard, & Whitmore, 1970). In most cases, results indicate that approximately 1 in 3 children with Down syndrome have significant behavior problems relative to 1 in 10 controls without a major developmental disability (Cuskelly & Dadds, 1992; Gath & Gumley, 1986). On average, children with Down syndrome score half a standard deviation higher on behavior problem rating scales than control groups of other developmental disorders. Most investigations to date on behavior problems of children with Down syndrome have focused solely on prevalence and description. However, some reports have been released indicating that behavior problems of children with Down syndrome reflect the involvement of intelligence level (Coe, Matson, Russell, Stifer, Capone, Baglio and Stallings, 1999).

Results from the present study are consistent with those of earlier studies of Down syndrome. The first hypothesis is that prevalence of behavioral problems in children with Down syndrome will be more than prevalence in normal children. The prevalence rate of behavioral problems among children with Down syndrome is found to be higher than that of the normal children (Table 2). These findings can be supported by the study of children with Down syndrome. It was reported that between 20 percent and 40 percent of these children aged between five and ten years had displayed 'severe behavior problems' (Cunningham, 1986).

Percentage of behavioral problems shown by children with Down syndrome is significantly higher than behavioral problems expressed by normal children. 60% Children with Down syndrome have high behavioral problems whereas only 2.5% normal children have high behavioral problems (Table 2). This can be supported by a report that approximately one in three children with Down syndrome was identified by mothers as having significant behavior problems. A greater percentage i.e. almost 60 % of children with Down syndrome was identified by teachers as they have significant behavior problems (Coe et al., 1999).

In Pakistani society, most of the people are ignorant of the disorder, moreover, the people who know about it, they do not know its symptoms, causes and outcomes at sufficient level. Prevalence rate of Down syndrome is greater due to different reasons, among these one of the reasons is late marriage of women and their late conception. A big factor to cause the Down syndrome is the age of mothers. The probability of conceiving a baby with Down syndrome at the age of 20 to 24 is one of 1562; at the age of 35 to 39 the probability is one in 214, and above age 45 the probability is one in 19 (Huether et al., 1998). Probability of conceiving baby with Down syndrome increases with the increase in maternal age, 80% of children with Down syndrome are born to women under the age of 35 (National Down Syndrome Centre, 2006). It is also reported that age of parents, especially beyond 42 (Disease-Centre Down Syndrome, 2008), also increases the risk of Down syndrome manifesting (Warner, & Jennifer, 2007).

Conduct disorders such as non compliance and aggression figure most prominently, diagnosed in over 10% of children with Down syndrome, in contrast to attention deficit hyperactivity, mood disorders i.e. anxiety and depression, and autism each typically evident in 10% or less of children with Down syndrome (Gath & Gumley, 1986; Myers & Pueschel, 1991).

The current study reveals that normal children also show behavioral problems but the rate of problems in behavior is very low i.e. high behavioral problems are expressed by 2.5% normal children and low behavior problems are shown by 97.5 % normal children. Earlier studies also support these findings that behavioral problems are widely prevalent among school aged children. Studies carried out in various countries conform that 4% - 9% of elementary school children suffer from behavioral problems (Costello, 1989; Rutter et al, 1970). According to a survey, conducted in an Australian early primary school, 5.3% of school children had scores within the abnormal clinical range on four of the five subscales of the Strength and Difficulties Questionnaire (SDQ) (Hayes, 2007).

The second hypothesis of the study was that there will be correlation between intelligence and behavioral problems in children with Down syndrome and normal children. Correlation between behavioral problems and intelligence is found to be inversive (Table 3 & 4). These findings are supported by the investigation carried out by Ghaziuddin in 2000. According to him, children with Down syndrome had significantly lower IQ's, and more severe, odd stereotypic behaviors, anxiety and social withdrawal (Ghaziuddin, 2000; Rasmussen, Borjesson, & Wentz, et al., 2001; Starr, Berument, & Tomlinds, 2005).

The present study explored the relationship between intelligence and behavioral problems. If children will have higher level of intelligence then they will have a quick understanding and broader spectrum, thus show fewer problems in behavior. On the other hand, if children will have lower level of intelligence then they will show more problems in not only behavior but in many other aspects of their lives such as, social, emotional, language and communication. Children with Down syndrome usually tend to have lower than average cognitive abilities. Generally these people's cognitive abilities fall in the moderate to severe

categories of mental retardation. If proper family support and psychotherapies have been provided to such individuals since their birth, then they may show improvement in their behavioral characteristics as well as their cognitive abilities. The average IQ of children with Down syndrome is around 50, compared to normal children with an IQ of 100 (Liptak, & Gregory, 2008).

The third hypothesis of the investigation was that Down syndrome children with above average intelligence will show less behavioral problems than children with below average intelligence. The results indicate that Down syndrome children with above average intelligence level showed less behavioral problems than those having below average intelligence (Table 5). Individual differences in cognitive area were found among children with Down syndrome. Genetic and environmental factors equally contribute to these differences. Above average or below average intelligence level of children with Down syndrome highly depends upon home environment, genetics and maternal education. Maternal education positively correlates with developmental scores in home reared children with Down syndrome (Sharav, Collins, & Shlomo, 1985). It is reported that girls with Down syndrome score higher in cognitive abilities and skills than boys (Nagumo, 1994). Thus, some of the children with Down syndrome may have above average intelligence level although most of the children have moderate to severe mental retardation (Fidler, Most, & Philofsky, 2007).

As compare to children with intellectual disability, children with Down syndrome are at lower risk for psychopathology (Haveman, Maaskant, van Schrojenstein Lantman, Urlings, & Kessels, 1994). Children with Down syndrome frequently show more problems than normally developing children. Older children with Down syndrome may have some symptoms of

externalizing behavior problem and as compare to younger children, they also show subtle increase in withdrawal (Dykens, Hodapp, & Evans, 2006).

Myers and Pueschel (1991) reported 22 percent frequency of disruptive behaviors, anxiety disorders and repetitive behaviors in children with Down syndrome, having low IQ levels. Compulsive behavior such as ritualistic habits and perfectionist behaviors was more frequent in children with Down syndrome compared with mental age-matched controls, suggesting that some repetitive behaviors may belong to their lower mental age and behavioral phenotype of individuals with Down syndrome (Evans & Gray, 2000).

Results of the current study show smallest standard deviation of the above average category. It shows that there are less number of individuals falls in above average intelligence group. The t-value is statistically significant interpreting that only a few children with Down syndrome have above average intelligence and they show less behavior problems (Table 5).

Researches on behavior problems show that on average one quarter to one third of the children with Down syndrome exhibit more significant behavioral and emotional problems. A study reported the results that behavior problems are more common and rate of problems in behavior is higher in younger age group i.e., 4-7 years and 8-11 years of children with Down syndrome as compare to normal population. Significant gender differences between the population of Down syndrome and normal population were also reported in a study. Boys are tended more to show behavioral problems than girls of Down syndrome (Stores, Stores, Fellow & Buckley, 1998).

Another hypothesis of the study was boys with Down syndrome will tend to show higher behavioral problems than girls with Down syndrome. A research conducted by Matta, Tervo-

Maatta, Taanila, Kaski, and Iivanainen (2006) to assess the mental health, behavior and intellectual abilities of children with Down syndrome supports the present study findings related to gender differences. According to them, 33 percent male children with Down syndrome experienced behavior problem related to hyperactivity. Problems in behavior such as self injurious behavior and aggressive behavior were found more common in boys than girls with Down syndrome (Matta, Tervo-Maatta, Taanila, Kaski, & Iivanainen, 2006).

It was reported that male children with Down syndrome appear at greater risk for behavior disorder than female counterparts although by a less than a 2 to 1 margin (Gath & Gumley, 1986; Menolascino, 1965).

It was reported that boys with Down syndrome exhibit higher rate of behavioral problems as compare to girls with Down syndrome (Stores et al., 1998). This supports findings of present investigation (Table 6). This gender difference might because of higher cognitive ability and skills of females with Down syndrome (Nagumo, 1994).

Finding of this study can be supported by the studies carried out by Gillberg, & Geijer-Karlsson in 1983 and Feldman, Case, Towns, & Betel in 1985 that children with lower IQ show more behavior problems than children of higher intelligence (Schachar, Rutter, & Smith, 1981).

This is dilemma of poor people of Pakistan, that they do not have enough information about this disorder. Unfortunately, if the child suffered with Down syndrome belongs from lower socioeconomic class then parents usually do not treat him/her as a special child. They do not consider the mental level of the child and the behavioral, social, and emotional problems as a result of low IQ level. Parents expect the same response and same behavior patterns from children with Down syndrome as are represented by their normal children.

Conclusion:

Important and sufficient efforts have been made in studies of cognition and Down syndrome, and up till now results have shown that major factor influencing individual's overall performance including behavior, emotions, and socialization is severity of overall intellectual disability (Gibson, 1978). It can be concluded from the results of the present investigation that prevalence of behavior problems among children with Down syndrome is higher than normal children. It is also concluded that children with lower IQ level show more behavioral problems than children with higher IQ levels. Significant gender differences are also calculated from Down syndrome population.

Limitations:

The current investigation is not the final word in the area of exploring the behavioral problems and their relationship with intellectual disability. Rather it is an attempt to contribute in discovery of prevalence of behavior problems among Down syndrome children as well as its relationship with intellectual level. More work and research must be done so that most accurate rate of prevalence of behavior problems in children with Down syndrome should be determined. This study also has some limitations, as every empirical study has some limits. Following are the limitations of the present study.

The sample size used in the study to discover prevalence of behavior problems is small and was not fully representative for the generalization. The age range used in the current study was limited i.e. age ranges from 8 to 11 years, so it was quite difficult to find out the data of Down syndrome of this age limit, and it was also difficult to get response from every child that comes under this range. Data was collected from different cities of Pakistan i.e. Rawalpindi, Islamabad, Wah cantt and Hazro, so the results of this study can not even generalize over whole population of Pakistan. Generalization of the results of this investigation on the whole population is not possible. The Child Behavior Problem questionnaire was filled in by teachers only and not by the mothers of Down syndrome children. However, children spend more time at home than in schools, and mothers know very well about their child.

Recommendations:

Following are the recommendations of the present study.

1. The sample size should be increased in future research so that sample would be truly representative of the population and findings can be generalized.
2. Data should be collected from rest of the cities of Pakistan, so the effect of generalization of the findings can be made clear.
3. In the future research, questionnaire regarding the behavioral issues of children with Down syndrome should be filled in not only by teachers but by parents, so that more accurate rating on behavior scale should be obtained.
4. Behavior problems among children with Down syndrome can also be compared by that of children with other developmental disabilities such as autism, cerebral palsy, central auditory processing disorder and attention deficit hyperactivity disorder.

Implications:

The present investigation aims to examine prevalence of behavioral problems in Down syndrome children and its relationship with intellectual level. The study has following possible implications.

1. The present research confirms the high prevalence rate of behavioral problems in Down syndrome children, future studies can determine prevalence rate of behavioral problems in children with other developmental disorders.
2. The present study finds out the relationship between behavioral problems and intelligence, in further studies, its relationship can be determined with other factors such as social, biological and environmental factors affecting behavior.
3. It will help other researchers in future to replicate the findings and generate better researches with more creative ideas in this field.
4. Present research can be presented as a valuable literature in the concerned area, for all the persons who will use these pages as reference.

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ANNEXURES

ANNEXURE A

ہدایات برائے سوالنامہ

میرا نام آمنہ حسن ہے اور میں انٹرنیشنل اسلامی یونیورسٹی میں MS (Psychology) کی طالبہ ہوں۔ مجھے اپنی ڈگری پروگرام کو پایہ تکمیل تک پہنچانے کے لیئے کچھ تحقیق کرنی درکار ہے۔ تحقیقی مقصد کے لیئے مجھے آپکے سکول کے بچوں سے کچھ معلومات درکار ہیں آپ کو اس بات کی یقین دھانی کرائی جاتی ہے کے یہ معلومات صرف تحقیقی مقاصد کے لیئے ہی استعمال کی جائے گی۔

اس کتابچہ میں دو سوالنامہ دیئے گے ہیں ایک سوالنامہ بچوں کے رویئوں کے مسائل کے بارے میں ہے جبکہ دوسرا سوالنامہ بچوں کی ذہنی صلاحیت کو جانچنے کا پیمانہ ہے۔

پہلا سوالنامہ جو بچوں کے رویئوں سے متعلق ہے اُس میں بچے اپنے رویے کے مطابق ذیل میں دی گی درجہ بندی میں سے جو صحیح لگتا ہے اُس پر ( ) لگائیں۔

' بالکل صحیح' ، 'کافی حد تک صحیح'، 'کسی حد تک صحیح'، 'معلوم نہیں' ، 'کسی حد تک غلط' ، 'کافی حد تک غلط'، ' بالکل غلط'

دوسرا سوالنامہ بچوں کی ذہنی صلاحیت کو جانچنے کا پیمانہ ہے۔ اس میں کچھ رنگین تصاویر دی گئی ہیں اور اس تصویر کے نیچے ہی کچھ اختیارات بھی دیئے گے ہیں جو تصویر میں دی گی خالی جگہ کو پُر کرنے کے لیئے ہیں۔ تصویر کے نمونہ ڈیزائن، رنگ اور شکل کی مناسبت ہے۔ جو بھی خانہ ٹھیک لگتا ہے اُسے ( ) کیجئے۔

آپ کو اس بات کی یقین دھانی کرائی جاتی ہے کے اس کتابچہ کے ذریعہ حاصل کی جانے والی معلومات صرف تحقیقی مقاصد کے لیئے ہی استعمال کی جائے گی اور اس معلومات کا کوئی غلط استعمال نہیں کیا جائے گا۔

آپ کے تعاون کا شکریہ

ANNEXURE B

Child behavior Problem Questionaire

نمبر شمار		بلکل غلط	کافی حد تک غلط	کسی حد تک غلط	معلوم نہیں	کسی حد تک صحیح	کافی حد تک صحیح	بلکل صحیح
1	مجھے بہت غصہ آتا ہے۔							
2	میں بلاوجہ پریشان رہتا ہوں۔							
3	میں جلد گھبرا جاتا ہوں۔							
4	میں اکثر بچگانہ حرکتیں کرتا ہوں۔							
5	میں شرمیلا ہوں۔							
6	مجھ میں خود اعتمادی کی کمی ہے۔							
7	مجھے چیزیں بھگارنے کی عادت ہے۔							
8	میں بہت حساس ہوں۔							
9	میں بہت لاپرواہ ہوں۔							
10	میں بات کو بڑھا چڑھا کر بیان کرتا ہوں۔							
11	میں کوئی فیصلہ نہیں کرسکتا۔							
12	میں جلد مایوس ہو جاتا ہوں۔							
13	میں جذباتی ہوں۔							
14	میں باتونی ہوں۔							
15	میں کوئی کام زیادہ دیر تک نہیں کرسکتا۔							
16	میں ضدی ہوں۔							
17	مجھے لوگوں کے درمیان گھبراہٹ ہوتی ہے۔							
18	مجھے دوستی کرنے میں مشکل پیش آتی ہے۔							
19	میں اکثر خوف کی وجہ سے بڑوں کے سامنے اپنی بات بیاں نہیں کرسکتا۔							
20	مجھے ہیٹ کرنے کی عادت ہے۔							
21	مجھے ناخن چبانے کی عادت ہے۔							
22	میں اپنے سے چھوٹے بچوں کے ساتھ کھیلتا ہوں۔							
23	میں ایک جگہ پر زیادہ دیر تک نہیں بیٹھ سکتا۔							
24	میں مار پیٹ والے کھیل پسند نہیں کرسکتا۔							
25	میں ہر وقت دوسروں کی توجہ حاصل کرنے کی کوشش کرتا ہوں۔							
26	والدین کا کہنا نہیں مانتا۔							
27	میں بہن بھائیوں کے ساتھ لڑتا جھگڑتا ہوں۔							
28	میں دوستوں کے ساتھ لڑتا ہوں۔							
29	مجھے گھر میں توڑ پھوڑ کی عادت ہے۔							
30	مجھے جھوٹ بولنے کی عادت ہے۔							
31	مجھے بہانے بنانے کی عادت ہے۔							
32	میں دوسروں کی شکائیت لگاتا ہوں۔							
33	مجھے نماز پڑھنے کی عادت نہیں۔							
34	مجھے کلاس میں سب کے سامنے بولنے میں گھبراہٹ ہوتی ہے۔							
35	میں اپنے آپ کو لائق اور ہوشیار سمجھتا ہوں۔							
36	میرے موڈ میں اچانک تبدیلی آجاتی ہے۔							

ANNEXURE C

COLOURED PROGRESSIVE MATRICES

Sets A, A_B, B

Prepared by J.C. Raven M.Sc.

Published in Great Britain by
Silver End Press, Letterpress Division of
E. T. Heron & Co. Ltd. Essex and London

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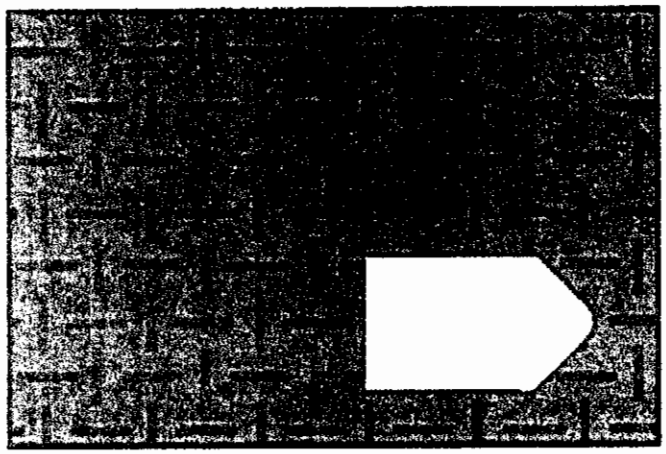
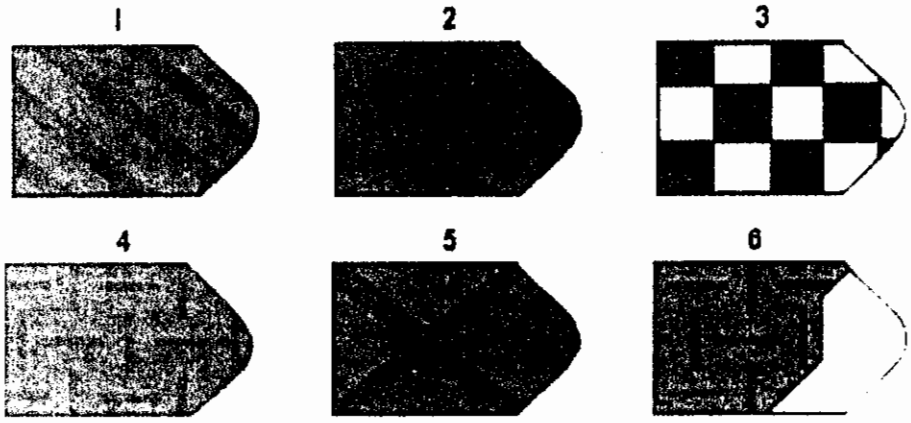
1956, 1962

— A —

A I





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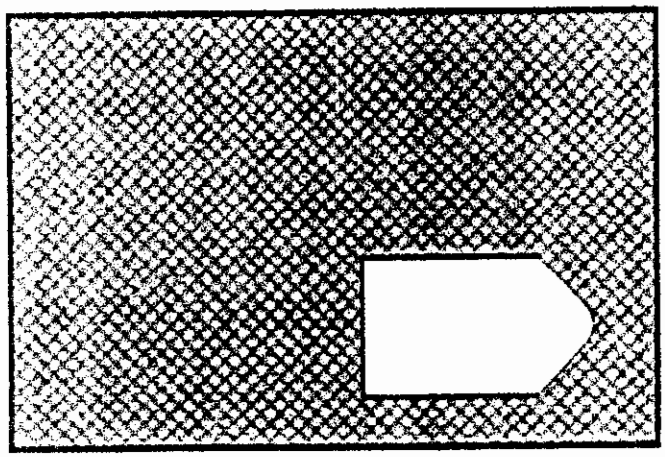

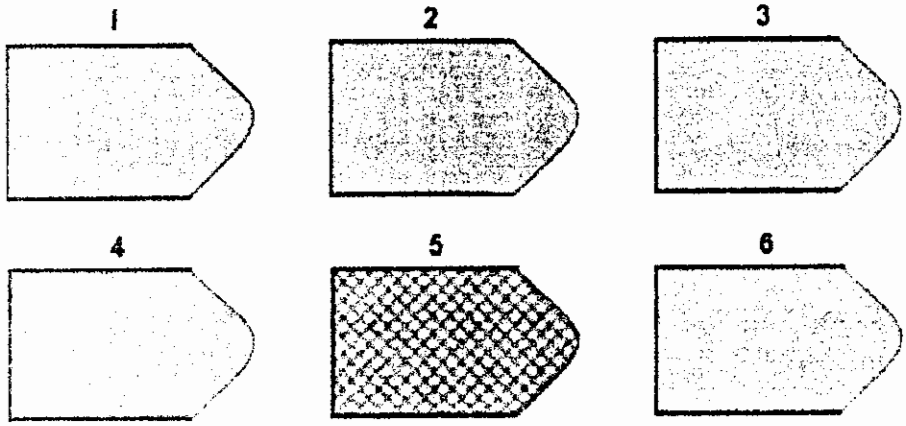

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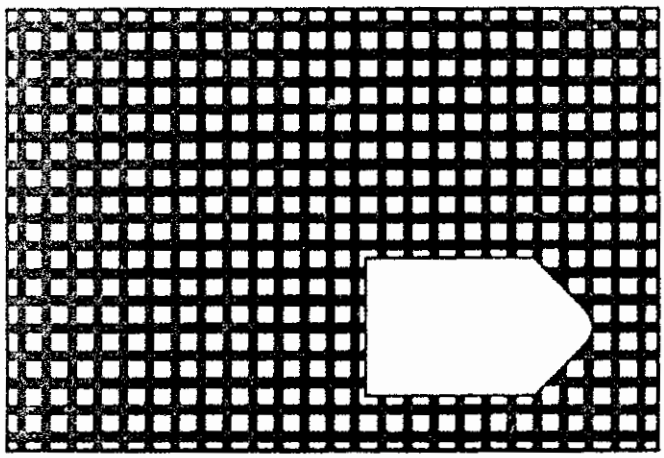

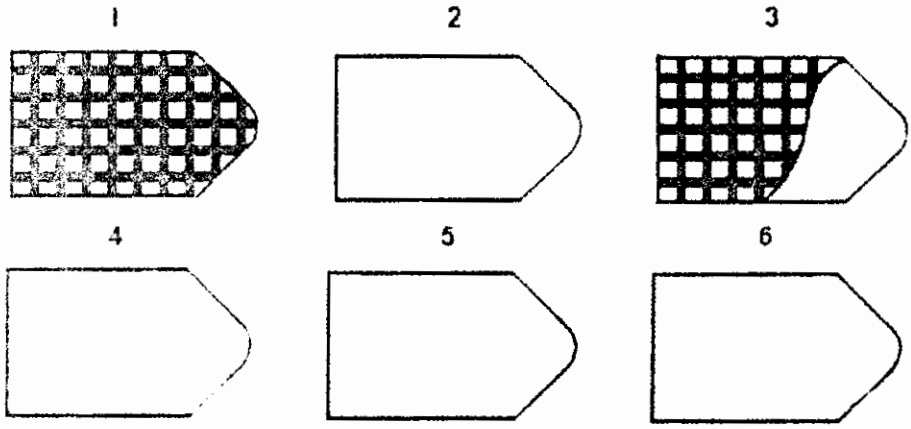

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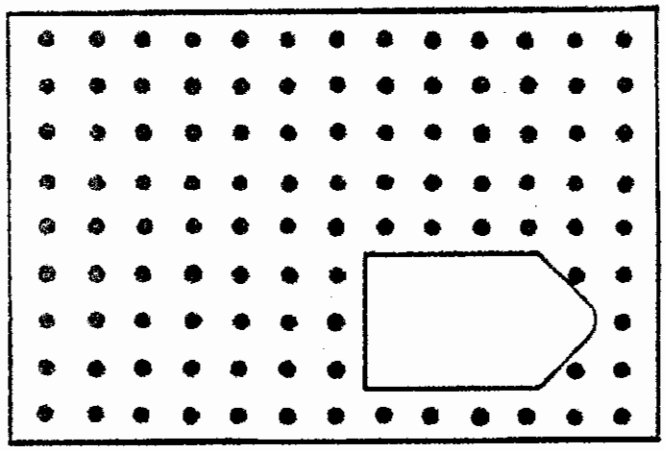

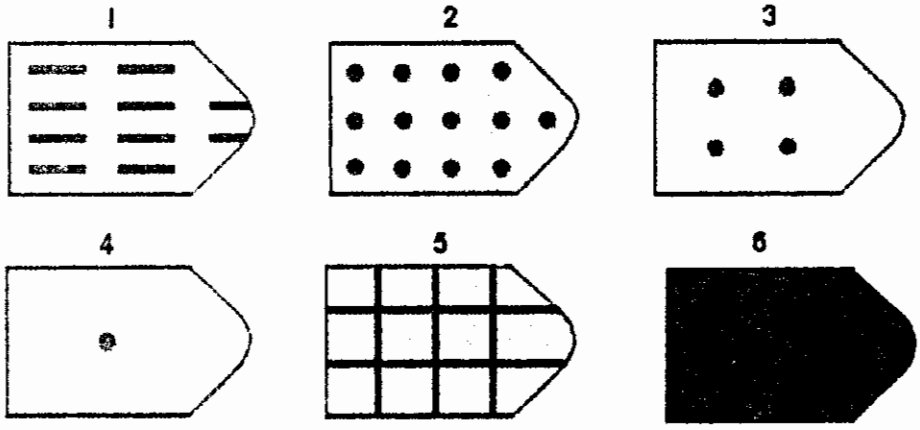

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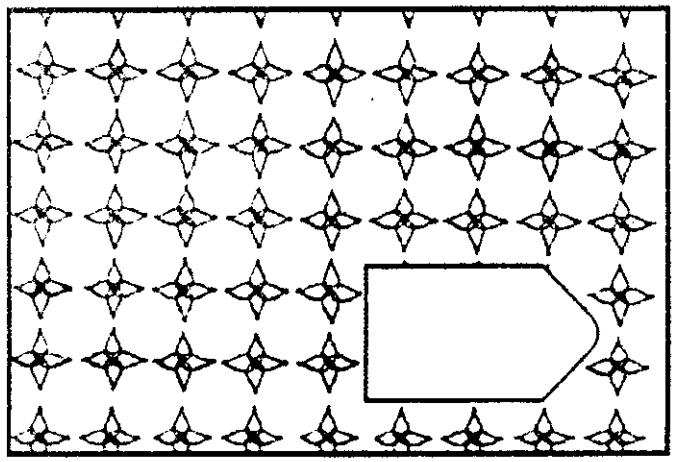

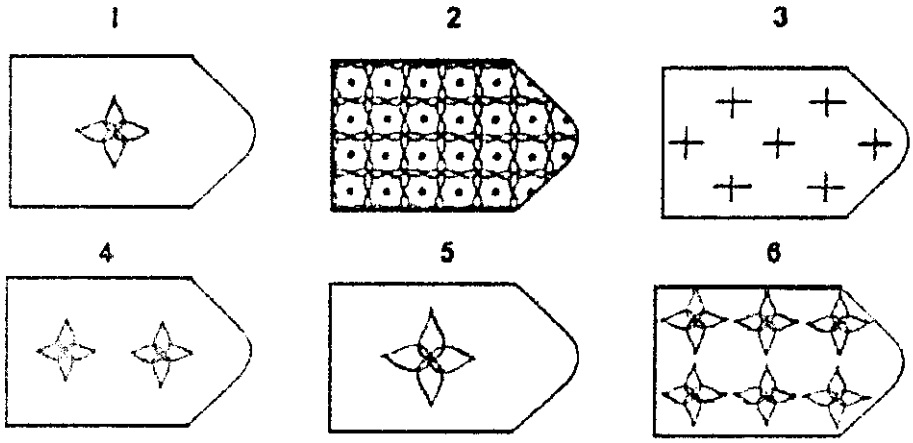

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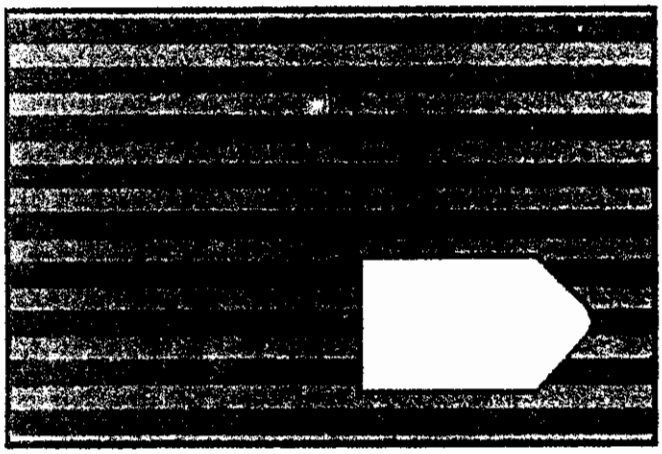

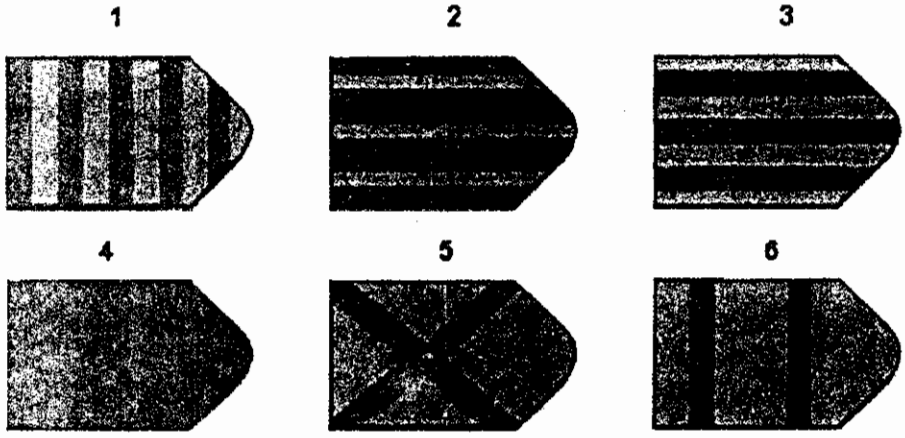

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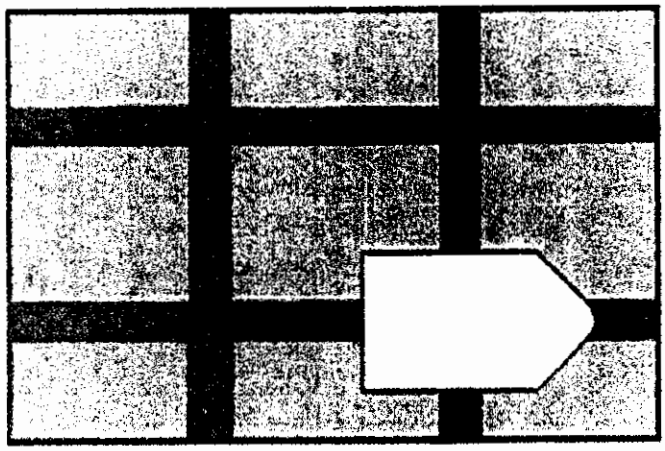

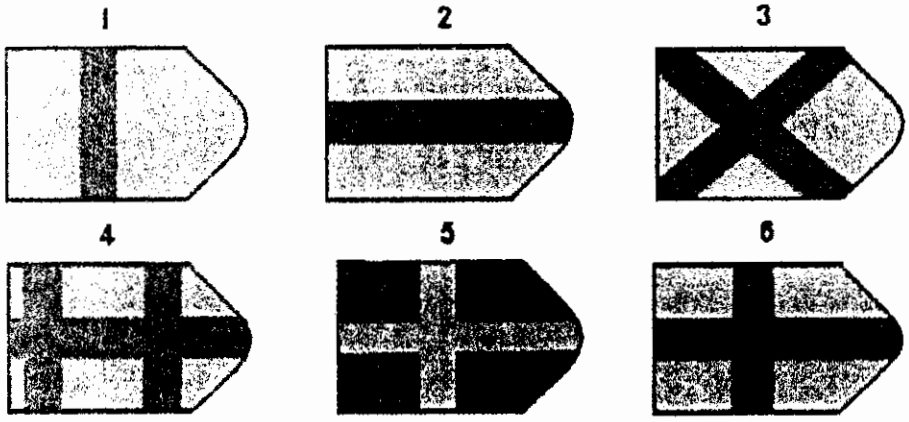

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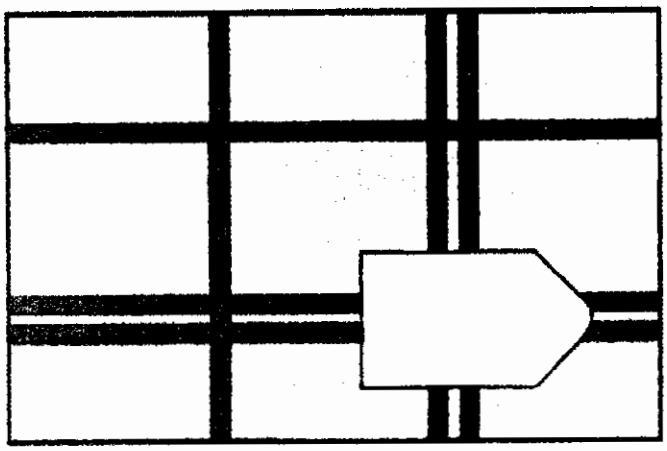

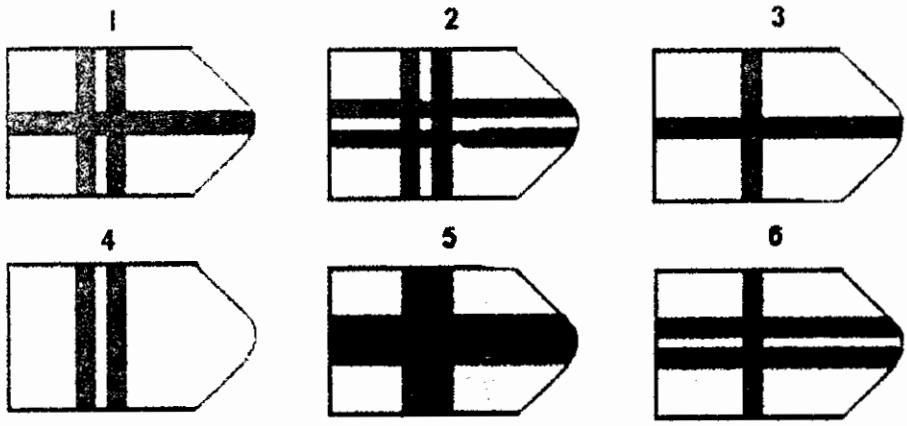

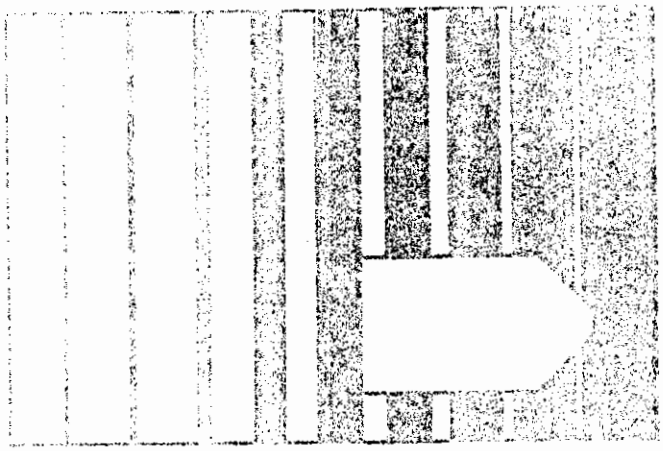

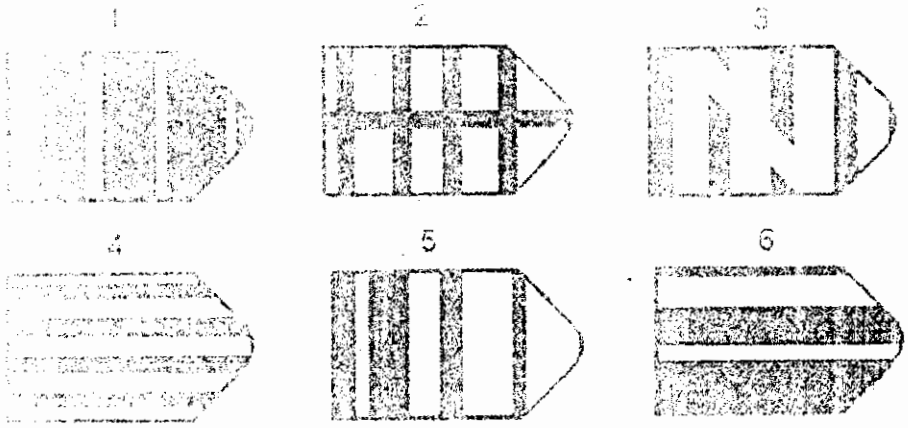
1
2
3
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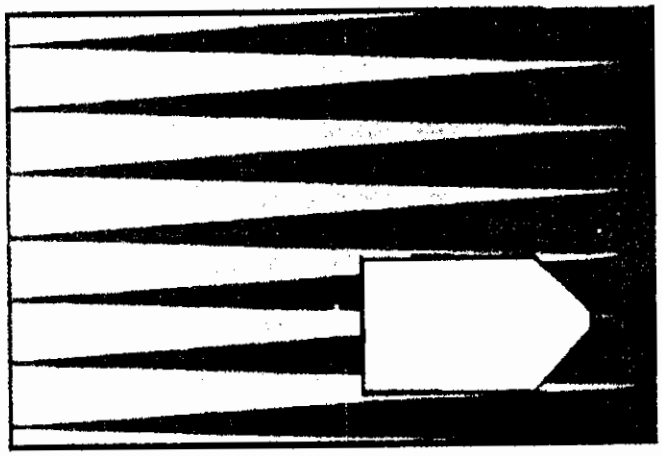
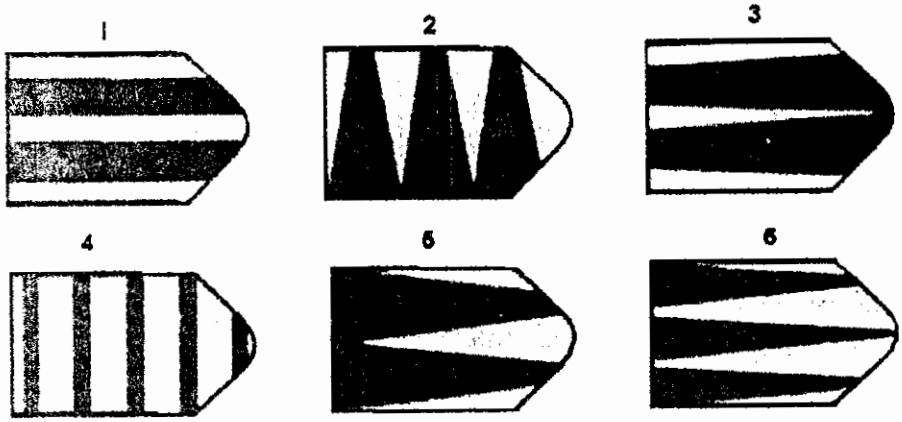
A 10





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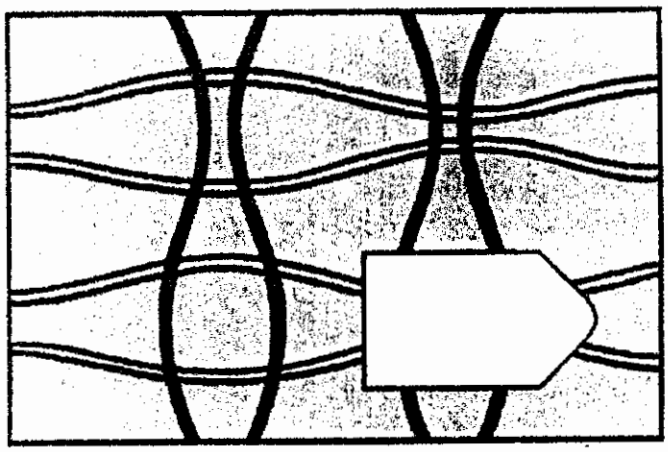

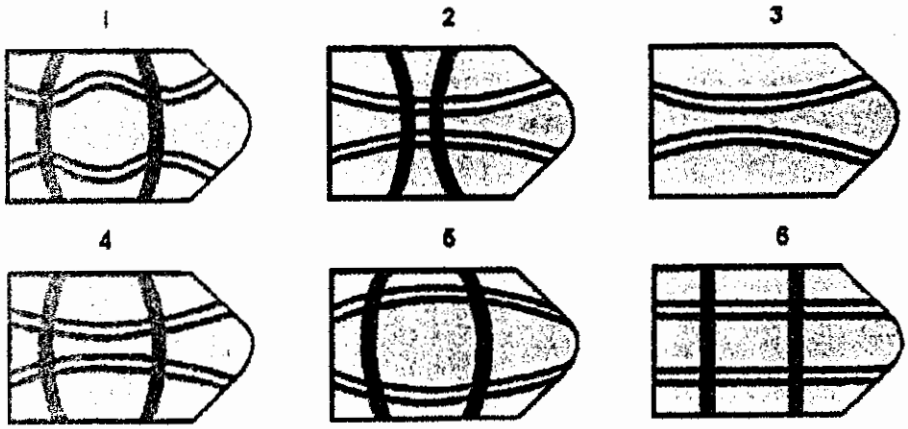

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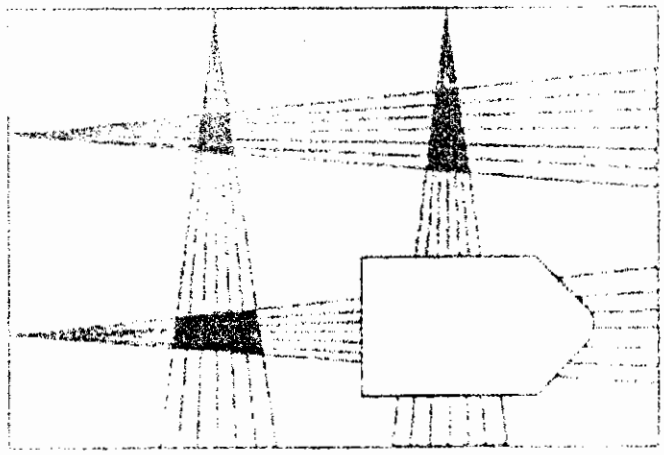

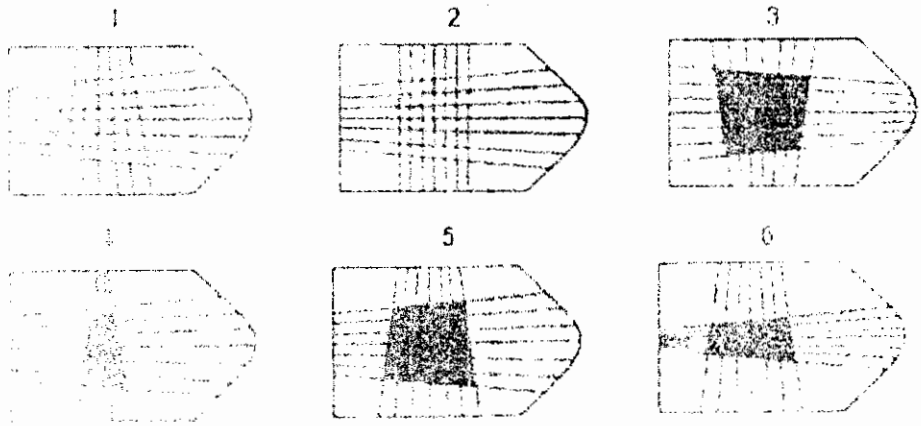

A_B

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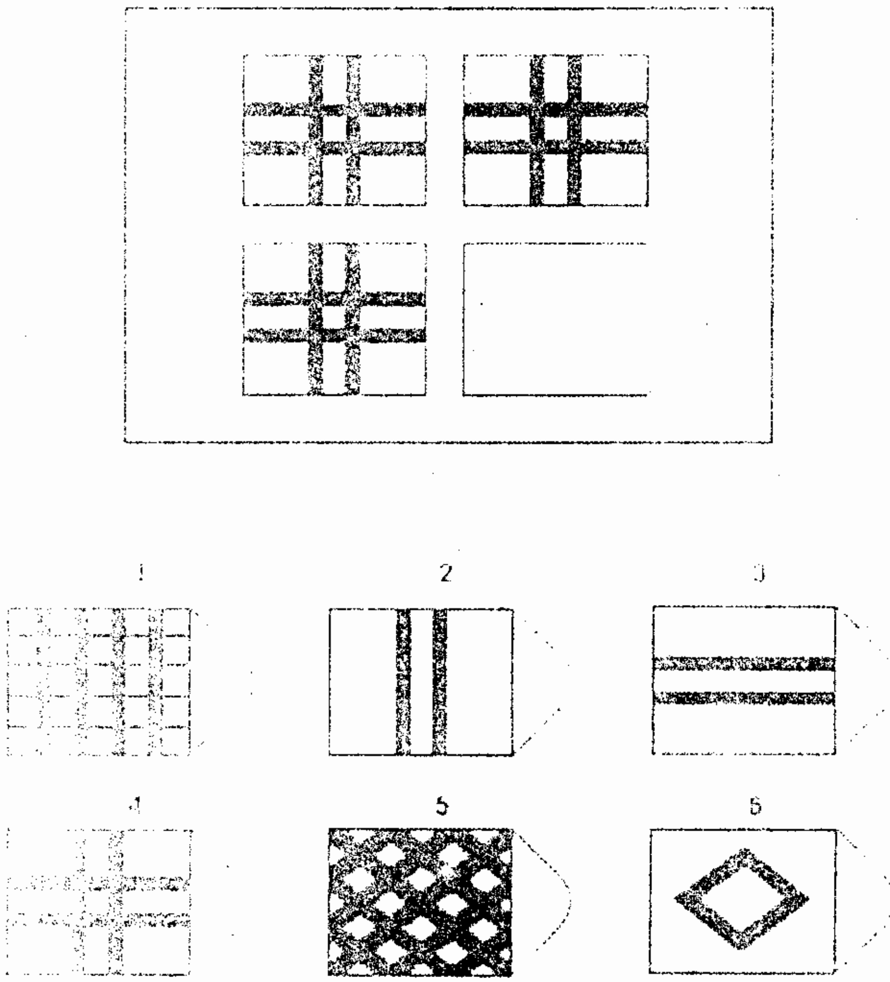

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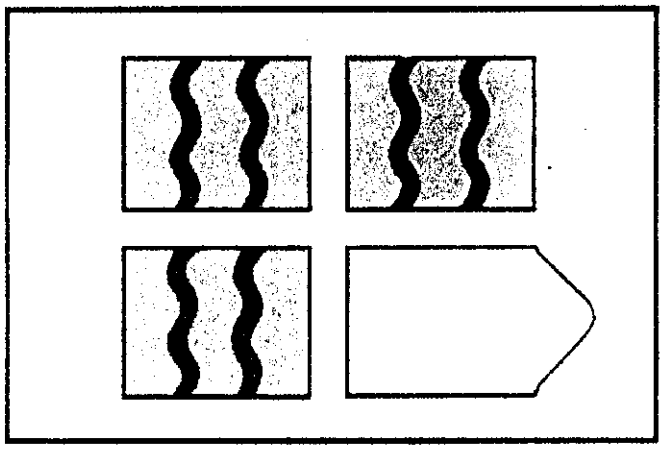

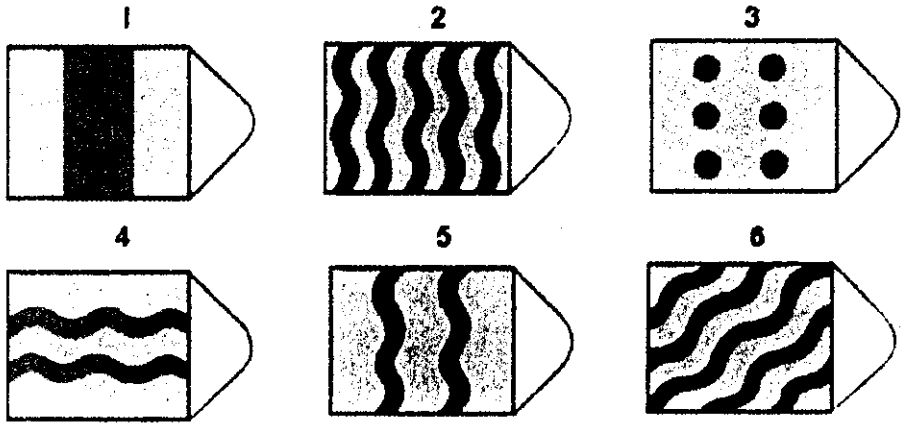

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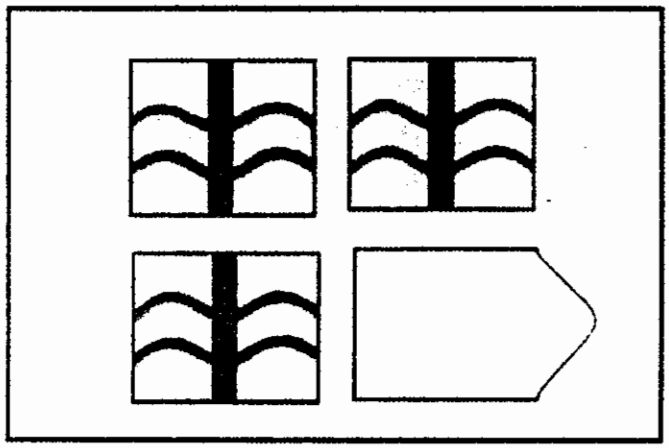
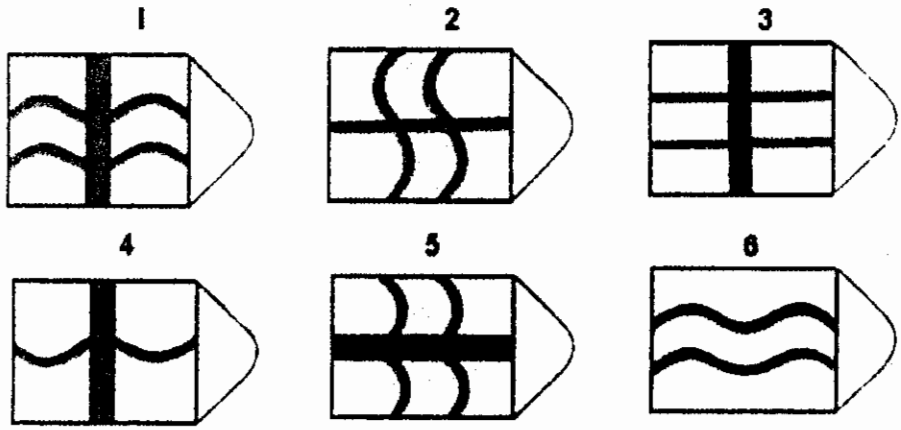
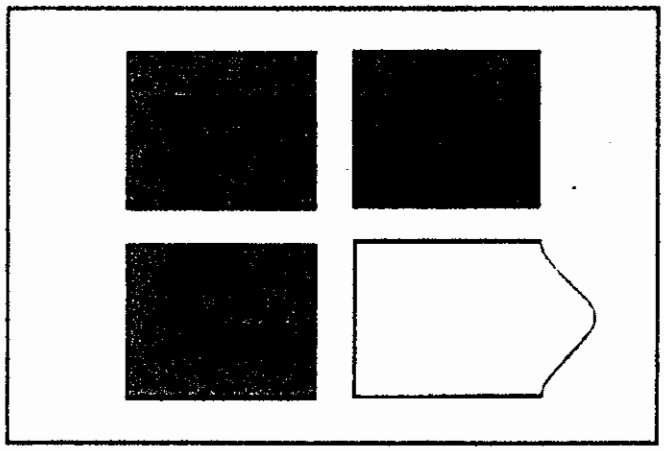
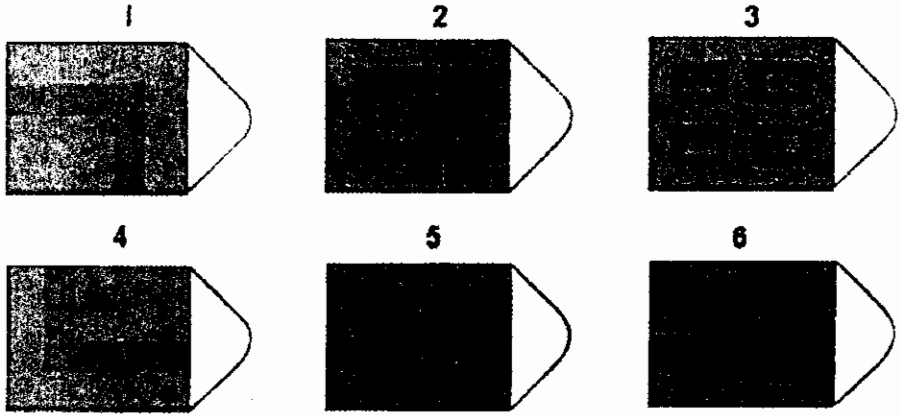


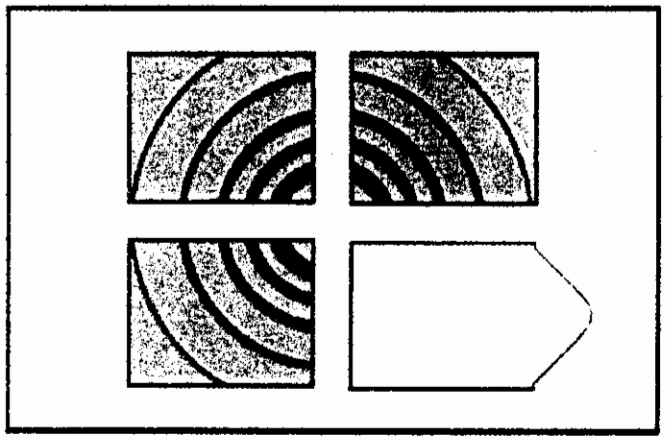


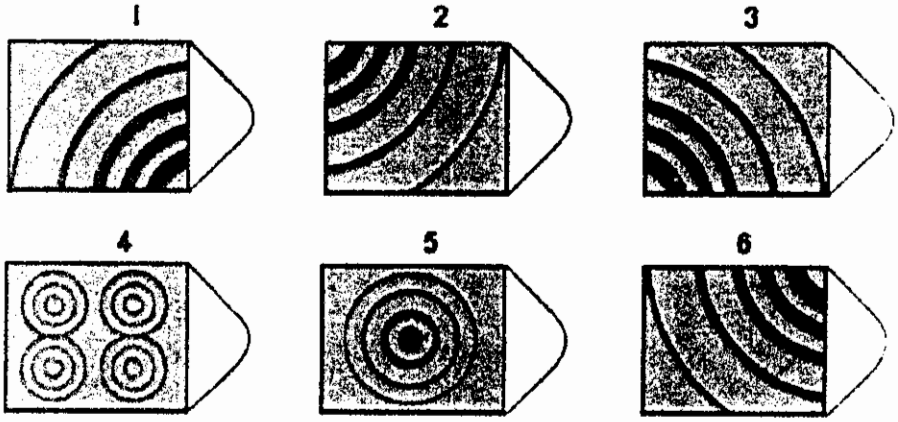
$A_B 4$



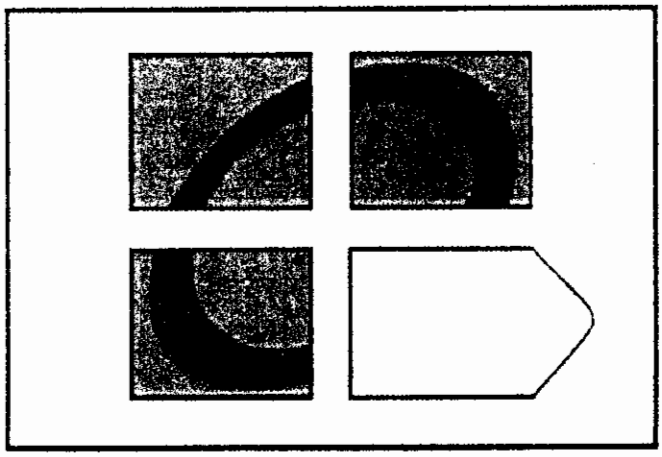


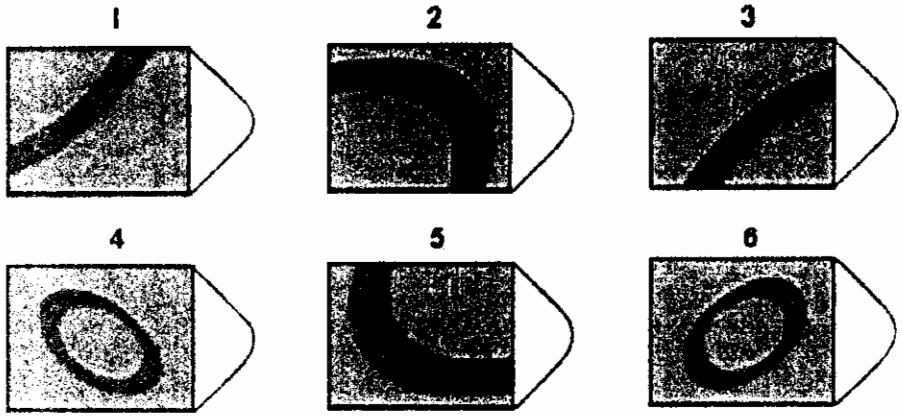
$A_B 5$



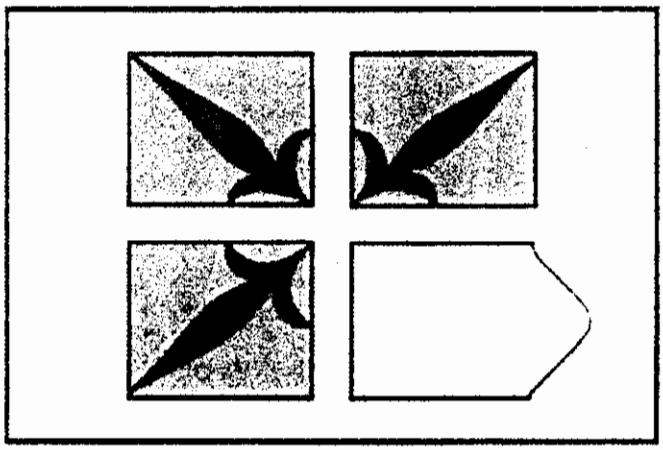


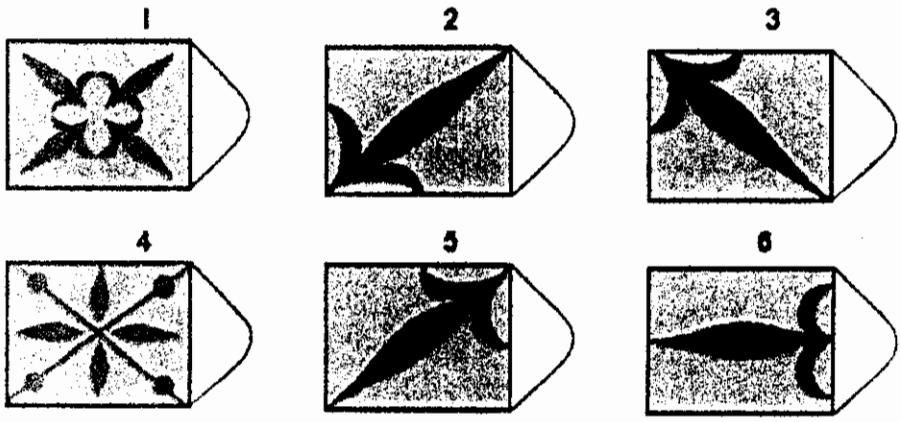
$A_B 6$



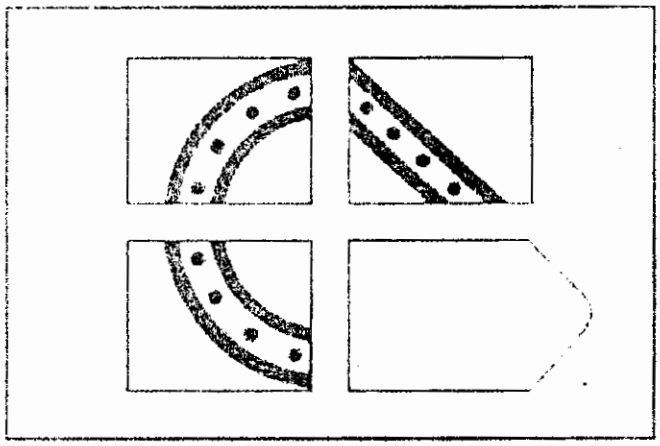


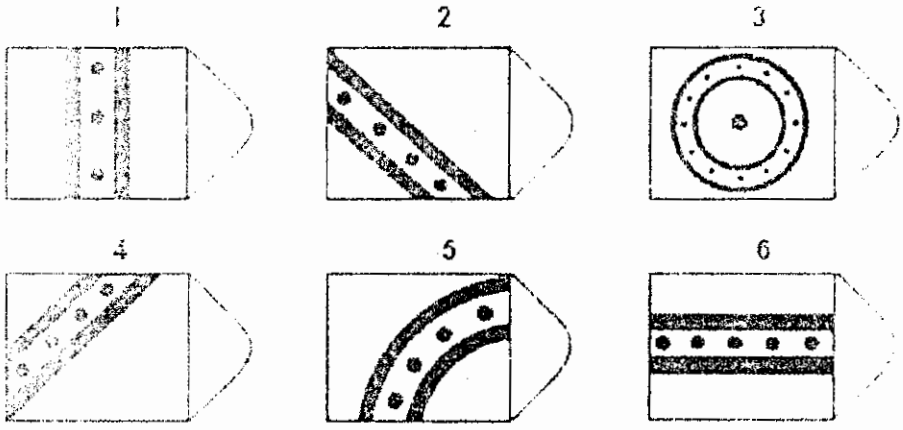
$A_B 7$



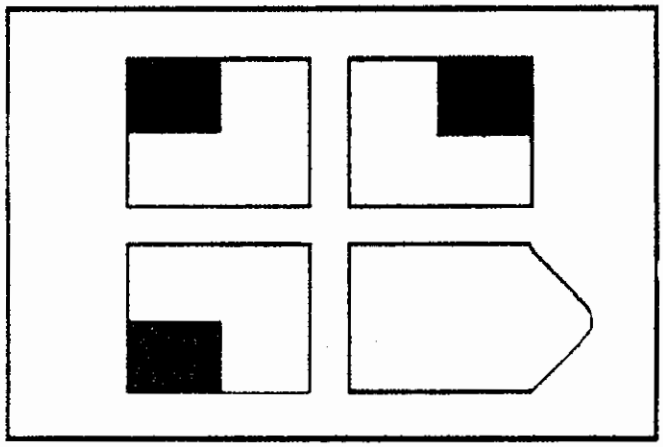


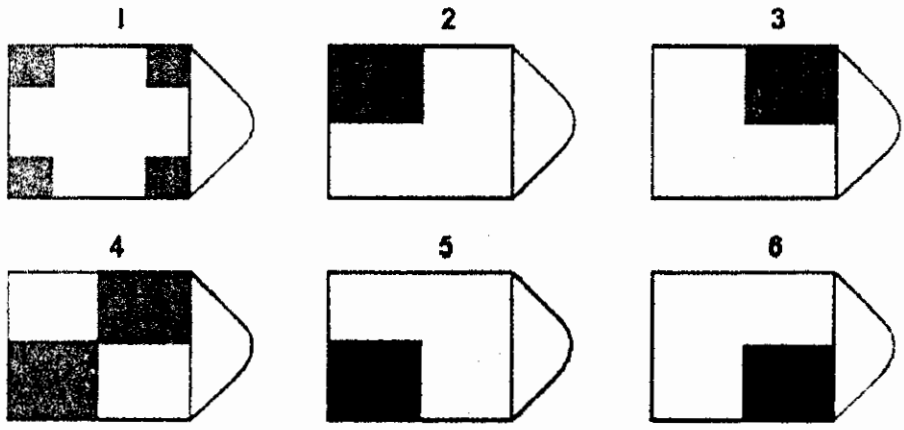
A B 8



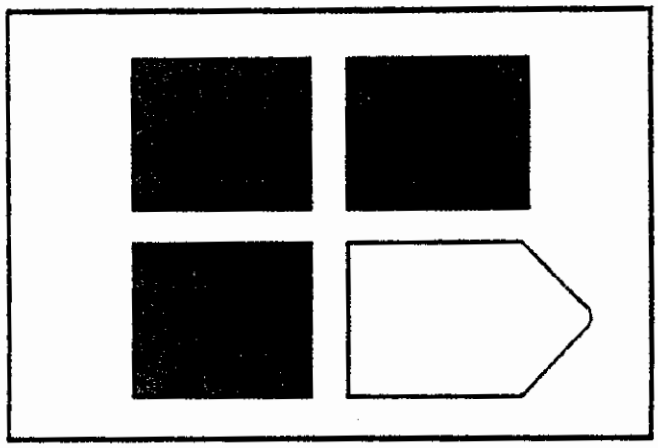


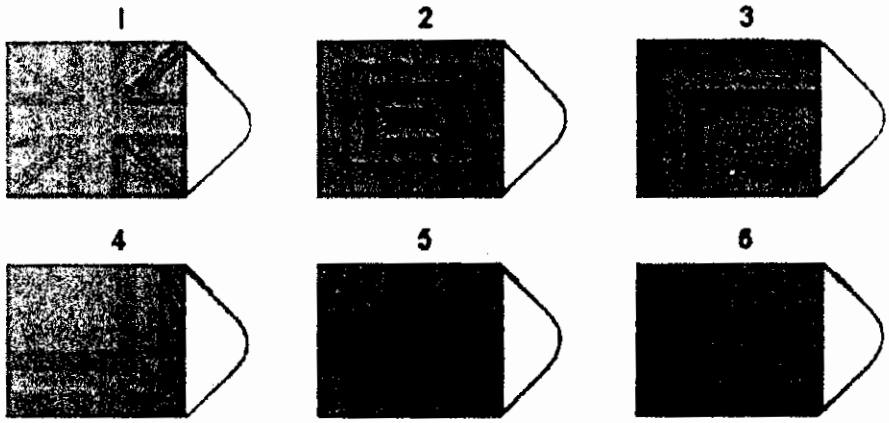
$A_B 9$

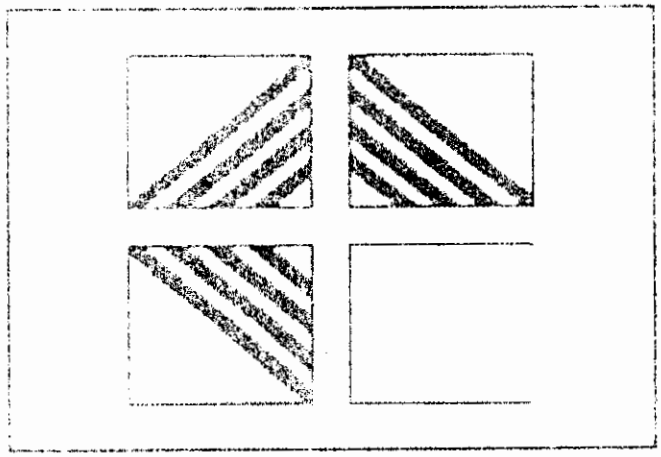


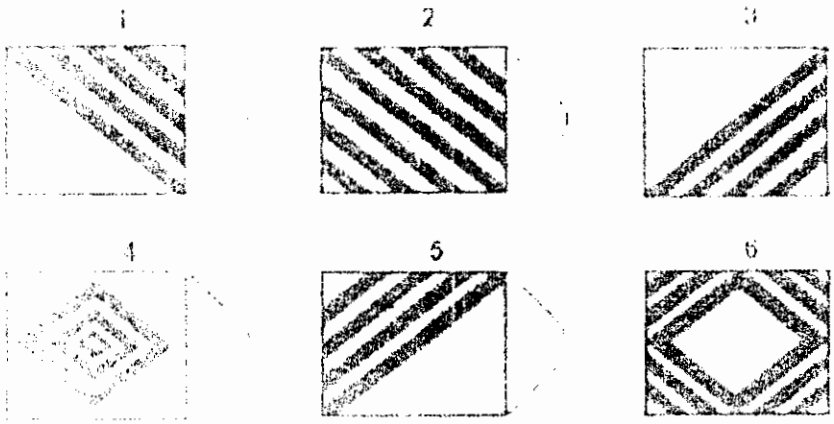


A_B 10

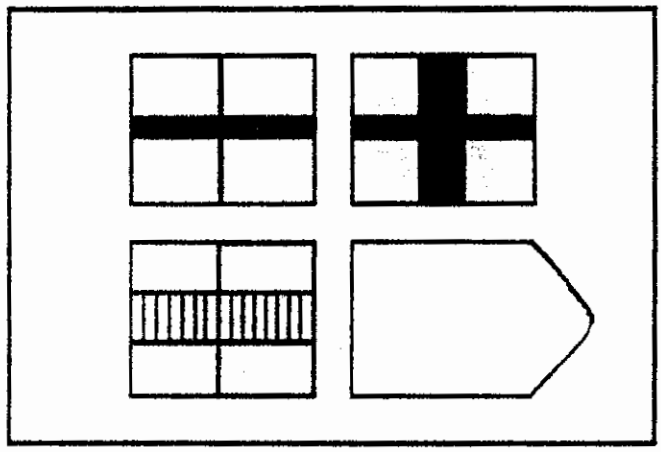


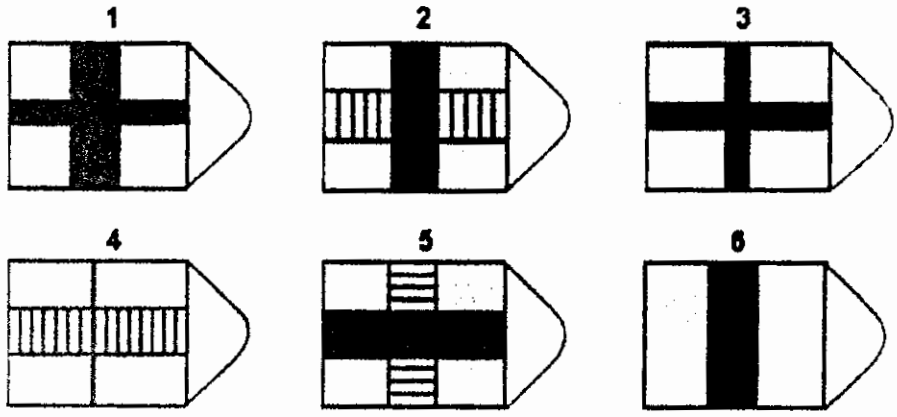





1
2
3
4
5
6

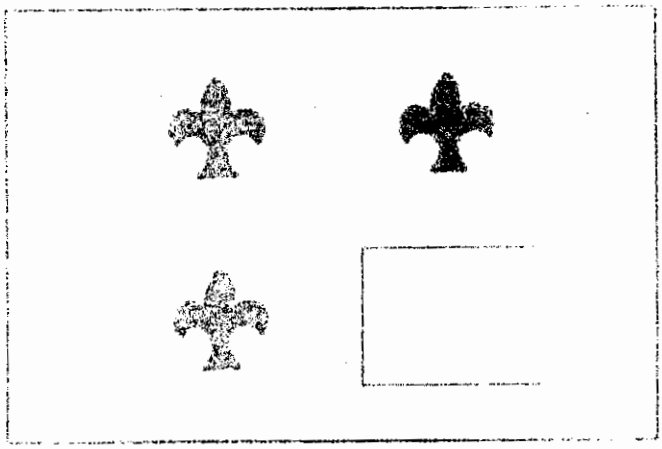
A_B 12

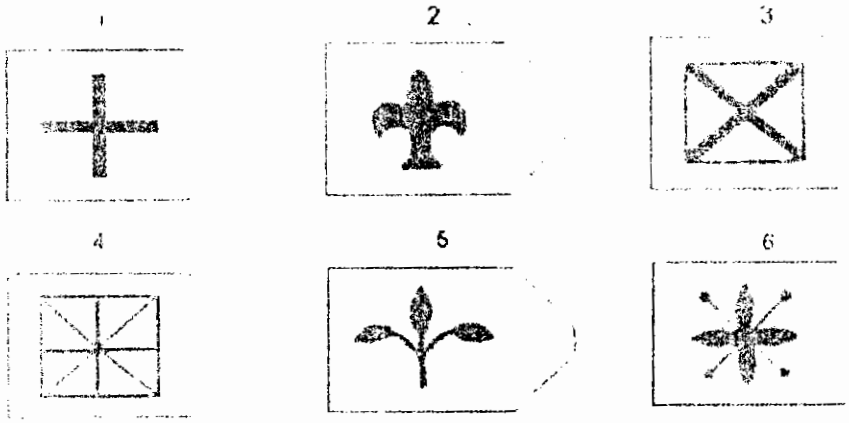




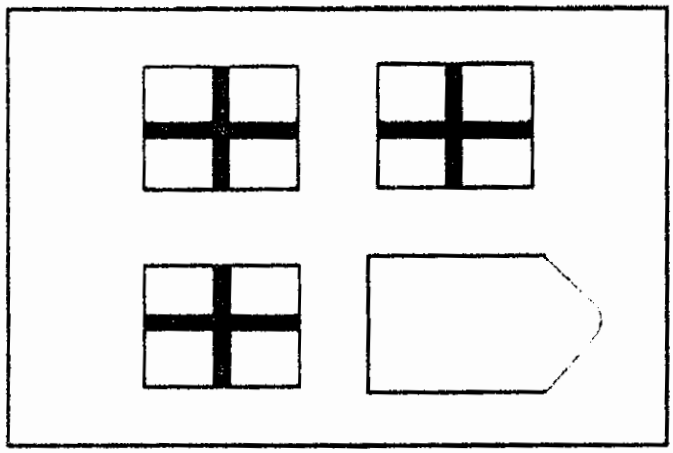
— B —

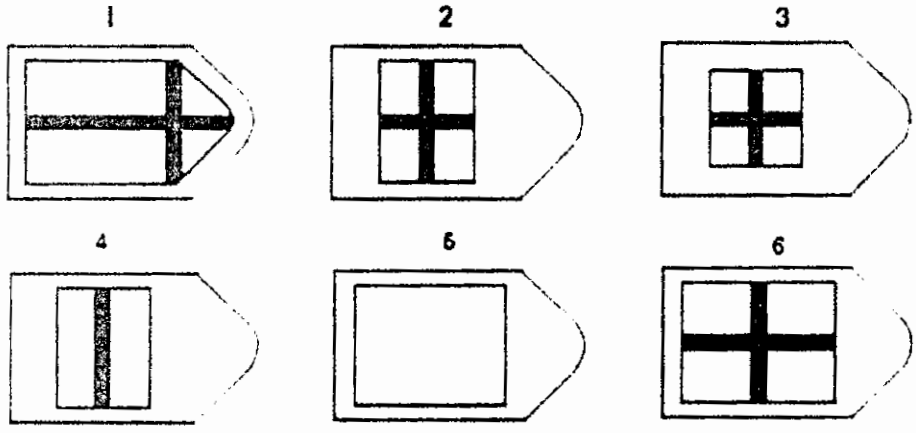
B 1



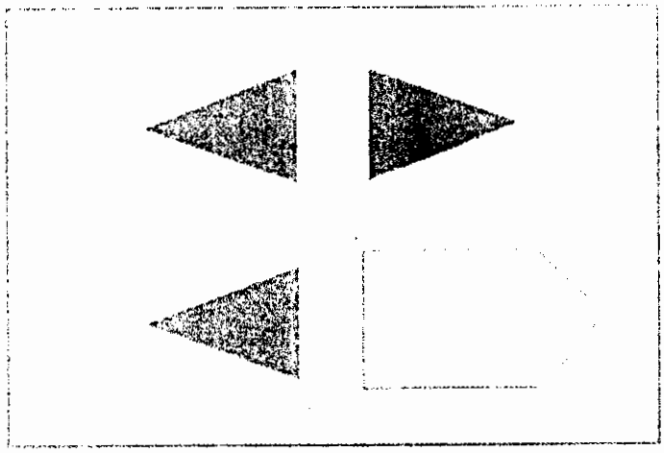


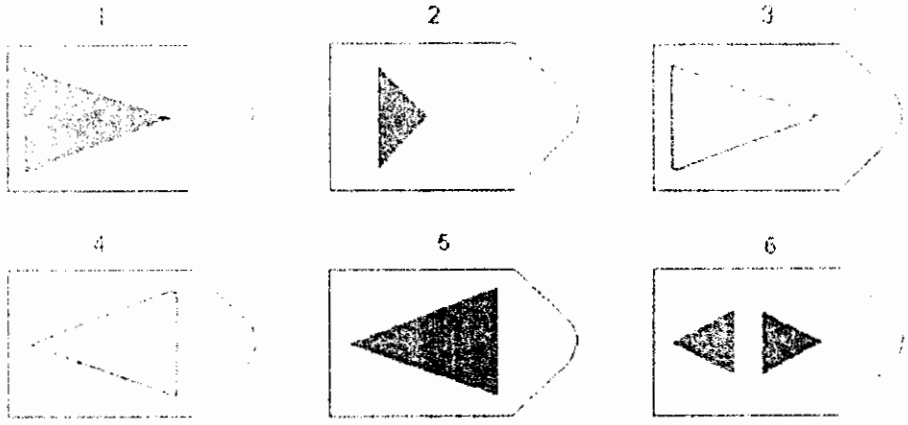
B 2



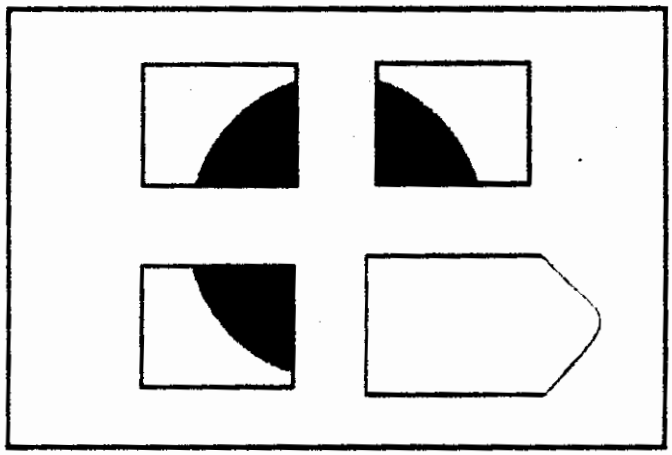


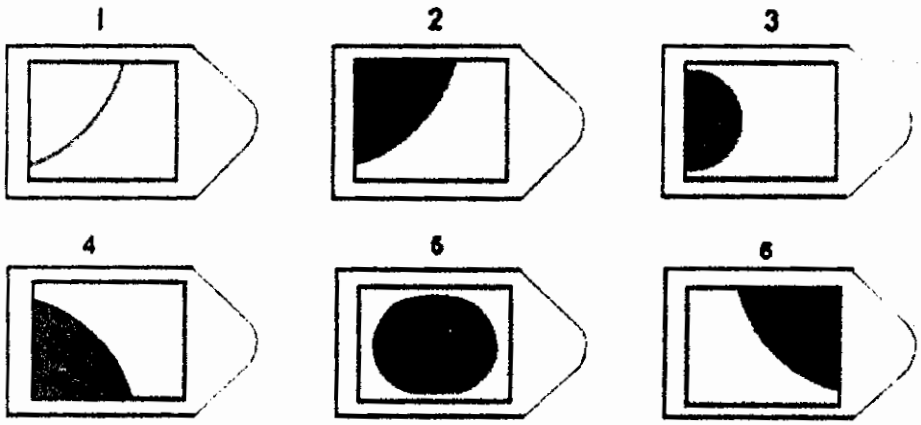
B 3



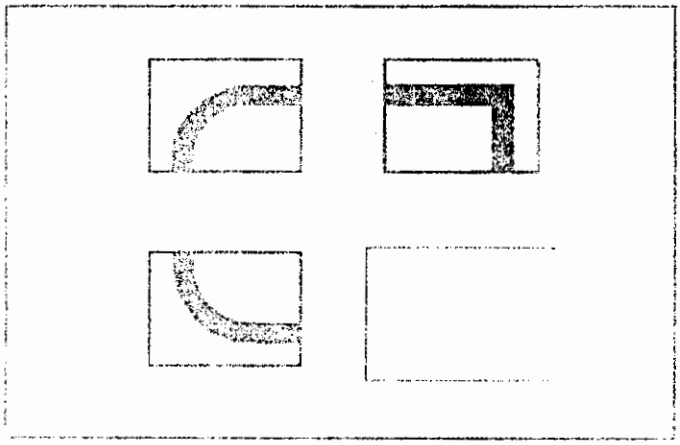


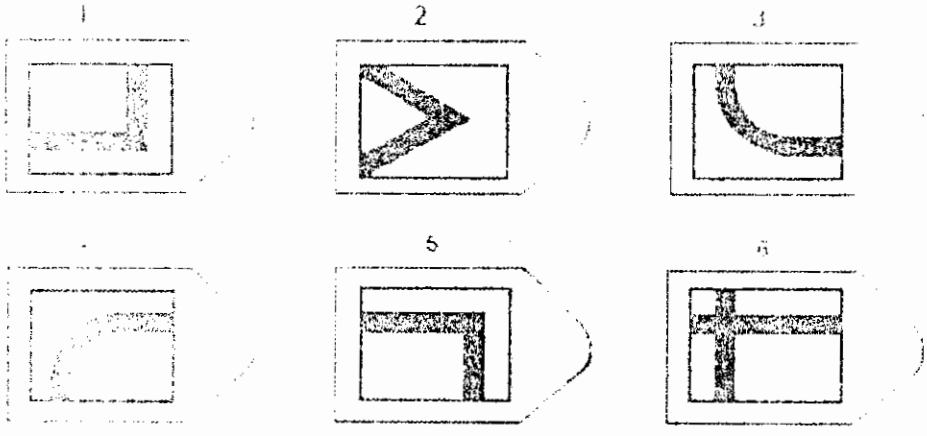
B 4



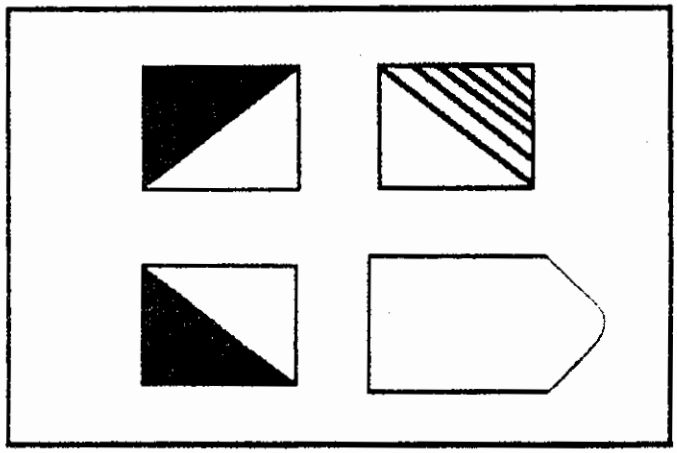


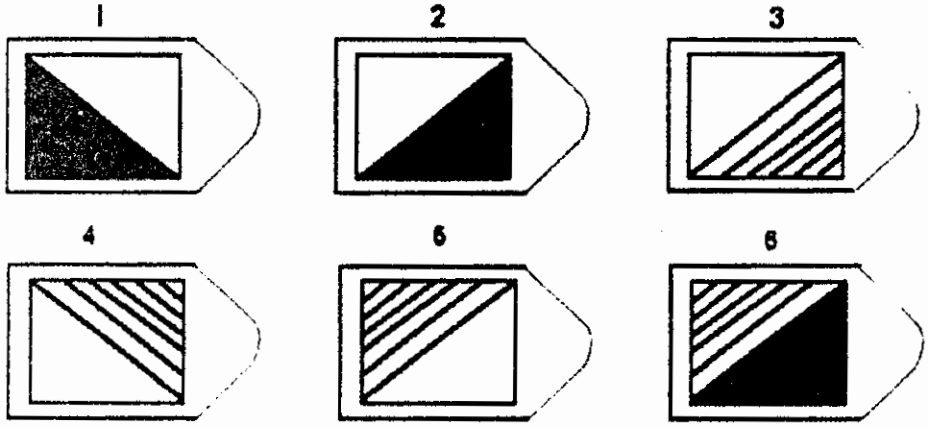
B 5



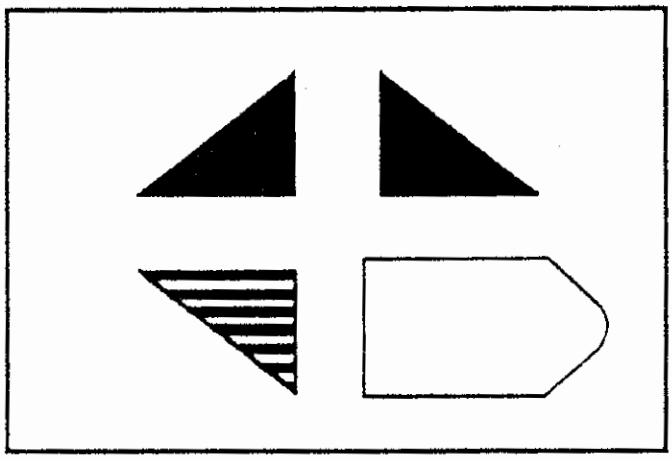


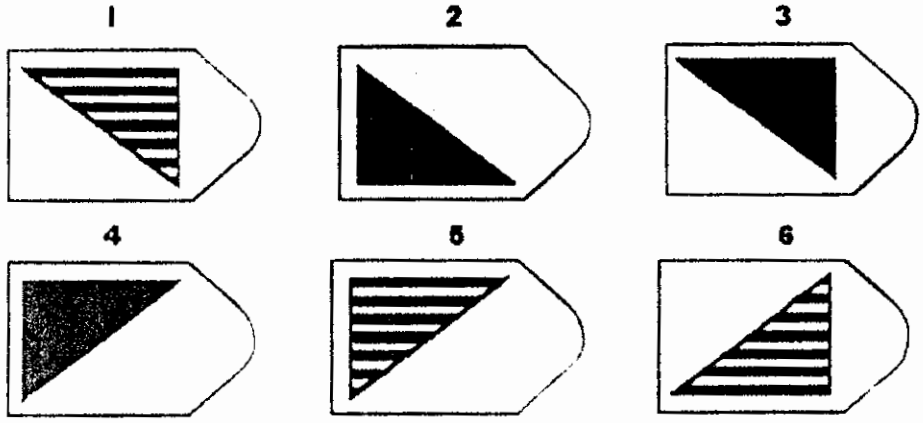
B 6



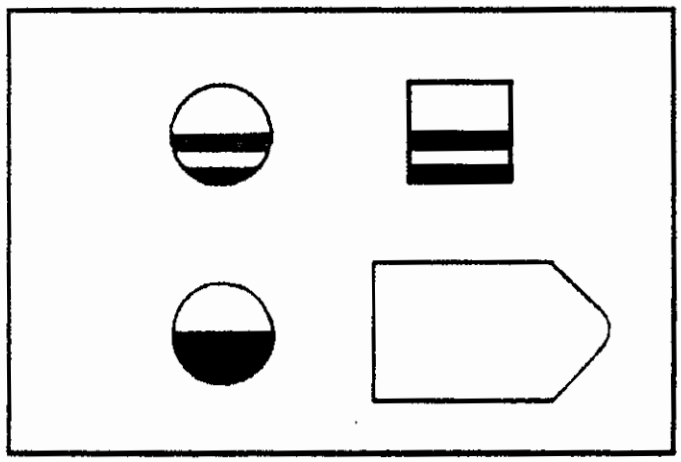


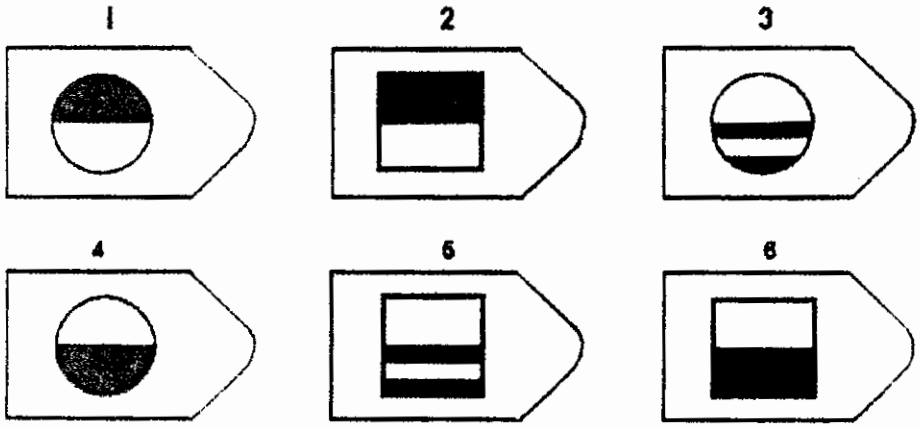
B 7



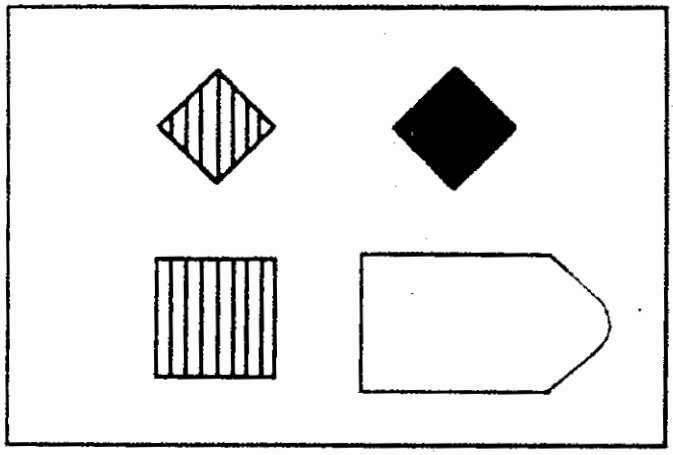


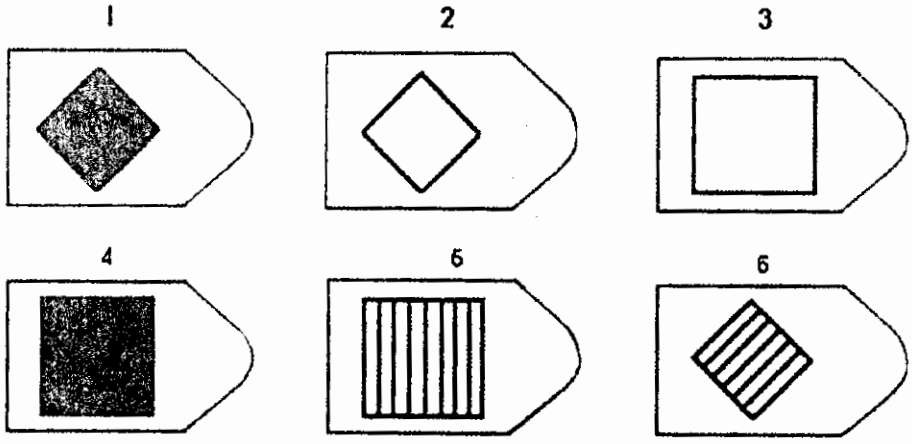
B 8



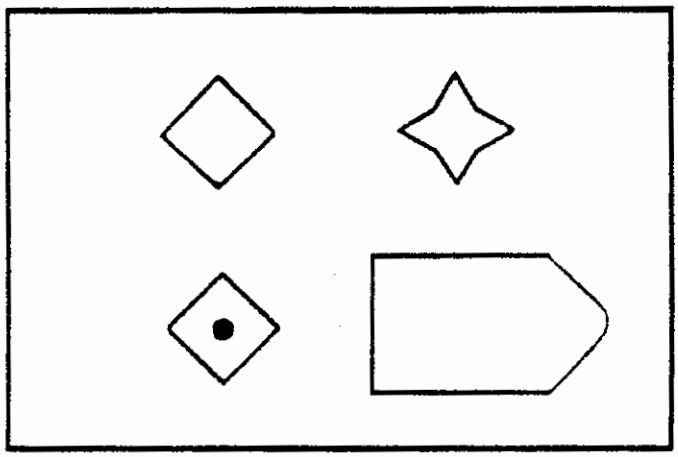


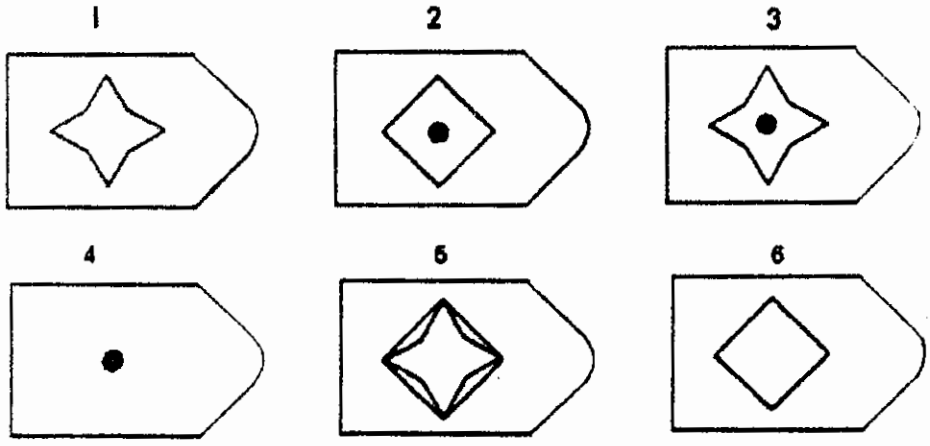
B 9





B 10





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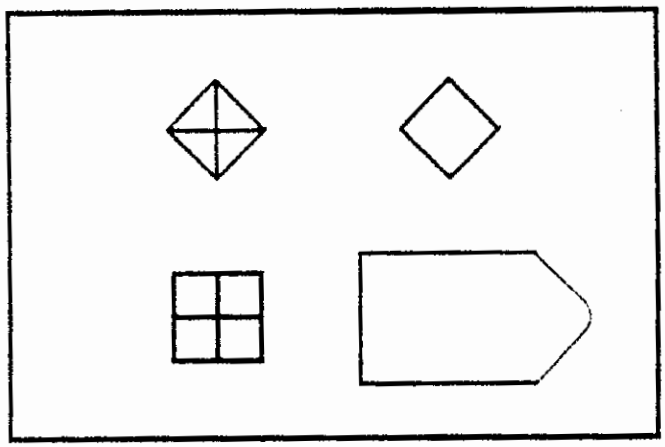
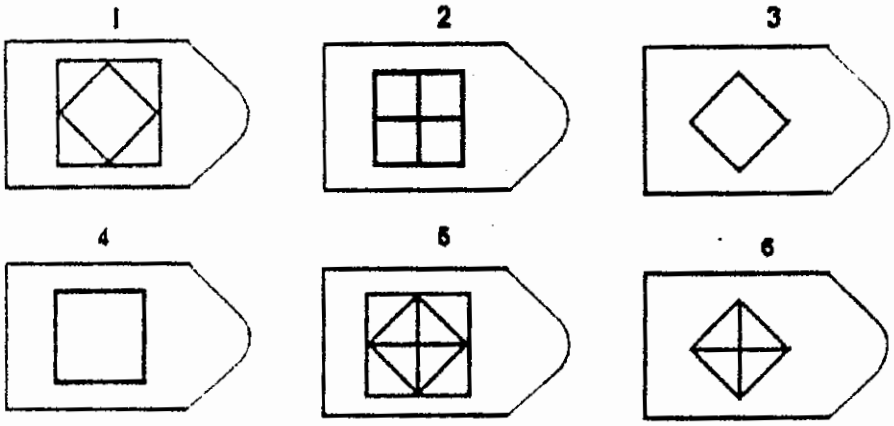
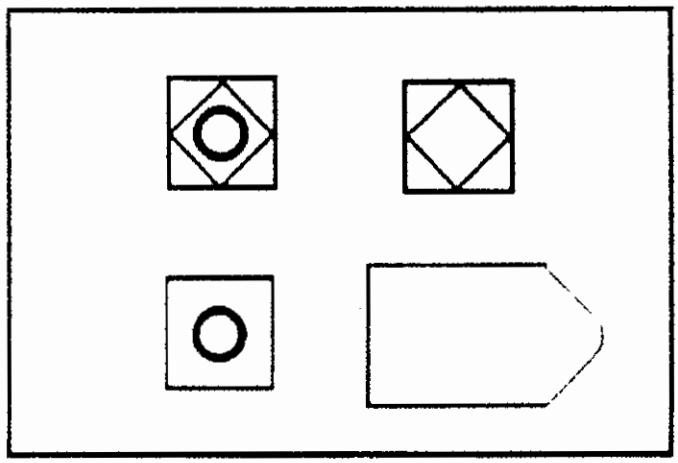
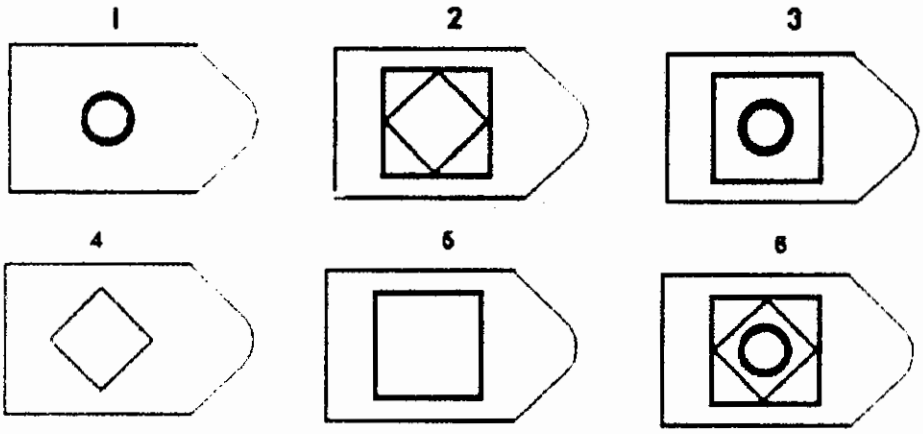




B 12





ANSWER SHEET FOR

COLOURED PROGRESSIVE MATRICES
Sets A, A_B, B

Name ..... Sex ..... Age .....

School ..... Grade .....

Test Begun ..... Test Ended ..... Total Time .....

A		A_B		B	
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	

Total Score ..... Percentile .....