

- MUNSTERBERG, E. & P.H. MUSSEN. (1953): The personality structure of art students. J. Personality, 21, 457-466.
- MURPHY, G. (1947): Personality: A Biosocial Approach to Origins and Structure. New York, Harper.
- MURPHY, G. (1958): Human Potentialities: New York, Basic Books.
- MURRAY, H.A. (1938): Explorations in Personality: A Clinical and Experimental Study of Fifty Men of College Age. New York, Oxford Press.
- MYDEN, W. (1959): Interpretation and evaluation of certain personality characteristics involved in creative production. Percept. Motor Skills, 9, 139-158.
- PAPANEK, V.J. (1964): Solving Problems creatively. Management Views, IX (Pt. 3). Selected speeches, academic year 1963-1964. U.S. Army Management School, Fort Belvoir, Va., 169-196.
- PITCHER, B., M. OLSEN & R. SOLOMON. (1962): A Study of the Prediction of Academic Success in Architectural School. (Statistical Report SR-62-19), Princeton, New Jersey, Educational Testing Service.
- RALSTON, A. & H.S. WILF. (1960): Mathematical Methods for Digital Computers. New York - London, John Wiley & Sons.
- RAZIK, T.A. (1965): Bibliography of Creativity Studies and Related Areas. Creative Education Foundation and State University of New York at Buffalo.
- RAVEN, J.C. (1947): Guide to Using Progressive Matrices (1938). London, Lewis.
- REUNING, H. (1968): Test Administrator's Manual for Continuous Letter Checking (NIPR 189), 1 Ed. Johannesburg, National Institute for Personnel Research.
- RIPPLE, J.E. & F.B. MAY. (1962): Caution in comparing creativity and IQ. Psychol. Reports, 10, 229-230.
- RIVLIN, L. (1959): Creativity and the self-attitudes and sociability of high school students. J. educ. Psychol., 50, 147-152.
- ROBERTSON, S.J. (1965): A study Investigating the Relationship between Creativity, Intelligence and School Achievement, unpubl. Master Thesis, University of the Witwatersrand, Johannesburg.

- ROE, A. (1953): A psychological study of eminent psychologists and anthropologists, and a comparison with biological and physical scientists. Psychol. Monographs, 67(?).
- ROKEACH, M. (1960): The Open and Closed Mind. New York, Basic Books.
- ROGERS, C.R. (1959a): Toward a theory of creativity. In: H.H. Anderson (Ed.), Creativity and its Cultivation. New York, Harper, 69-82.
- ROGERS, C.R. (1959b): A theory of therapy, personality and interpersonal relationships, as developed in the client-centered framework. In: S. Koch (Ed.), Psychology: A Study of a Science. Vol. III. New York, McGraw-Hill.
- ROGERS, C.R. (1962): Toward a theory of creativity. In: Parnes, S.J. and H.F. Harding, (Eds.), A Source Book for Creative Thinking. New York, Scribner's Sons. 63-72.
- ROUSE, M.J.D. (1963): A comparative study of some aspects of Lowenfeld's "haptic-visual" theory and Witkin's "field-independent, field-dependent" perceptual-style dichotomy. Paper read at National Art Education Association, Kansas, March.
- SARASON, I.G. (1959): Intellectual and personality correlates of test anxiety. J. abnorm. (soc.) Psychol., 59, 272-275.
- SCHACHTEL, E.G. (1959): Metamorphosis. New York, Basic Books.
- SCHULER, M. (1928): Man's Place in Nature. Boston, Beacon Press, 1961.
- SCHEPERS, J.M. (1969): Form Perception Test. Johannesburg, N.I.P.R.
- SCHMADEL, E. (1959): The Relationship of Creative Thinking Abilities to School Achievement, unpubl. Ph. D. Dissertation, University of California at Berkeley.
- SCHMIDT, H.E. (1969a): Research in Creativity, 1965-1968, A Bibliography and Analysis. Greensboro, N.C. The Richardson Foundation.
- SCHMIDT, H.E. (1969b): A Symmetric Designs test and its relation to creativity. Report, N.I.P.R. (August).

- SCHMIDT, H.E. (1969c): Spatial Creativity in second year architecture students. Report, N.I.F.R. (Nov.).
- SCHMIDT, H.E. (1969d): Use of the "Famous Sayings" test in South Africa. Report, N.I.P.R. (Nov.).
- SCHMIDT, H.E. (1970a): Taylor's manifest anxiety scale applied to two samples of white South African students. Psychologia Africana, 13, 215-217.
- SCHMIDT, H.E. (1970b): The relationship between academic success, creativity and motivational factors in architecture students. Psychologia Africana, 13, 209-214.
- SCHMIDT, H.E. & D.I. WILLIAMS (1969): Humor and creativity. Psychologia Africana, 13, 34-49.
- SHAPIRO, R.J. (1965): Creative Research Scientists, Ph. D. dissertation, University of the Witwatersrand.
- SHAPIRO, R.J. (1968): Creative Research Scientists. Psychologia Africana. Monograph Suppl. No. 4.
- SHMUKLER, D. (1968): Creative Factors in High School Children. M. Sc. thesis, University of the Witwatersrand, Johannesburg, South Africa.
- SIMPSON, R.M. (1922): Creative imagination. Amer. J. of Psychol., 33, 234-243.
- SPEARMAN, C.E. (1930): Creative Mind. New York, Cambridge Univ. Press.
- SPENCE, K.W. (1956): Behaviour Theory and Conditioning. New Haven, Yale University Press.
- SPIELBERGER, C.E. & W.C. KATZENMEYER. (1957): Manifest anxiety, intelligence and college grades. J. consul. Psychol., 23, 278.
- SPOTTS, J.V. & B. MACKLER. (1967): Relationships of field-dependent and field-independent cognitive styles to creative performance. Percept. & Motor Skills, 24, 239-268.
- STEIN, M.I. (1955): A transactional approach to creativity. Paper presented to the National Science Foundation Conference on Creativity, Brighton, Utah, August, 1955, (Mimeo.).

- STEIN, M.I. (1956): A transactional approach to creativity. In: G. Taylor (Ed.), The 1955 University of Utah Research Conference on the Identification of Creative Scientific Talent. Salt Lake City, Univ. Utah Press, 171-181.
- STEIN, M.I. & S.J. HEINZE (1960): Creativity and the Individual. New York, Free press of Glencoe for the Graduate School of Business, University of Chicago.
- SWART, N. (1967): Creative Thinking. (Johannesburg), South African Broadcasting Corporation.
- TAYLOR, G.W. (Ed.) (1959): The 1959 University of Utah Research Conference on the Identification of Creative Scientific Talent. Salt Lake City, Univ. Utah Press.
- TAYLOR, G.W. (Ed.) (1964a): Creativity: Progress and Potential. New York, McGraw-Hill.
- TAYLOR, G.W. (Ed.), (1964b): Widening Horizons in Creativity. New York, Wiley.
- TAYLOR, G.W. & F. BARRON (Eds.), (1963): Scientific Creativity. New York, Wiley.
- TAYLOR, D.W. (1958): Variables related to creativity and productivity among men in two research laboratories. In: G. Taylor (Ed.), The 1957 University of Utah Research Conference on the Identification of Creative Scientific Talent. Salt Lake City, Univ. Utah Press.
- TAYLOR, D.W. (1960): Thinking and creativity. Ann. N.Y. Acad. Sci., 91, 108-127.
- TAYLOR, D.W. (1961): Environment and creativity. In: Conference on the Creative Person. Berkeley, Univ. of California, Institute of Personality Assessment and Research, Ch. 8.
- TAYLOR, I.A. (1959): The Nature of the creative process. In: P. Smith (Ed.), Creativity. New York, Hastings House, 51-82.
- TAYLOR, J.A. (1953): A personality scale for manifest anxiety. J. Abnorm. (soc.) Psychol., 48, 285-290.
- TERMAN, L.M. (1956): Concept Mastery Test, Manual. New York, Psychological Corporation.

- THORNDIKE, R.L.
(1963): The measurement of creativity. Teachers' College Record, 64, 422-424.
- THORNDIKE, R.L.
(1963): Some methodological issues in the study of creativity. Proc. of 1962 Invitational Conference on Testing Problems, Princeton, E.T.S.
- TORRANCE, E.P.
(1958): Sex-role Identification and Creative Thinking. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1959a): Explorations in Creative Thinking in the Early School Years: II. An Experiment in Training and Motivation. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1959b): Explorations in Creative Thinking in the Early School Years: V. An Experimental Study of Peer Sanctions against Highly Creative Children. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1959c): Explorations in Creative Thinking in the Early School Years, VI. Highly intelligent and highly creative children in a laboratory school. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1959d): Explorations in Creative Thinking in the Early School Years: VII and VIII Talkativeness and Creative Thinking. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1959e): Explorations in Creative Thinking in the early school years: A progress report. In: C. Taylor (Ed.), The 1959 University of Utah Research Conference on the Identification of Creative Scientific Talent. Salt Lake City, Univ. Utah Press, 58-71.
- TORRANCE, E.P.
(1960a): Changing Reactions of Girls in Grades Four through Six to tasks requiring Creative Scientific Thinking. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1960b): A collection of Ideas for Developing the Creative Thinking Abilities through the Language Arts. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P.
(1960c): Educational Achievement of the Highly Intelligent and the Highly Creative: Eight partial Replications of the Getzel-Jackson Study. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.

- TORRANCE, E.P. (1960a): Social Stress in Homogeneous and Heterogeneous groups. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P. (1962): Guiding Creative Talent. Englewood Cliffs, New Jersey, Prentice-Hall.
- TORRANCE, E.P. (1963): Exploration in creative thinking in the early school years. In: C.W. Taylor and F. Barron (Eds.), Scientific Creativity: Its Recognition and Development, New York, Wiley, 173-183.
- TORRANCE, E.P., F.B. BAKER, & J.E. BOWERS. (1959): Explorations in Creative Thinking in Early School Years: IV. Manipulation of Objects and Inventiveness. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- TORRANCE, E.P., & H.J. RADIG (1958): The Ask and Guess Test: Scoring Manual and Rationale. Minneapolis, Univ. of Minnesota, Bureau of Educational Research.
- VAN LENNEP, D.J. (1962): The Personal factors of Success and Failure in a Commercial or Industrial Organization. Paper read at the annual meeting of the Nederlandse Vereniging voor Bedrijfspsychologie, April.
- VAN LENNEP, D.J. (1966a): Research on Research Workers, Part II, The fundamental categories of the appraisal form. Utrecht, Instituut voor Clinische en Industriele Psychologie der R.U.
- VAN LENNEP, D.J. (1966b): Creativity and Age. Utrecht, Instituut voor Clinische en Industriele Psychologie der R.U.
- VERNON, P.E. (1970): Creativity. Harmondsworth, Middlesex, England, Penguin Books Inc.
- WADE, S. (1968): Difference between intelligence and creativity: Some speculation on the role of environment. J. creative Behaviour, 2(2), 97-102.
- WALKUP, L.E. (1965): Creativity in science through visualization. Percept. & Motor Skills, 21, 35-41.
- WALLACH, M.A. & N. KOGAN. (1965): Modes of Thinking in Young Children. (A study of the creativity-intelligence distinction). New York, Holt, Rinehard & Winston.
- WALLAS, G. (1926): The Art of Thought. New York, Harcourt, Brace.

- WATSON, G. (1960): Some personality differences in children related to strict or permissive parental discipline., In: M. Haimowitz and N. Haimowitz (Eds.), Human Development: Selected Readings, New York, Crowell, 25-44.
- WEISBERG, P.S. & K.J. SPRINGER. (1961): Environmental factors in creative function Arch. gen. Psychiat., 5, 64-74.
- WERTHEIMER, M. (1945): Productive Thinking. New York, Harper.
- WHITE, K.P. (1965): Personality characteristics of educational leaders: a comparison of administrators and researchers. School Rev., 73, 292-300.
- WHITE, K.P. (1968): Anxiety, extraversion-introversion and divergent thinking ability. J. creative Behaviour, 2(2), 119-126.
- WINDHOLZ, G. (1968): The relation of creativity and intelligence constellations to traits of temperament, interest, and value in college students. J. gen. Psychol., 79, 291-299.
- WITKIN, H.A. (1950): The nature and importance of individual differences in perception. J. Personality, 19, 1-15.
- WITKIN, H.A., H.B. LEWIS, M. HERTZMAN, K. MACHOVER, P.B. MEISSNER, & S. WAPNER. (1954): Personality through Perception. New York, Harper.
- WITKIN, H.A. & others. (1962): Psychological Differentiation, Studies of Development, New York, Wiley & Sons.
- WOODWORTH, R.S., & H. SCHLOSBERG. (1954): Experimental Psychology. (2nd. Ed.) New York, Holt.
- YAMAMOTO, K. (1960): The Role of Creative Thinking and Intelligence in High School Achievement. Minneapolis, University of Minnesota Press.
- YAMAMOTO, K. (1961): Educational Achievement of Highly Creative Students: Threshold of Intelligence. Research Memorandum BER-61-5, December, Univ. of Minnesota, Bureau of Educational Research.
- YERKES, R.M. & J.D. DODSON. (1908): The relation of strength of stimulus to rapidity of habit-formation. J. comp. neurol. Psychol., 18, 459-482.
- ZIEF, S.M. (1966): Intelligence, creativity and anxiety among college students. Psychological Reports, 19, 420.

APPENDIX

CONTENTS

ical Questionnaire	
Faults	
ences	
cious Activity Scale	
Elements	
Symmetric Designs	
titude Scale	
s Manifest Anxiety Scale (MAS)	
a Dogmatism Scale	
a' Rating Scale	

BIOGRAPHICAL QUESTIONNAIRE

Note: All information recorded will be kept confidential.

CODE or SURNAME
NUMBER CHRISTIAN NAMES
DATE OF BIRTH
HOME LANGUAGE
RELIGIOUS AFFILIATION
MARITAL STATUS
TO-DAY'S DATE

In the table below, fill in details for your parents, brothers and sisters (including yourself), whether alive or deceased. If married, include wife/husband and children.

Indicate father by F, mother by M, brother by B, sister by S, stepbrother by SB, step-sister by SS, wife by W or husband by H, children by C and yourself by X.

Indicate deceased members by D in the Age column.

Relationship (Father, mother, etc.)	Age	Marital Status	Educational Standard at present	Present Occupation

Indicate whether parents are, or have been, divorced/separated.

(il)

2.

EDUCATION

Date of matriculating What class pass was it

At which school? Province

Write down all the subjects you passed in your last year at school, starting with your best subject and ending with the weakest one.

.....
.....

Which subject did you like most?

And which least?

Write down all the subjects you failed in your last year at school.

.....

How do (or did) you like schooling?

.....

Were, or are, you a prefect or class captain at school?

.....

Have you received any full-time or part-time military training? If so, which, and what was the highest rank you attained?

.....

.....

.....

.....

HEALTH

1. What illnesses or operations have caused you to be away from school or work for periods of more than one week?

.....
.....
.....

2. Are there things which do not agree with you, e.g. food, climatic conditions, travelling, etc.?

.....
.....
.....

3. Are you aware of any physical disabilities? Give details:

.....
.....
.....

4. Do you suffer from any fears or phobias? Give details of the form these fears take:

.....
.....
.....
.....

5. Give details of any accidents you have been involved in. (Include accidents at home, at work, during sport, traffic accidents, and accidents which caused no injury):

.....
.....
.....
.....

6. If you, or any member of your family, is in poor health, give details.

.....
.....

7. If your parents were divorced or separated, what was your age when this occurred?

.....

8. If either or both of your parents re-married, how old were you at the time?

Mother Father

9. If you were brought up by someone other than your parents, give details.

.....
.....

10. Can you remember any particularly unpleasant experience which you underwent in your youth? If so, describe.

.....
.....
.....

INTERESTS

Write a list of ALL the subjects that interest you (practical hobbies as well as all theoretical interests, etc.)

.....
.....
.....
.....
.....

Below are a number of sports and physical activities. In the brackets behind each, write:

- 0 - if you never participate in it;
- 1 - if you participate from time to time;
- 2 - if you now participate regularly.

Cycling	()	Soccer	()	Tennis	()
Riding	()	Cricket	()	Hockey	()
Mountain-climbing	()	Badminton	()	Squash	()
Walking	()	Motor-racing	()	Rugby	()
Athletics	()	Baseball	()	Jukskei gooi	()
Swimming	()	Physical training	()	Ice-skating	()
Shooting	()	Golf	()	Other	()

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. A vertical margin line is positioned on the right side of the page. The paper appears slightly aged or off-white. There are some faint smudges and marks on the surface, particularly near the top center and bottom right. The overall appearance is that of a clean but used piece of stationery.

.....

.....

.....

.....

[illegible]

Below are listed 12 possible reasons for choosing a career. Encircle for each item A, B or C to indicate how important that item would be for you in selecting a particular occupation. Use the following code:

- A - Very important
- B - Somewhat important
- C - Not important

I should like to enter a career which will:

- | | |
|-------|---|
| A B C | Allow me to use my best abilities and aptitudes |
| A B C | Provide me the chance to earn a great deal of money |
| A B C | Permit me to be original and creative |
| A B C | Give me social status and prestige |
| A B C | Enable me to work with ideas and theories |
| A B C | Allow me to be physically active |
| A B C | Assure me a stable and secure future |
| A B C | Enable me to work with people rather than things |
| A B C | Leave me free from supervision by others |
| A B C | Give me a chance to exercise leadership |
| A B C | Provide me with adventure and excitement |
| A B C | Give me an opportunity to be helpful to others |

Now go back and rank in order of their importance to you those items which you have marked "A" (very important). Put the figure 1 in the left-hand margin opposite the item which is most important to you; place a 2 in front of the next most important; a 3 for the next most important, etc.

Read the following four statements carefully then indicate by circling the relevant number in front of the ONE statement, which you honestly believe is most true of yourself. Compare yourself in each case to your colleague and friends.

1. I believe that I have better than average intellectual qualities as well as average creative ability or imaginativeness.
2. I believe that I have average intellectual qualities, but that I am highly creative or imaginative.
3. I believe that I have better than average intellectual qualities, as well as a high degree of creativity or imaginativeness.
4. I believe that I have average intellectual qualities, as well as average creative ability.

NAME: DATE:

SEEING FAULTS

A solution to a problem often appears to be perfect, until somebody points out the weaknesses or faults in the solution

Example:

The driver of a motor car notices that part of a railway track next to the road is damaged. He realizes that this part of the track will not be seen by the train driver until the last moment because it is on a sharp bend. Just then he sees a train approaching from a distance. He quickly decides to warn the train driver. He jumps into his car and races towards the oncoming train. He parks his car at a spot a few hundred feet from the damaged section, and close to the track. His plan is to hoot as loudly as possible when the train gets nearer, so that the driver will hear him and brake before reaching the damaged section. What is wrong with this plan?

Answers:

1. The train driver might not hear the hooter above the sound of the train.
2. The train driver might think that the motorist is merely greeting him by sounding his hooter.
3. The train driver might not be able to stop before reaching the damaged section even if he brakes (i.e. the motorist miscalculated the required braking distance of the train).

Of course there are many other things that could go wrong with the plan. Some of the faults are obvious and others are not so obvious.

Three other situations will be described in which a person develops what appears to be a perfect solution to a problem. You will have five minutes to write down all the faults or weaknesses in each plan. Use your imagination. Your score depends on the number of faults you find.

- N.B.
- (i) Do not suggest alternative solutions (better plans). Just point out the faults in the plan made in each situation.
 - (ii) Accept the facts stated in each situation as true i.e., do not contradict a fact. For the above example, it would be incorrect to say "Maybe the man did not park close to the track".
 - (iii) While you should use your imagination, do not give impossible or facetious answers. For example, it would be incorrect to say: "The train driver is really an evil spirit in disguise who wants to have an accident."

Are there any questions?

DO NOT TURN OVER UNTIL TOLD TO DO SO

- Write down all the possible faults in this plan i.e. all the things which might prevent the mouse being destroyed. You have 5 minutes.

This image shows a full page of dot grid paper. The dots are arranged in a precise, repeating grid pattern across the entire surface. There are no margins, text, or other markings present on the page.

DO NOT TURN OVER UNTIL TOLD TO DO SO

- Write down all the possible faults in this plan i.e. all might prevent his solution from being effective. You h

Write down all the possible faults in this plan i.e. all might prevent his solution from being effective. You h

DO NOT TURN OVER UNTIL TOLD TO

- Write down all the possible faults in this plan i.e. all the things which might prevent the money from remaining safe. You have 5 minutes.

[illegible]

(xiii)

NAME: DATE:

CONSEQUENCES TEST

This is a test of your ability to think of a number of imaginative ideas in connection with a new and unusual situation.

Here is a sample item

SAMPLE ITEM

What would be the results if the human race suddenly went blind?

SAMPLE RESULTS

- a) No need for glasses
- b) Confusion

Of course there are many more possible results that could have been written.

In this test there will be three different situations, somewhat like the one above, each on a separate page.

You will be allowed five minutes for each page to write down other possible results. Write as many different consequences or possible results for each situation as you can.

Your answers need not be complete sentences. Do not repeat yourself, as duplications or similar answers will not be counted. Your score will depend on the cleverness and the originality of your answers.

STOP HERE

WAIT FOR FURTHER INSTRUCTIONS

LIST AS MANY DIFFERENT CONSEQUENCES AS YOU CAN IN 5 MINUTES

What would be the results if the sun never rose again?

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS

LIST AS MANY DIFFERENT CONSEQUENCES AS YOU CAN IN 5 MINUTES

What would be the results if people could read each other's minds?

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS

LIST AS MANY DIFFERENT CONSEQUENCES AS YOU CAN IN 5 MINUTES

What would be the results if all animals could suddenly speak and understand human languages?

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS.

(xvii)

T

F

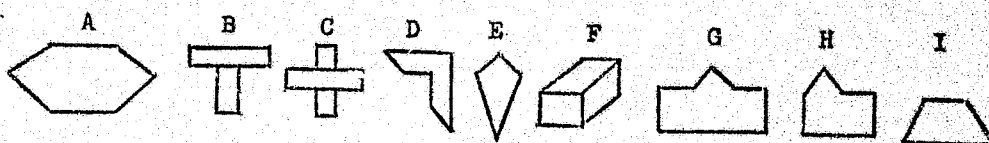
1. I would rather be a senator than a philosopher.
2. I would rather be an efficiency expert than a musician.
3. I would rather be a research engineer than an industrial engineer.
4. In writing a report or paper, I find the searching for ideas the most distasteful process.
5. I rarely come up with novel ideas.
6. I would rather be a business promoter than a psychologist.
7. I would rather be an engineer than an artist.
8. I am occasionally taken in by new books and ideas.
9. I often daydream about unsolved problems.
10. I enjoy daydreaming about future projects, activities or problems.
11. I would rather be a research scientist than a scientific administrator.
12. I get my best ideas by daydreaming rather than relying on books, well-established authorities, or other people.
13. If I had the talent, I would enjoy being a composer.
14. I would rather edit than write a book.
15. I would rather be a leader than an inventor.
16. I often try to be alone so I can think things through.
17. I am regarded as a person of many ideas.
18. I would prefer living a life like that of Edison rather than that of Freud.
19. Daydreaming is a poor way to solve problems.
20. I am interested in psychology and psychiatry.
21. I would rather be an influential public figure than a creative artist.
22. I am quiet rather than an expressive person.
23. I prefer teachers who give well-organized courses and clear assignments to those who require independent reports and papers.
24. I have to learn things in my own way rather than accepting ideas or relationships suggested in textbooks, etc.
25. The way to solve difficult problems is by thorough planning and good organization of your time.
26. I often make judgments by my first impressions and feelings rather than by a careful thinking through of a situation.
27. I would like to be an inventor.
28. I solve intellectual problems by careful, logical thinking.
29. I would rather be an experimental than a clinical psychologist.
30. If I had the necessary talent, I would enjoy being a sculptor.
31. I enjoy problems for which you can obtain precise answers.
32. I would rather be a writer than a banker.
33. I think I am a practical rather than an imaginative person.
34. My friends think of me as an objective rather than an emotional or expressive person.
35. I begin projects by daydreaming about how they might be done.
36. My friends regard me as somewhat absent-minded.
37. I am more of a realist than an idealist.
38. I often act without thinking.

COMMON ELEMENTS TEST

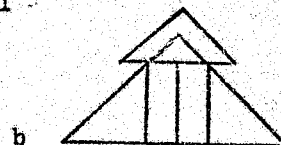
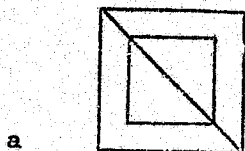
This test contains nine simple figures called elements, marked A to I at the top of each page. Pairs of more complex figures appear below them. Each pair of the complex figures will contain at least one of the elements. The contained elements will be geometrically similar to those at the top of each page. In other words, they will be of the same shape, but need not be of the same size, and can be rotated to orientations different from those at the top of the page.

You are to try to establish which of the simple elements is contained in each pair of complex figures, in other words which of the simple elements are common to both of the complex figures. When you have decided which element(s) is (are) the common one(s), fill in the answer space at the appropriate letter(s) (A, B, C etc.) on your separate answer sheet, next to the number of the complex figure pair on which you are working.

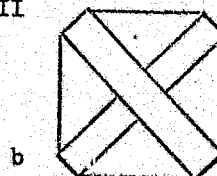
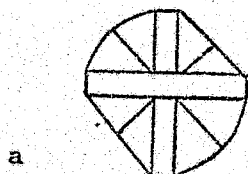
Here are two examples:



Example I



Example II



I.

II.

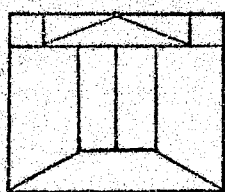
As you can see element D is contained in the first example. You should therefore fill in the space under letter D, next to number I.

Elements B and C are contained in Example II. You will therefore fill in the space under letters B and C, next to number II.

Are there any questions?

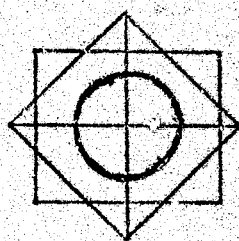
DO NOT TURN UNTIL YOU ARE TOLD TO DO SO.

(xix)

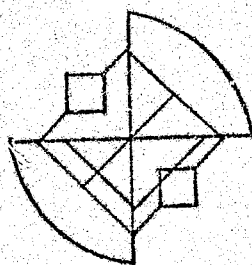


a

1

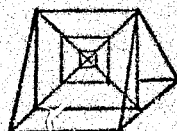


b

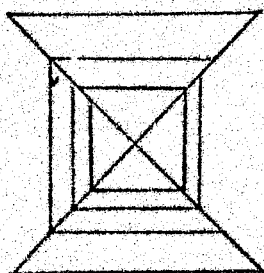


a

2

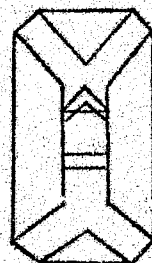


b

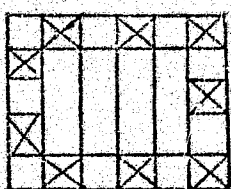
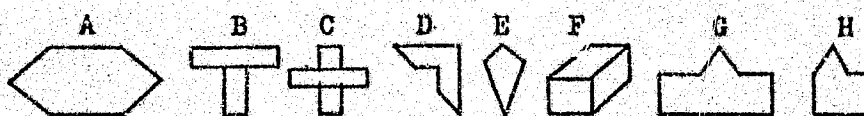


a

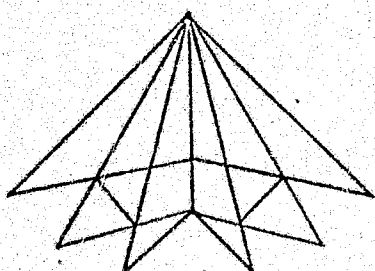
3



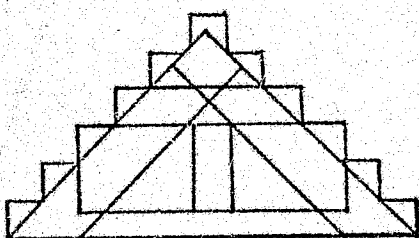
b



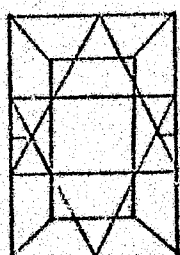
a



a

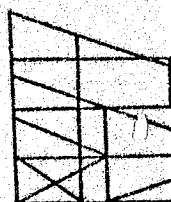


a



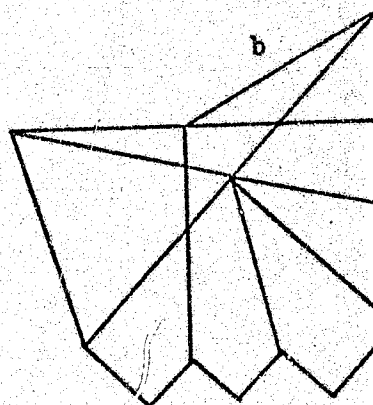
a

4



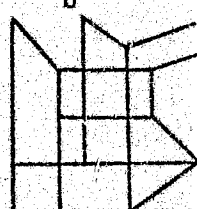
b

5



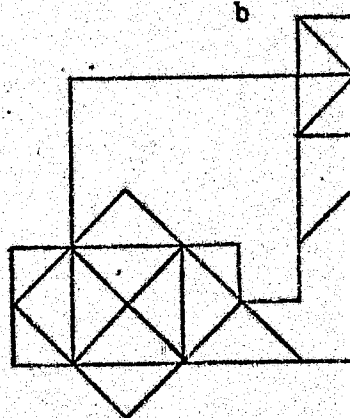
b

6



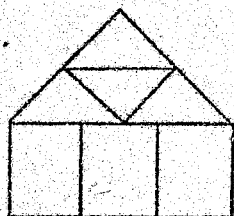
b

7



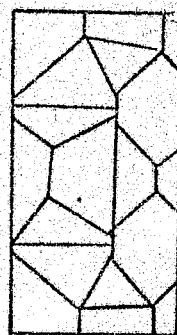
b

(xxi)

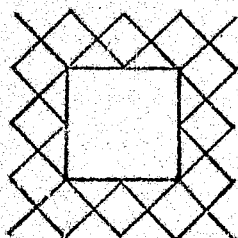


a

8

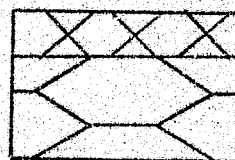


b

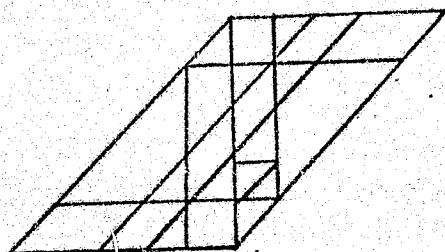


a

9

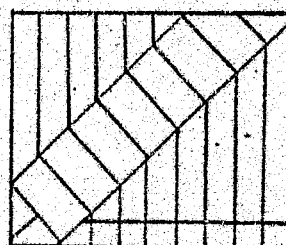


b

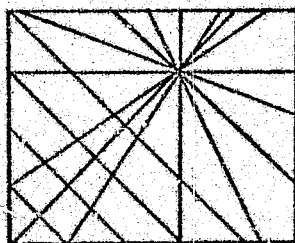


a

10

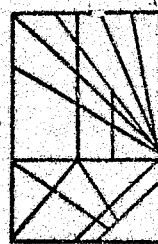


b



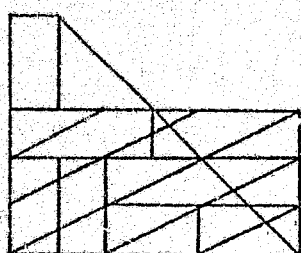
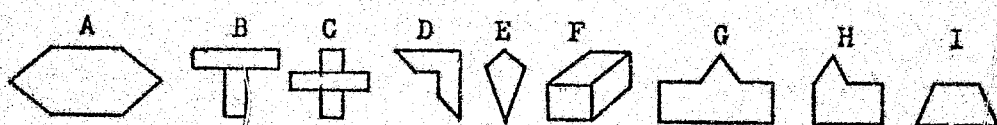
a

11



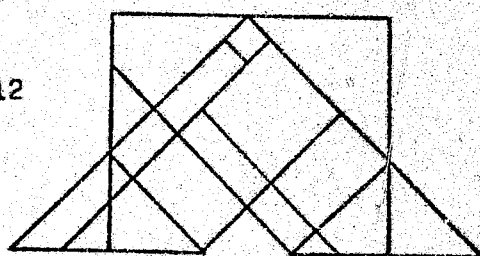
b

(xxii)

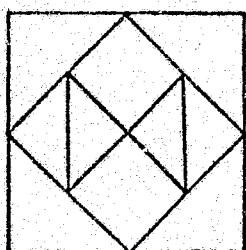


a

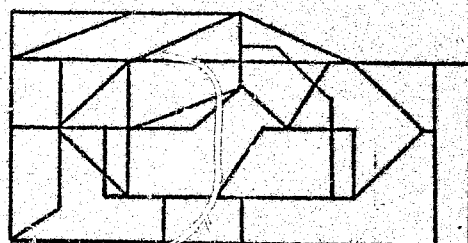
12



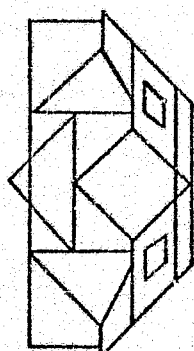
b



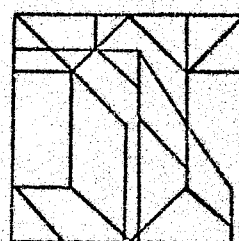
13



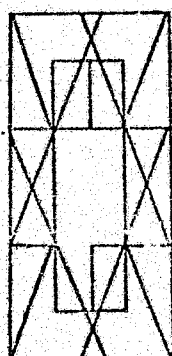
b



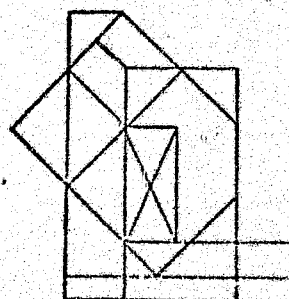
14



b

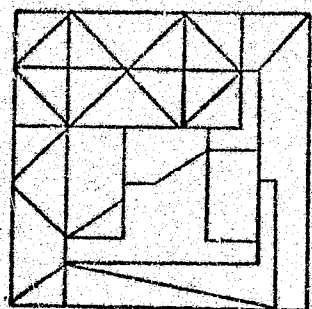
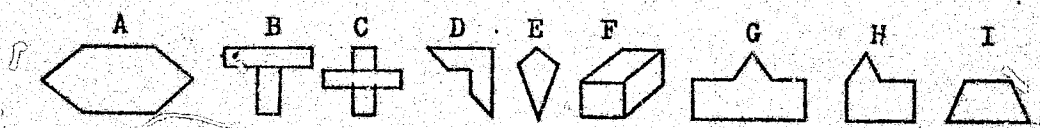


15

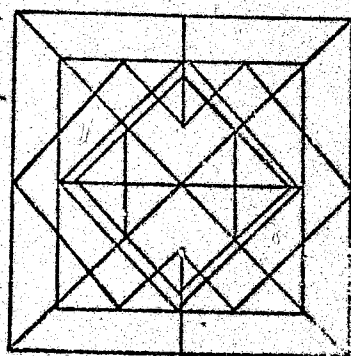


b

(xxiii)

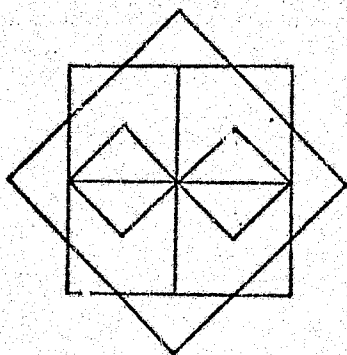


a

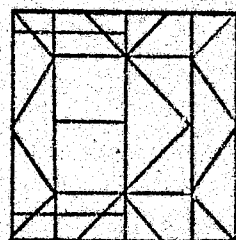


b

16

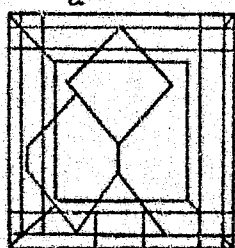


a

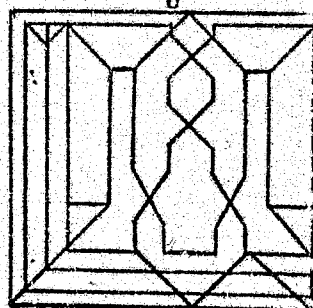


b

17

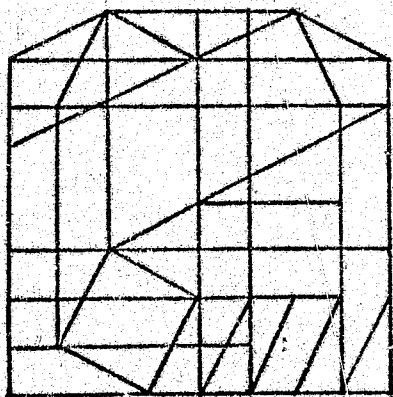


a

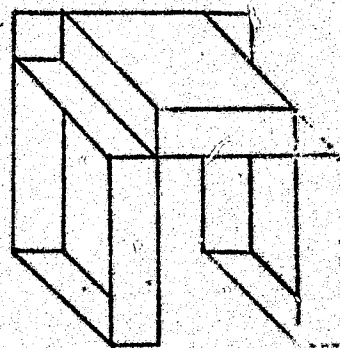


b

18



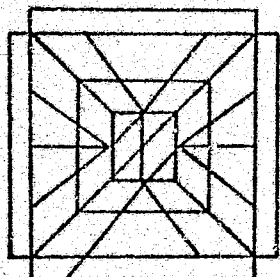
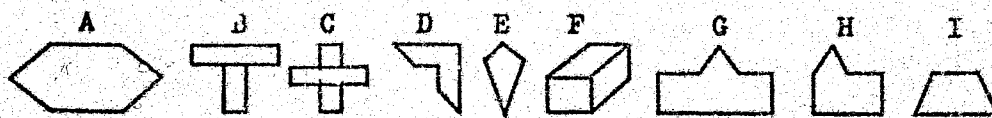
a



b

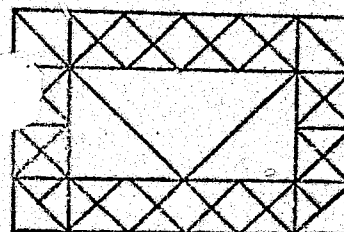
19

(xxiv)

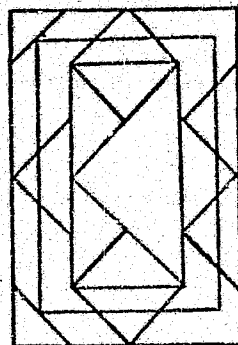


a

20

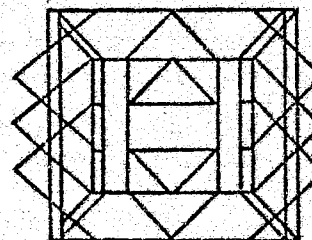


b

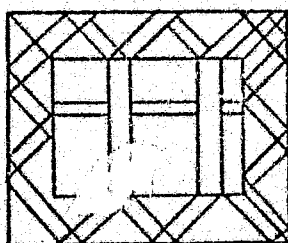


a

21

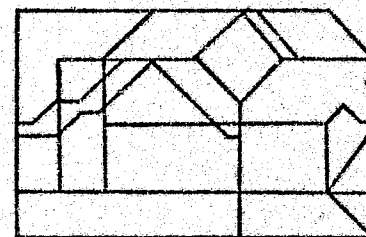


b

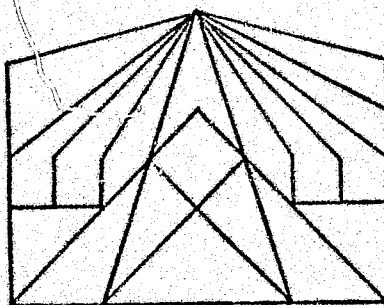


a

22

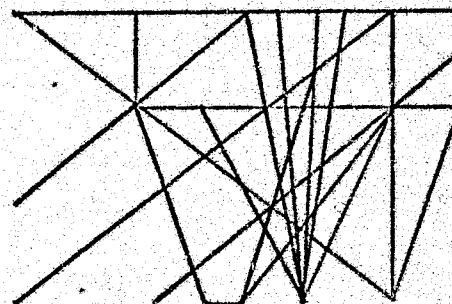


b



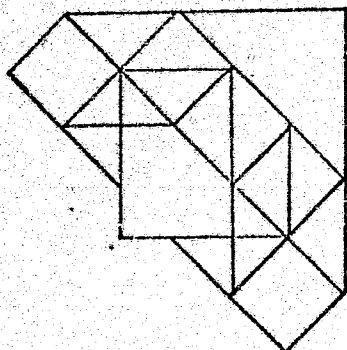
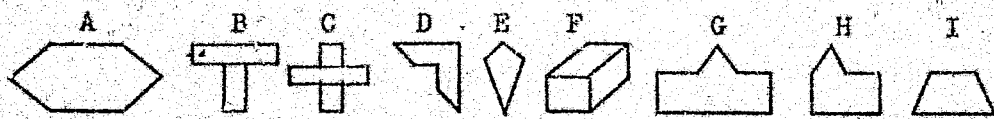
a

23



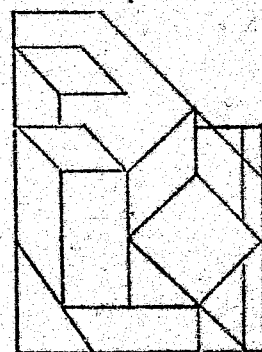
b

(xxv)

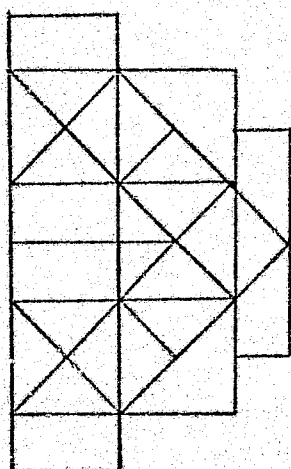


a

24

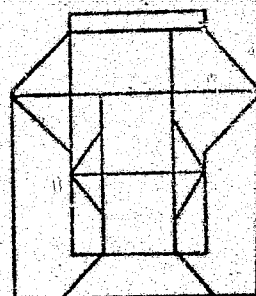


b



a

25



b

MAKING SYMMETRIC DESIGNS

(14xx)

INSTRUCTIONS

This is a test of your aptitude for making different symmetrical patterns using the same three geometric pieces of paper in different combinations. For the purpose of this test, a symmetrical design is one which has bilateral or "mirror-symmetry" i.e. if the pattern is folded along the middle, each side forms a mirror image of the other, like, for example, a butterfly.

You are given several strips of gummed paper each of which can be divided into three pieces of paper of different shapes and sizes. All three pieces must be used to construct a symmetrical pattern. An example is shown opposite.

Using one strip and a new page for each design, construct as many different symmetrical patterns as you can think of. The 3 pieces must touch one another in some manner but must not overlap.

Each design must be different in shape. For example one design must not merely be rotated (e.g. upside-down) to obtain another. Do not copy the example.

You will be given 25 minutes. Work as fast as you can and remember that each design must be symmetrical.

Are there any questions?

DO NOT START UNTIL YOU ARE TOLD TO.



Work Attitude Scale

(xxviii)

NAME:

SEX:

EDUCATIONAL LEVEL:

AGE:

INSTRUCTIONS

Most of the following statements pertain to the task you have just completed; the others are of a general nature. Read each statement and, if you agree with it draw a circle around the word "Yes" following the statement. If you disagree, draw a circle around the word "No" If you really cannot decide draw a circle around the question mark, "?". Please be honest and try to use the question marks as little as possible.

- | | | | | |
|-----|--|-----|---|----|
| 1. | I did not care at all about the task. | Yes | ? | No |
| 2. | I like to go to parties. | Yes | ? | No |
| 3. | I try to do well in a task, even if there seems to be no benefit in it for me. | Yes | ? | No |
| 4. | I am convinced that I will succeed in everything I begin. | Yes | ? | No |
| 5. | A person who always does his best will achieve something in life. | Yes | ? | No |
| 6. | I was not at all interested in doing well on the task | Yes | ? | No |
| 7. | I nearly always do my best when I am confronted with a number of tasks of the same kind. | Yes | ? | No |
| 8. | Sometimes my mind begins to wander during the performance of a task. | Yes | ? | No |
| 9. | I would rather have done nothing than done the task I have just done. | Yes | ? | No |
| 10. | The task took too much time. | Yes | ? | No |
| 11. | While doing the task, I wondered what good it was. | Yes | ? | No |
| 12. | I forget everything else and lose myself in a task. | Yes | ? | No |
| 13. | I cannot do well on a task because I have to think about too many other things. | Yes | ? | No |
| 14. | I wish I could have got out of taking part in the task. | Yes | ? | No |
| 15. | I often study to improve myself although there is no real need for me to do so. | Yes | ? | No |

	(xxix)
ing the task, I became so involved that I do well at it.	Yes ?
e important things to do, than doing well	Yes ?
no difference whether or not I do well in a task.	Yes ?
t experiments are a complete waste of time.	Yes ?
ne task, I realized that I had nothing to gain by doing well.	Yes ?
ult for me to become enthusiastic about a task.	Yes ?
ry to do well, no matter what is at stake.	Yes ?
task had something to do with concentration.	Yes ?
did not inspire me to do well.	Yes ?
now if I did better in a task than the participants.	Yes ?
ns prevent me from doing well on a task.	Yes ?
ivated to do well in a task even though I am not trying to gain by doing well.	Yes ?
ee any reason why I should have done the task.	Yes ?
in the task for the sake of doing well.	Yes ?
own satisfaction, I like to do as well as I can.	Yes ?
presented no challenge to me.	Yes ?
no reason why I should exert myself in a task.	Yes ?
ult for me to pay attention to just one task.	Yes ?
in a task, not because I want to do well, but because it is something different.	Yes ?
r no apparent reason, that I have to do well in a task.	Yes ?
much concerned about sex.	Yes ?
est in a task because the examiner want me to.	Yes ?
tudy, even if I do not get a reward for it.	Yes ?

HAVE YOU ANSWERED ALL QUESTIONS?

Taylor's Manifest Anxiety Scale (MAS)

Name

are asked to answer the following questions by circling T (true) or F (false) in the right-hand column.

- I am often sick to my stomach.
- I am about as nervous as other people.
- I work under a great deal of strain.
- I blush as often as others.
- I have diarrhoea (the runs) once a month or more.
- I worry quite a bit over possible troubles.
- When embarrassed I often break out into a sweat, which is very annoying.
- I do not often notice my heart pounding, and I am seldom short of breath.
- Often my bowels don't move for several days at a time.
- At times I lose sleep over worry.
- My sleep is restless and disturbed.
- I often dream about things I don't like to tell other people.
- My feelings are hurt easier than most people.
- I often find myself worrying about something.
- I wish I could be as happy as others.
- I feel anxious about something or someone almost all of the time.
- At times I am so restless that I cannot sit in a chair for very long.
- I have often felt that I faced so many difficulties I could not overcome them.
- At times I have been worried beyond reason about something that did not really matter.
- I do not have as many fears as my friends.
- I am more self-conscious than most people.
- I am the kind of person who takes things hard.
- I am a very nervous person.
- Life is often a strain for me.
- I am not at all confident of myself.
- At times I feel that I am going to crack up.
- I don't like to face a difficulty or make an important decision.
- I am very confident of myself.

PERSONAL OPINION SCALE (FORM E)

(XXI)

DIRECTIONS

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement on the answer sheet according to how much you agree or disagree with it. Please mark every statement.

Mark -3, -2, -1, or +1, +2, +3, depending on how you feel in each case.

-3	I DISAGREE VERY MUCH
-2	I DISAGREE ON THE WHOLE
-1	I DISAGREE A LITTLE
+1	I AGREE A LITTLE
+2	I AGREE ON THE WHOLE
+3	I AGREE VERY MUCH

Example:

If you agree strongly with the first statement, your answer should be marked this way:

-3	-2	-1	+1	+2	+3
=	=	=	=	=	=

If you disagree strongly with the first statement, your answer should be marked this way:

-3	-2	-1	+1	+2	+3
=	=	=	=	=	=

Note: Please do not mark this question booklet in any way.

DO NOT TURN OVER UNTIL TOLD TO DO SO

1. The United States and Russia have just about nothing in common.
2. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
3. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
4. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.
5. Man on his own is a helpless and miserable creature.
6. Fundamentally, the world we live in is a pretty lonesome place.
7. Most people just don't give a "damn" for others.
8. I'd like it if I could find someone who would tell me how to solve my personal problems.
9. It is only natural for a person to be rather fearful of the future.
10. There is so much to be done and so little time to do it in.
11. Once I get wound up in a heated discussion I just can't stop.
12. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
13. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
14. It is better to be a dead hero than to be a live coward.
15. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.
16. The main thing in life is for a person to want to do something important.
17. If given the chance I would do something of great benefit to the world.
18. In the history of mankind there have probably been just a handful of really great thinkers.
19. There are a number of people I have come to hate because of the things they stand for.
20. A man who does not believe in some great cause has not really lived.

21. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
22. Of all the different philosophies which exist in this world there is probably only one which is correct.
23. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.
24. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
25. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.
26. In times like these, a person must be pretty selfish if he considers primarily his own happiness.
27. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.
28. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.
29. A group which tolerates too much differences of opinion among its own members cannot exist for long.
30. There are two kinds of people in this world: those who are for the truth and those who are against the truth.
31. My blood boils whenever a person stubbornly refuses to admit he's wrong.
32. A person who thinks primarily of his own happiness is beneath contempt.
33. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.
34. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.
35. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.
36. In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.
37. The present is all too often full of unhappiness. It is only the future that counts.
38. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all".

39. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.
40. Most people just don't know what's good for them.

(xxxv)

ID

No.

0	1	3	4	5	6	7	8	9	ID	0	1	2	3	4	5	6	7	8	9

Name:

Date:

Initials:

Test:

				1			-3	-2	-1	+1	+2	+3							
				2															
				3															
				4															
				5															
				6															
				7															
				8															
				9															
				10															
				11															
				12															
				13															
				14															
				15															
				16															
				17															
				18															
				19															
				20															
				21															
				22															
				23															
				24															
				25															
				26															
				27															
				28															
				29															
				30															
				31															
				32															
				33															
				34															
				35															
				36															
				37															
				38															
				39															
				40															

A.S. RATING SCALE

Creativity is that quality of action, speech or writing which consists of the making or bringing into existence of something original, novel or new.

Directions to the Rater

Architecture is unique in its requirement for creativity. The successful architect must not only be able to draw and report his plans and findings through the spoken or written word, but also he must be able to get along with others and direct people of different occupations.

The lecturer is asked to rate each student on a nine point scale, from negative to positive, according to four different dimensions.

1. Creative Spatial Expression: This is the ability of the student to express himself creatively in his drawings. His designs and plans have to show both originality and utility.
2. Creative Spoken Expression: This is the ability of the student to express himself in speech in such a fashion that other persons clearly understand the concepts he is dealing with. Here he need not be able to express his concepts and plans through drawings.
3. Creative Written Expression: This is the ability of the student to express himself clearly in writing in such a fashion that other people clearly understand the concepts he is dealing with. Here he need not be able to express his concepts and plans in either drawings or speech.
4. Successful Interpersonal Contact: This is the ability of the student to get along with his lecturers and fellow students. It includes the ability to co-operate with others, and if he should hold a supervisory position, he should be able to lead and direct successfully to the completion of the project.

The lecturer is asked not to consider the student's success in his final examination because other factors are involved which are not of concern here, e.g. general well-being, maturity, motivation, perseverance, etc.

EXAMPLE

Student Anderson is of bad health, comes to class only very seldom, fights with his class-mates, is not able to write a report but is often able to orally describe what he wants to do in his design. He hands in, in most cases quite late, well structured and original drawings which are sometimes impractical. His lecturer believes that the student will fail the course.

Here we are not interested in the student's health, class attendance, the late handing in of work or his predicted failure. The judgment which the lecturer is concerned with covers only the following: 1. the student's creative ability in his drawings which could be rated on the nine point scale as 5 or 6 (we have to consider that his drawings are often impractical); 2. the student's ability to express his ideas in the spoken word could be rated average, i.e. as 5; 3. the student's expression of ideas in writing could be rated as 1 or 2; and 4. the student's unsuccessful interaction with his fellow students could here be rated as 1 or 2.

CREATIVE SPATIAL EXPRESSION

The ability of the student to be creative in design and planning

1. Shows no creative spatial expression; is rigid, inflexible; finds difficulty in thinking of something new or is unable to combine the old to produce something new; unoriginal.	2.	3.	4.	5. Has a tendency towards stubbornness of rigidity taking some time to produce something new and abandoning set ideas which hinder creative spatial expression.	6.	7.	8.	9. Is creative, flexible; able to adjust to a changing environment with new general and architectural ideas; shows highly creative spatial expressions.
<u>Characteristics:</u> i. Finds it difficult to adapt readily to changing circumstances. ii. Tends to have set ideas and to be dogmatic on most issues. iii. Persists stubbornly in his own ideas and attitudes and is unwilling to change them even when they prove inferior and maladaptive. iv. Will not accept new ideas that conflict with his established way of thinking.								<u>Characteristics:</u> i. Is able to effectively adjust his thinking to meet new and changing circumstances. ii. Although he has his own views on most matters, he is willing to change or modify his attitudes, opinions, etc., constantly learning from experience. iii. Is stimulated by new ideas and eager to learn and to improve his environment.

(XXXXX)

CREATIVE SPOKEN EXPRESSION

The student's ability to perceive creative solutions and to express them orally

1. Unable to perceive essential features of a problem and gets lost in irrelevant details. Is unable to express himself orally about an architectural problem. <u>Characteristics:</u> i. Takes a long time to understand and interpret new concepts, ideas and techniques and has to rely on step by step instruction and supervision before he can put them into words. For all practical purposes he is unable to talk constructively about an architectural problem. ii. Tends to be unsystematic and haphazard in oral expression, missing relevant points.	2.	3.	4.	5. Able to perceive essentials of straightforward or familiar problems, but has average difficulty in expressing self orally. <u>Characteristics:</u> i. Understands and interprets new concepts, ideas and techniques fairly quickly but has some difficulty in expressing them orally. ii. Does not consistently express his thoughts logically. iii. When analyzing a problem he picks up some of the relevant factors but tends to miss others. iv. Is generally able to express self clearly, but is either verbose and pedantic and tends to explain in too much detail or talks in an ambiguous or obscure manner.	6.	7.	8.	9. Able to perceive essential features of problems that arise in his work and to orally verbalize them. <u>Characteristics:</u> i. Has common sense and the ability to comprehend and interpret new concepts, ideas and techniques quickly and to put them effectively into words. ii. Is able to think logically and work systematically. iii. Is able to orally express his creative thoughts clearly and concisely, constructively dealing with relevant points.
---	----	----	----	--	----	----	----	---

(XXXXXX)

Author Schmidt H E

Name of thesis Creativity in Student Architects 1971

PUBLISHER:

University of the Witwatersrand, Johannesburg

©2013

LEGAL NOTICES:

Copyright Notice: All materials on the University of the Witwatersrand, Johannesburg Library website are protected by South African copyright law and may not be distributed, transmitted, displayed, or otherwise published in any format, without the prior written permission of the copyright owner.

Disclaimer and Terms of Use: Provided that you maintain all copyright and other notices contained therein, you may download material (one machine readable copy and one print copy per page) for your personal and/or educational non-commercial use only.

The University of the Witwatersrand, Johannesburg, is not responsible for any errors or omissions and excludes any and all liability for any errors in or omissions from the information on the Library website.