The purpose of this memo is to present tests that comprise the test battery used to select Navy personnel to train marine mammals, and to describe the scoring procedures of the tests. The test battery consists of: Biosystems General Information Test (BGIT), Personnel History Questionnaire (PHQ), Gordon Personal Inventory, Gordon Personal Profile, and Kuder Occupational Preference Record Form D (Selected Keys). The tests were obtained from Blanchard's Biosystems Personnel test battery. Blanchard's Regression Equations are used to determine which people most closely resemble successful marine mammal trainers. (BW)
PERSONNEL TEST BATTERY AND SCORING PROCEDURES

MEMORANDUM NO. L. S. 15

Contract No. N00123-73-D-0543

Prepared for:

Code 404
Naval Undersea Center
Hawaii Laboratory
Kailua, Hawaii

By:

Barry L. Berson
Integrated Sciences Corporation
1532 Third Street, Suite 201
Santa Monica, California 90401

February, 1975
# TABLE OF CONTENTS

## I. PERSONNEL TEST BATTERY AND SCORING PROCEDURES

<table>
<thead>
<tr>
<th>Test</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. BG IT</td>
<td>1</td>
</tr>
<tr>
<td>B. PHQ</td>
<td>2</td>
</tr>
<tr>
<td>C. Gordon Personal Profile and Inventory</td>
<td>3</td>
</tr>
<tr>
<td>D. Kuder Occupational Preference Record--Form D</td>
<td>5</td>
</tr>
</tbody>
</table>

## II. EVALUATION OF PERSONNEL

<table>
<thead>
<tr>
<th>Test</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

## APPENDIX A--SELECTION OF TESTS

<table>
<thead>
<tr>
<th>Test</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Biosystems General Information Test (BGIT)</td>
<td>10</td>
</tr>
<tr>
<td>B. Personnel History Questionnaire (PHQ)</td>
<td>22</td>
</tr>
<tr>
<td>C. Gordon Personal Inventory</td>
<td>30</td>
</tr>
<tr>
<td>D. Gordon Personal Profile</td>
<td>33</td>
</tr>
<tr>
<td>E. Kuder Occupational Preference Record Form D (Selected Keys)</td>
<td>36</td>
</tr>
</tbody>
</table>

## APPENDIX B--TEST BATTERY SCORING KEYS

<table>
<thead>
<tr>
<th>Test</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Biosystems General Information Test (BGIT)</td>
<td>49</td>
</tr>
<tr>
<td>B. Personnel History Questionnaire (PHQ)</td>
<td>50</td>
</tr>
<tr>
<td>C. Gordon Personal Inventory</td>
<td>52</td>
</tr>
<tr>
<td>D. Gordon Personal Profile</td>
<td>53</td>
</tr>
<tr>
<td>E. Kuder Occupational Preference Record Form D (Selected Keys)</td>
<td>54</td>
</tr>
</tbody>
</table>
I. PERSONNEL TEST BATTERY AND SCORING PROCEDURES

The purpose of this memo is to present the tests that comprise the test battery and to describe the scoring procedures. The test battery consists of:

- Biosystems General Information Test (BGIT)
- Personnel History Questionnaire (PHQ)
- Gordon Personal Inventory
- Gordon Personal Profile
- Kuder Occupational Preference Record Form D (Selected Keys)

These tests were obtained from Blanchard's Biosystems Personnel test battery (Ref. 1). The selection of tests are presented in Appendix A; Appendix B contains the scoring keys for the battery.

A. BGIT

The BGIT is a 100-item, multiple choice, achievement test. Table 1 contains the test items. The items cover general information and knowledge on four areas considered important to work with marine mammals. The major content areas are:

- Taxonomy, performance and sensory capabilities of marine mammals (24 items)
- Principles and techniques in the care, handling and feeding of marine mammals (24 items)
- Training techniques and procedures (32 items)
- Operant conditioning techniques (20 items)

Five scores are derived from the test, one associated with each of the four content areas and a combined total score. One point is awarded for each correct response. No points are awarded for incorrect responses. The number of items responded to correctly determines the score for any content area. Total score is derived by summing the totals for each of four areas (parts).
B. PHQ

The PHQ is a biographical data questionnaire. The questionnaire contains 64 items which are grouped according to the following eight areas:

- Educational experiences
- Social experiences
- Urban/Rural background
- Family background and relations
- Recreational activities
- Pet experiences
- Reading, radio listening and TV viewing habits
- Job experience

One scoring key is associated with each of the six job factors that Blanchard identified as being critical to success as a marine mammal trainer; another scoring key is provided for a global performance measure.

The procedure used to develop scoring keys for the PHQ consisted of assigning a scoring weight of +1 to items that discriminated in a positive direction (a significantly greater proportion of high criterion subjects answered the item than low criterion subjects). Items which differentiated in a negative direction (a significantly greater proportion of low criterion subjects answered the item than high criterion trainers) were assigned a weight of -1. If a subject did not answer an item, it was given a weight of 0. A subject's score on a given job factor is equal to the algebraic sum of the weights assigned to his responses. A constant, equal to the sum of the negatively-weighted items, for a given key, is added to raw scores in order to eliminate negative values.

The number of items that were found to discriminate (either in a positive or negative direction) between high and low criterion trainers for the seven keys are: 31, 25, 12, 24, 33, 27, and 23, respectively.
Scoring Example: Key A (F - 1)

Item: Age

A weight of -1 is given to all subjects between 17 and 18 years of age, and a
weight of +1 is given to subjects who are between 29 and 45 years of age.

C. GORDON PERSONAL PROFILE AND INVENTORY

The profile and inventory are companion personality instruments. Both instruments
yield quick, convenient measures of four personality traits. The inventory assesses
Cautiousness (C), Original Thinking (O), Personal Relations (P), and Vigor (V). The
profile assesses Ascendancy (A), Responsibility (R), Emotional Stability (E), and
Sociability (S).

The inventory consists of 20 sets of four descriptive phrases called "tetrads." The
profile is made up of 18 tetrads. Each of the four traits (on each instrument) is
represented by one of the phrases in each tetrad. Each tetrad includes two items that
are considered to be equally complimentary (of similar "high" preference value), and
two items that are equally uncomplimentary (of similar "low" preference value).

The instruments are virtually self-administering. Individuals normally complete
the tests in 20 to 30 minutes. The 18 or 20 items (depending on the instrument) on which
the measurement of each trait is based constitute the scale for that trait. For the
inventory the maximum possible score for each is 40 points. The maximum score for
traits on the profile is 36 points.

Scoring for each trait is performed by counting the marks which appear through
the appropriate section of a perforated stencil key. There must be four successive position-
ings over the same marked answer-space section in order to obtain the separate scores for
Cautiousness, Original Thinking, Personal Relations, and Vigor. (Some scorers prefer to
cut the key into four separate sections, and to score all booklets on one trait before
proceeding to the next trait. They feel that such a procedure makes it less likely that
the wrong key will be used.)
Before scoring is started all booklets should be opened to expose both the B and A answer-space columns and the columns should then be inspected for general compliance with the directions, i.e. (1) in each tetrad, one and only one mark under M, and one and only one mark under L, (2) this M mark and L mark in different rows, and (3) completion of all 20 tetrads.

Occasionally an individual will omit a tetrad or mark something other than only one "most" and one "least" choice in a tetrad. Where no more than two of the twenty tetrads have been omitted or incorrectly marked, the obtained scores may still be used. In such circumstances these obtained scores generally will be well within a standard error of the scores that would have resulted had the test been completed according to directions.

Following this inspection, the booklet should be left open with both A and B answer-space sections exposed for scoring.

To score the Cautiousness (C) Scale, place the C (far left) section of the key over the answer-space section of the booklet in such a way that the letters B and A appear through the holes at the top of the stencil; then adjust the stencil so that the circle at the bottom exposes the A on the booklet. Carefully count the number of marks showing through the holes and record this number under C in the score box at the left. (The maximum score for C, and for each of the other three traits, is 40).

To score the Original Thinking (O) Scale, place the stencil slightly to the left (or place the detached O section) so that the B and A appear through the holes on either side of the O at the top of the stencil and the A at the bottom is exposed as before. Then count the number of answer marks showing through the holes, and record this number in the O section of the score box. This procedure is repeated for all of the other traits.
D. KUDER OCCUPATIONAL PREFERENCE RECORD--FORM D

This instrument attempts to assess occupational interests. The inventory consists of 100 triads. For each triad the respondent is to select the descriptive phrase (item) which he would most and least prefer to do.

Two sets of scoring keys are required to evaluate any given respondent. The first set of keys consists of selected occupations whose interests were assumed to be similar to marine mammal trainers (i.e., veterinarian, civil engineer, etc.). The second set of keys was developed by Dr. Blanchard. He developed seven keys, one associated with each of the job factors he identified to underlie success as a trainer.

To score the Preference Record the respondent's answer sheet is compared to the scoring keys. For each response which the respondent has similar to the scoring key, he receives 1 point. For each key, total the number of like responses. This number represents the subject's score on the key. For the specially designed keys a constant (indicated on the scoring key) is added to the score of each key.
II. EVALUATION OF PERSONNEL

To determine which people most closely resemble successful marine mammal trainers, it is necessary to plug their test scores into Blanchard’s Regression Equations (Ref. ). Blanchard derived equations for each of the six job success factors he identified as underlying success as a trainer. He also developed an equation for a global criterion. These regression equations are listed in Table 1. Since Blanchard’s last report, he has developed new equations, which include the weights associated with his specially designed Kuder keys. These new equations should be available by February 15, 1975. When these equations are available they should supersede the equations listed.

Table 1. Job Success Regression Equations

| I. Conduct of Animal Training | \( y'_1 = -73.459 + (2.864)X_{21} + (1.785)X_9 + (0.863)X_{17} \) |
| II. Animal Husbandry          | \( y''_1 = 20.498 + (1.274)X_{22} + (0.606)X_9 + (0.237)X_{20} \) |
| III. Emotional Control        | \( y''''_1 = 17.459 + (0.954)X_{23} + (0.367)X_3 + (0.315)X_7 \) |
| IV. Human Relations           | \( y''''''_1 = 67.735 + (0.512)X_{24} + (-0.571)X_{16} + (-0.185)X_{18} \) |
| V. Job Involvement            | \( y'''_1 = -12.015 + (1.686)X_{25} + (3.239)X_9 + (2.156)X_{11} \) |
| VI. Training Technique Development | \( y''''''''_1 = -22.286 + (1.204)X_{26} + (0.679)X_{17} - 6 + (0.311)X_9 + (0.304)X_{20} \) |
G. Global Criterion

\[ y'_G = -4.364 + (1.072)X_{27} + (0.496)X_{11} \]

Where \( X_1 \) = Predictive instrument score that is inserted into the formula:

- \( X_1 = \) Gordon Inventory: Cautiousness (C)
- \( X_2 = \) Original Thinking (O)
- \( X_3 = \) Personal Relations (P)
- \( X_4 = \) Vigor (V)
- \( X_5 = \) Gordon Profile: Ascendancy (A)
- \( X_6 = \) Responsibility (R)
- \( X_7 = \) Emotional Stability (E)
- \( X_8 = \) Sociability (S)
- \( X_9 = \) BG IT: Part 1
- \( X_{10} = \) BG IT: Part 2
- \( X_{11} = \) BG IT: Part 3
- \( X_{12} = \) BG IT: Part 4
- \( X_{13} = \) BG IT: Total
- \( X_{14} = \) Kuder 01 (County Agriculture Agent)
- \( X_{15} = \) Kuder 03 (Farmer)
- \( X_{16} = \) Kuder 04 (Forester)
- \( X_{17} = \) Kuder 17 (Civil Engineer)
- \( X_{18} = \) Kuder 26 (Veterinarian)
- \( X_{19} = \) Kuder 47 (Auto Mechanic)
- \( X_{20} = \) Kuder 48 (Truck Driver)
- \( X_{21} = \) PHQ Key A
- \( X_{22} = \) PHQ Key B
- \( X_{23} = \) PHQ Key C
- \( X_{24} = \) PHQ Key D
- \( X_{25} = \) PHQ Key E
- \( X_{26} = \) PHQ Key F
- \( X_{27} = \) PHQ Key G

10
To illustrate the personnel evaluation procedure, the results of two hypothetical subjects (Harry and Al) will be compared. For the comparison two job factors will be considered: animal husbandry and the global criterion. To insert the subjects' results into the equations, test scores are needed for the following tests.

<table>
<thead>
<tr>
<th>Test Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Success Factor</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Animal Husbandry (AH)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Global Criterion (GC)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

$$AH_{Harry} = 20.498 + (1.274)14 + (.606)15 + (-.237)14$$
$$= 44.106$$

$$GC_{Harry} = -4.364 + (1.072)13 + (.496)17$$
$$= 18.004$$

$$AH_{Al} = 20.498 + (1.274)10 + (.606)16 + (-.237)14$$
$$= 38.92$$

$$GC_{Al} = -4.364 + (1.072)10 + (.496)13$$
$$= 12.804$$

These procedures would be repeated on the other five job success factors. The individuals who score the highest on these job factors are more likely to be successful than individuals who do not score as highly.
APPENDIX A

SELECTION OF TESTS

A. Biosystems General Information Test (BGIT)
B. Personnel History Questionnaire (PHQ)
C. Gordon Personal Inventory
D. Gordon Personal Profile
E. Kuder Occupational Preference Record Form D (Selected Keys)
A. BIOSYSTEM GENERAL INFORMATION TEST

PART I

1. The largest of the cetaceans (and of all animals living and extinct) is the
   a) Finback Whale
   b) Gray Whale
   c) Sei Whale
   d) Blue Whale

2. The length and weight of the largest cetacean has been known to exceed
   a) 45 feet, 63 tons
   b) 70 feet, 85 tons
   c) 100 feet, 120 tons
   d) 140 feet, 175 tons

3. For short periods of time, the fastest whale can travel at speeds up to
   a) 10 knots
   b) 15 knots
   c) 20 knots
   d) 30 knots

4. The killer whale belongs to which of the following families?
   a) Delphinidae
   b) Baleen
   c) Rorqual
   d) Mysticeti

5. Air renewal at each breath in land mammals is about 10 to 20 percent. In cetaceans, air renewal is about
   a) the same as land mammals
   b) 40 to 50 percent
   c) 80 to 90 percent
   d) nearly 100 percent

6. The need of cetaceans for fresh water is met by
   a) inhaling cool air saturated with water vapor
   b) liberating water by food oxidation
   c) processing residual fluid from fish
   d) sources such as rainfall and ice

7. The salt content of the blood and body fluids of cetaceans
   a) is higher than that of the water around them
   b) increases after feeding on fish
   c) varies with the temperature of their environment
   d) is kept in balance by their kidneys

8. The only mammal whose milk is richer than that of cetaceans is
   a) cows
   b) reindeer
   c) seals
   d) man

9. Unlike a human diver, cetaceans usually do not suffer from damage from nitrogen bubbles in their blood because
   a) the cetacean does not breathe under water
   b) their metabolic rate increases
   c) blood flow to the brain is decreased
   d) their lungs expand to accommodate nitrogen gas
10. The best developed sense modality in cetaceans is
   a) hearing
   b) vision
   c) smell
   d) taste

15. The sea lion's chief means of propulsion is his
   a) tail
   b) hind-flippers
   c) oscillating body movements
   d) fore-flippers

11. The least developed sense modality in cetaceans is
   a) hearing
   b) vision
   c) smell
   d) taste

16. The characteristic of dolphins that distinguishes them from porpoises is
   a) overall size
   b) external markings
   c) presence of teeth
   d) nose (beak) length

12. Of the Pinnipeds, the family characterized by an external ear and facile hind flipper is
   a) Otariidae
   b) Phocidae
   c) Odobenidae
   d) Mustelidae

17. The up and down movement of the dolphin's tail, rather than side to side as with fishes, aids the animal in
   a) swimming at high sustained speeds
   b) performing evasive maneuvers
   c) diving and surfacing
   d) swimming in an inverted position

13. Sperm whales can stay submerged for periods as long as
   a) 45 minutes
   b) 90 minutes
   c) 120 minutes
   d) 180 minutes

18. Bottlenose dolphins have been known to dive to depths of around
   a) 500 feet
   b) 1,000 feet
   c) 2,000 feet
   d) 3,000 feet

14. Sperm whales have been known to dive to depths of nearly
   a) 2,000 feet
   b) 4,000 feet
   c) 6,000 feet
   d) 8,000 feet

19. As soon as a bottlenose dolphin begins a dive
   a) air is expelled to decrease buoyancy
   b) sensitivity to carbon dioxide content in the blood increases
   c) blood vessels become dilated
   d) heart beat slows to 50 percent of normal
20. Dolphins can stay submerged a maximum time of
   a) 2-3 minutes
   b) 5-8 minutes
   c) 10-14 minutes
   d) 15-20 minutes

21. Under normal circumstances, dolphins surface to breathe about
   a) twice a minute
   b) once a minute
   c) once every two minutes
   d) once every three minutes

22. In sustained swimming, the bottlenose dolphin’s best speed is around
   a) 4 knots
   b) 12 knots
   c) 18 knots
   d) 24 knots

23. The effective upper limit of hearing for the bottlenose dolphin has been determined to be about
   a) 20 kHz
   b) 75 kHz
   c) 150 kHz
   d) 200 kHz

24. The greatest hearing sensitivity of the bottlenose dolphin is thought to be around
   a) 10 kHz
   b) 50 kHz
   c) 100 kHz
   d) 150 kHz

25. During training and biosystem operation, dolphins are fed at the rate of
   a) 5-10 lbs per day
   b) 10-20 lbs per day
   c) 20-30 lbs per day
   d) 30-40 lbs per day

26. The best food fish for feeding marine mammals has been
   a) individually glazed and frozen
   b) frozen for less than two months
   c) injected with a saline solution
   d) bulk packed and quick frozen

27. Which of the following types of fish is more suitable for freezing and storage?
   a) Mackerel
   b) Sea herring
   c) Bonita
   d) Smelt

28. Fish to be used for feeding marine mammals should be
   a) frozen slowly and thawed quickly
   b) frozen quickly and thawed slowly
   c) frozen and thawed quickly
   d) frozen and thawed slowly

29. Which one of the following methods is probably best for thawing frozen fish?
   a) Salt water at 58°F
   b) In air at 68°F
   c) Hot fresh water
   d) Ice water

- 12 -
30. During thawing, fish body cells are destroyed and fluids are lost if the fish
   a) are thawed at more than 68°F
   b) were stored at more than 4°F
   c) were frozen slowly
   d) are thawed at less than 90% humidity

31. Prior to transporting newly-captured animals, they are injected with drugs to
   a) tranquilize them during transport
   b) guard against pneumonia
   c) facilitate their breathing capacity
   d) lower their metabolic rate

32. Vitamin supplements are probably most beneficial when
   a) animals are food deprived
   b) when cut-up fish are used
   c) during training
   d) all of the above

33. The first thing to do when an animal being transported by stretcher begins to thrash about is to
   a) quickly restrain him
   b) place a damp towel over his eyes
   c) administer a calming drug
   d) pet him to calm him down

34. It is probably best to feed vitamin supplements
   a) just prior to bulk feeding at the end of the day
   b) immediately following the morning feeding
   c) with two fish one hour prior to training
   d) anytime after a training or exercise period

35. The first step that should be taken with a Tursiops with a suspected health problem is to
   a) renew his feeding record
   b) obtain a blood test
   c) change his diet
   d) place him in isolation

36. The most practical approach for early detection of animal health problems is to
   a) have a vet on call
   b) take blood samples periodically
   c) "know" the animal
   d) weight the animal periodically

37. An indication of a serious health problem in a bottlenose dolphin is
   a) a clear fluid discharge from the eyes
   b) snorting and blowing mucus
   c) skin lesions formed in square-like patches
   d) heavy, labored breathing when in a stretcher

38. When dolphins are put under total anesthesia for operative purposes, their respiration
   a) ceases
   b) decreases to one breath every five minutes
   c) becomes erratic
   d) must be controlled by chemical injections
39. Usually, the first sign of illness in cetaceans is
   a) loss of appetite
   b) nervous behavior
   c) vomiting
   d) blowing excessive mucus

40. Cetaceans discriminate among various types of food mostly on the basis of
   a) odor
   b) taste
   c) texture
   d) all the above

41. When handling or working with dolphins, care should be taken because
   a) their skin is easily bruised and cut
   b) they have been known to bite humans
   c) they can drown easily
   d) all of the above

42. A dolphin recently placed in captivity will usually
   a) stay near the bottom of his enclosure
   b) take his food near the surface of the water
   c) lobtail at frequent intervals
   d) be fed sparingly until adapted to captivity

43. A reliable indication of a health problem in pilot whales is
   a) foul breath odor
   b) mucus in the blowhole
   c) bubbles coming from the blowhole
   d) none of the above

44. An indication of a health problem in killer whales is
   a) phlegm in the blowhole
   b) foul breath odor
   c) foul mouth odor
   d) all of the above

45. Which of the following foods is most often fed to pilot whales?
   a) Butterfish
   b) Squid
   c) Herring
   d) Silver smelt

46. Getting a sea lion used to being handled can be started by
   a) fitting him with a muzzle and stroking his neck by hand
   b) restraining his fore-flippers and neck with a training harness
   c) stroking him with a stick while feeding him
   d) blindfolding him and then gently petting his head and neck

47. Which of the following types of food is usually most preferred by sea lions?
   a) Smelt
   b) Bonita
   c) Pacific mackerel
   d) Squid

48. In sea lions, a very green, liquid stool would be an indication of
   a) a gastro-intestinal problem
   b) a steady diet of smelt
   c) intake of salt water
   d) normal digestion
49. On the average, which of the following behaviors requires the most training effort in bottlenose dolphins?

a) recall training  
b) gate training  
c) stretcher training  
d) station holding

50. Which of the following is not a natural behavior for a bottlenose dolphin?

a) Bowing  
b) Tail walking  
c) Lob tailing  
d) Breaching

51. Of the following behaviors, the best indication of a naive dolphin's readiness for paddle training is

a) projecting his head from the water  
b) taking a fish from the trainer's hand  
c) tolerating being touched  
d) stationing for 2 or 3 fish

52. In training a bottlenose dolphin to press one of two paddles, if the animal attempts to press the wrong paddle

a) sound the bridging stimulus  
b) remove the paddle from the water  
c) sound the recall signal  
d) throw a fish near the correct paddle

53. The aversive technique most frequently used when a bottlenose dolphin gives an incorrect response during training is to

a) take a brief time out  
b) throw a few fish outside his pen  
c) slap the water with a paddle or hand  
d) withhold reward until two consecutive correct responses are given

54. If a "crowding net" is used as an aid in gate training, it is best that

a) it be placed in the water before the gate is opened  
b) the recall pinger is turned-off  
c) its use is coupled with food reward  
d) forced gate training is usually fruitless

55. Which of the following basic behaviors is usually the most difficult to train in bottlenose dolphins?

a) eating dead food  
b) hand feeding  
c) stationing  
d) holding head above water

56. Use of physical punishment in training bottlenose dolphins is generally considered to be

a) acceptable during adaptation to captivity  
b) necessary to train certain complex behaviors  
c) never acceptable under any circumstances  
d) acceptable in preventing injury to animal or trainer
57. In general, the preferred size for dolphins just introduced to training is

a) 4 1/2 to 5 1/2 feet
b) 5 1/2 to 6 1/2 feet
c) 6 1/2 to 7 1/2 feet
d) 7 1/2 to 8 1/2 feet

58. Compared to the bottlenose dolphin, the killer whale is relatively more difficult to train on which of the following behaviors?

a) adaptation to captivity
b) station holding in a pen
c) hand feeding
d) boat following

59. You are gate training a dolphin. The escape route is open and the conditioned stimulus has been presented. If the animal refuses to go through the gate after several trials

a) enter the water and guide the animal through the opening
b) food-deprive the animal until he responds to the stimulus
c) use a net with the intention of forcing him through the gate
d) provide additional training on the conditioned stimulus

60. During adaptation to captivity, dolphins that are cautious, withdrawn, and avoid the trainer have been known to

a) be generally untrainable
b) need isolation from other animals
c) be abnormally aggressive
d) develop into reliable animals

61. In hand-taming an animal, it may be necessary for the trainer to

a) enter the water with the animal
b) partially restrain the animal
c) use only live food
d) all the above

62. A major consideration in training a group of animals is

a) age differences
b) differences in adaptation to captivity
c) the amount of food consumed per day
d) all the above

63. If an animal that is hungry and healthy seems confused, is unresponsive and reluctant to come back to the trainer, the trainer should probably

a) be patient but persist in working on the behavior
b) give the animal a time-out period
c) discontinue training for that session
d) back-off and make the task a little easier

64. In training an animal on a series of performance increments to achieve a final criterion level, the trainer should

a) work on only one performance increment each training
64. In training an animal on a series of performance increments to achieve a final criterion level, the trainer should
a) work on only one performance increment each training session
b) make sure the animal's performance is perfect at one level before moving to the next
c) give the animal minimum practice at any one level before moving to the next
d) appreciate that the animal may not be able to reach the criterion level and take care not to pressure him

65. If while exercising an animal on a trained behavior the animal did not quite meet the established standard, the trainer should
a) reward the animal anyway to prevent regression
b) withhold reward on that trial
c) reward the animal but speak harshly to him first
d) give the animal a time-out period

66. If his training schedule for a given animal is not going as planned, the trainer should
a) be more strict and insistent with the animal
b) review and perhaps revise his training approach
c) slow the training pace to reduce animal stress
d) revise the schedule to reflect the animal's willingness to learn

67. The "bridging stimulus" is sounded
a) to command the animal to perform a behavior
b) at the precise instant the animal responds as required
c) just as the animal grasps his food reward
d) to indicate inadequate performance

68. While often effective, taking shortcuts in an established training plan can result in
a) animal stress
b) having to regress to achieve the behavior
c) an increase in overall training time
d) all of the above

69. A basic principle in developing and maintaining an effective man-animal relationship is to
a) never employ aversive techniques
b) avoid traumatic events during training
c) minimize animal interactions with other animals
d) employ hand contact whenever possible

70. In establishing the training pace on a behavior, the trainer should be
a) patient and allow the animal to set the pace
b) insistent and assert his dominance
c) directed by the training plan and schedule
d) persistent but sensitive to animal reaction
71. Proper timing in making transitions from one behavior to the next behavior in a chain is necessary to guard against
   a) animal confusion and stress
   b) over-training the animal
   c) introducing ambiguities
   d) all the above

72. A workable bridging stimulus is
   a) the whistle
   b) rattling the fish bucket
   c) slapping the water
   d) any of the above

73. When training a non-preferred behavior or one with aversive properties, one approach is to
   a) reinforce a non-preferred behavior with a preferred one
   b) increase magnitude of reward proportionately
   c) intersperse preferred with less preferred behaviors
   d) any of the above

74. After a behavior is well learned by an animal, use of a bridging stimulus (whistle)
   a) may be discontinued
   b) can be used intermittently
   c) becomes the primary reinforcer
   d) helps maintain the behavior

75. A basic principle in training naive sea lions is for the trainer to
   a) never strike the animal
   b) never touch the animal
   c) employ only visual cues
   d) play a dominant role

76. Avoidance training for sea lions to be used in object recovery operations refers to
   a) other sea lions and fish
   b) targets composed or organic material
   c) targets located at excessive depths
   d) previously marked targets

77. Sea lions can usually be trained to wear a harness and muzzle in about
   a) 1 to 2 months
   b) 2 to 3 months
   c) 3 to 4 months
   d) 4 to 5 months

78. The first step in training a sea lion usually is to
   a) fit him with a harness
   b) reduce his tendency to bite
   c) hand tame him
   d) get him on a pedestal

79. Of the following, the most accepted way to extinguish biting behavior in sea lions is to
   a) speak harshly to the animal
   b) rap him on the nose with two fingers
   c) disregard the behavior
   d) place a muzzle on the animal
80. Sea lions which are nervous and react fearfully to various noises and objects are best handled by

a) placing them in a feeder pool
b) training only in semi-isolated areas
c) placing them in with fully-adapted animals
d) making a variety of background noise during training

84. When an animal who has been trained to respond to a 5 kHz tone also responds to a 10 kHz tone, the phenomenon is called

a) secondary reinforcement
b) partial reinforcement
c) response generalization
d) stimulus generalization

85. The training technique of getting the response to one stimulus to become the stimulus for the next response is called

a) stimulus generalization
b) response extension
c) chaining
d) progressive conditioning

81. Training marine mammals primarily involves

a) respondent conditioning
b) operant conditioning
c) classical conditioning
d) behavioral learning

86. Training an animal to respond to only a 10 kHz tone involves the process of

a) discrimination
b) selective conditioning
c) partial reinforcement
d) response generalization

82. In order to learn a response, an animal must have

a) a conditioned stimulus
b) an unconditioned stimulus
c) reinforcement
d) an instrumental response

87. Chains of behaviors are formed by linking together a string of

a) discriminative stimuli and differentiated responses
b) discriminative stimuli and generalized responses
c) differentiated stimuli and mediated responses
d) generalized stimuli and instrumental responses

83. Chaining behaviors is made possible by

a) primary reinforcement
b) partial reinforcement
c) secondary reinforcement
d) differentiated reinforcement
88. Rewarding an animal for every fifth correct response rather than for each correct response is an example of
   a) differential reinforcement
   b) partial reinforcement
   c) deferred reinforcement
   d) delayed reinforcement

89. When a plateau in learning is reached, it is advisable to
   a) practice harder
   b) practice more regularly
   c) accept it as the best one can do
   d) review training procedures

90. Expressed approval of an animal's behavior by his trainer is
   a) a partial reinforcer
   b) a primary reinforcer
   c) a peripheral reinforcer
   d) a secondary reinforcer

91. For the great majority of behaviors, the best learning schedule is
   a) long practice periods and short rest periods
   b) short practice periods and long rest periods
   c) short practice periods and short rest periods
   d) long practice periods and long rest periods

92. In training animals, a bridging stimulus (whistle, buzzer, acoustic signal) can be used
   a) as the primary reinforcer
   b) as the unconditioned stimulus
   c) to indicate the start of a trial
   d) to induce the animal to extend or improve his performance

93. An animal learns to press the correct response paddle through
   a) stimulus discrimination
   b) stimulus generalization
   c) stimulus differentiation
   d) stimulus mediation

94. Which of the following is not an example of operant or voluntary behavior?
   a) gasping when dashed with cold water
   b) walking across a room
   c) an infant squirming in his crib
   d) humming a tune

95. Discrimination learning is largely a matter of
   a) generalization
   b) selective reinforcement
   c) extinction
   d) stimulus mediation
96. Use of physical punishment, like a slap or blow, in training animals can result in:
   a) the training area becoming a conditioned negative reinforcer
   b) a conditioned fear response to the trainer
   c) depression of all behaviors being trained
   d) in all of the above

100. The "crowding net" sometimes used as an aid in gate training an animal is an example of:
   a) a conditioned stimulus
   b) reward training
   c) a noxious stimulus
   d) punishment training

97. Unlike stimuli which elicit respondent behaviors, stimuli which will evoke operant behaviors:
   a) involve glandular activities
   b) are reflexive in nature
   c) involve smooth muscle activities
   d) are initially unknown

98. Reinforcement schedules based on time intervals or a certain number of responses, rather than on each response, tend to:
   a) increase resistance to extinction
   b) decrease resistance to extinction
   c) decrease rate of response
   d) create an emotional upset in the animal

99. The sound of the trainer's whistle following a correct paddle response by a dolphin acts as:
   a) primary reinforcer
   b) secondary reinforcer
   c) partial reinforcer
   d) momentary reinforcer
B. PERSONNEL HISTORY QUESTIONNAIRE - FORM A

The following questions are about your personal history and the activities of yourself and your family. Answer frankly and as accurately as you can. If you are not sure which answer or answers are right for you, make the best guess you can. Select the answer which you feel best applies to you and put an X in front of it. Check only one answer unless the question asks you to check more than one. Be sure to answer every question that applies to you. Your answers will be strictly confidential, and will be used only for personnel research purposes at NUC.

1. Circle the last year of school you completed.
   Elementary school: 1 2 3 4 5 6 7 8
   High school: 1 2 3 4
   College: 1 2 3 4 5 6

2. What was the population of the city or town in which you grew up? (If you lived in more than one, answer for the one you lived in longest).
   1. Less than 500
   2. 500 to 5000
   3. 5000 to 20,000
   4. 20,000 to 100,000
   5. Over 100,000

3. Other than school work, how much reading did you do between the ages of 12 and 18?
   1. Not very much
   2. About the average
   3. Quite a bit
   4. A great deal

4. How many pupils were in the elementary school which you attended? (If you went to more than one, answer for the one you attended longest).
   1. Less than 25
   2. 25 to 100
   3. 100 to 500
   4. 500 to 1000
   5. Over 1000

5. When you had difficulty understanding your school work, what did you generally do?
   1. Asked the teacher for help
   2. Asked my father or mother for help
   3. Studied the problem through myself
   4. Did not let it bother me
   5. I seldom had difficulty with school work
6. How far do you believe your father (step-father or foster father) went in school?
   ______ 1. Elementary (8th grade or less)
   ______ 2. Some high school
   ______ 3. Graduated from high school
   ______ 4. Some training after high school but not college
   ______ 5. Some college
   ______ 6. Graduated from college

7. Which of the following subjects did you like best in school?
   ______ 1. English
   ______ 2. Arithmetic
   ______ 3. Shop courses
   ______ 4. Science courses
   ______ 5. History
   ______ 6. None of these

8. Which of the following subjects did you dislike the most in school?
   ______ 1. Arithmetic
   ______ 2. History
   ______ 3. Shop courses
   ______ 4. English
   ______ 5. Science courses
   ______ 6. Some other subject

9. Were your parents born in the same country where you were born?
   ______ 1. Both my mother and father were
   ______ 2. Only my mother was
   ______ 3. Only my father was
   ______ 4. Neither one was

10. Which of the following do you most resemble as a person?
    ______ 1. Your father
    ______ 2. Your mother
    ______ 3. A brother
    ______ 4. A sister
    ______ 5. None of these

11. When you were growing up, to what extent did your parents discuss plans with you about your future?
    ______ 1. Very often
    ______ 2. Fairly often
    ______ 3. Occasionally
    ______ 4. Rarely
    ______ 5. Never

12. When you were in your teens, with whom did you most often talk over your problems?
    ______ 1. Father
    ______ 2. Mother
    ______ 3. A brother
    ______ 4. A sister
    ______ 5. A friend
    ______ 6. No one

13. Whom did you live with most of the time before you were 15 years old?
    ______ 1. With both parents
    ______ 2. With one parent
    ______ 3. With a relative
    ______ 4. With foster parents
    ______ 5. Other than the above

14. At the time you finished school, how many close friends did you have?
    ______ 1. One or two
    ______ 2. Several
    ______ 3. Many
    ______ 4. None

15. How many times did your family move from one location to another while you were growing up?
    ______ 1. Never
    ______ 2. Once
    ______ 3. Twice
    ______ 4. Three times
    ______ 5. Four times
    ______ 6. Five or more times
16. When you were around 15 years old, were most of your friends:
   1. Younger than you were
   2. About your age
   3. Older than you were
   4. I had few friends

17. When you were in elementary school, were you a leader of the group you ran around with?
   1. Always
   2. Frequently
   3. Occasionally
   4. Seldom or never
   5. I can't remember

18. How old were you when you had your first regular paid job, part-time or full time?
   1. 12 years or less
   2. 13 to 15
   3. 16 to 18
   4. 19 or more
   5. I never had a paid job

19. How old were you when you started buying most of your own clothes from wages you earned, or money given you by your parents or relatives?
   1. 13 years old or younger
   2. 14 to 15 years old
   3. 16 to 17 years old
   4. 18 years or older
   5. I have never bought my own clothes

20. With whom have you spent most of your spare time since you were 13 years old?
   1. Usually alone
   2. With other members of my family
   3. With one or two close friends
   4. With a group of friends

21. Did you collect such things as stamps, coins, insects, rocks, etc., when you were growing up?
   1. Frequently
   2. Occasionally
   3. Seldom
   4. Never

22. Which of the following organizations did you belong to as a boy? (Check all that apply.)
   1. The 4-H Club
   2. Hobby Club
   3. Boy Scouts
   4. School organizations
   5. Church organizations
   6. Other: (______________)
   7. I did not belong to any organizations in my youth

23. Of all the physical activities you undertook in your teens, which did you enjoy most?
   1. Baseball, football or basketball
   2. Hunting
   3. Fishing
   4. Tennis or golf
   5. Swimming or surfing
   6. Boxing or wrestling
   7. Bowling
   8. Horseback riding
   9. Something else

24. At what age did you learn to swim?
   1. Around 5 to 8 years old
   2. Around 9 to 12 years old
   3. Around 13 to 16 years old
   4. After I was 17 years old
   5. I can't swim

25. How many brothers and sisters have you had:
   Who were younger than you?
   Who were older than you?
26. How many times did you change schools? (Elementary and high school)
   1. 0 to 1 time
   2. 2 to 3 times
   3. 4 to 5 times
   4. 6 to 7 times
   5. More than 7 times

27. What were your main subjects in high school?
   1. Business or commercial
   2. Trade or shop courses
   3. Agricultural courses
   4. Science courses
   5. College preparatory
   6. Other (__________)

28. What sort of grades did you usually get in high school?
   1. Straight "A's"
   2. Mostly A's
   3. Mostly B's
   4. Mostly C's
   5. Mostly D's

29. How many pupils were in the high school you attended? (If you went to more than one, answer for the one you attended longest.)
   1. Less than 100
   2. From 100 to 500
   3. From 500 to 1000
   4. From 1000 to 3000
   5. More than 3000

30. How old were you when you graduated from high school?
   1. Younger than 14
   2. 14 to 16
   3. 17 to 19
   4. 20 or older
   5. I did not graduate

31. If you did not graduate from high school, why did you leave?
   1. To get married
   2. To get a job
   3. Because of poor health
   4. Because I was not interested or got too far behind
   5. To enter the armed forces
   6. None of these (__________)
   7. I graduated high school

32. Did you live on a farm during your boyhood?
   Yes ______ No ______
   If you answered "yes" above, please answer questions 33 through 36.

33. How many years did you live on a farm before you were 19 years old?
   1. Less than 1 year
   2. 1 to 4 years
   3. 5 to 9 years
   4. 10 to 14 years
   5. 15 to 19 years

34. How large was the farm on which you lived? (If you lived on more than one, check the type you lived on longest.)
   1. Less than 40 acres
   2. 40 to 119 acres
   3. 120 to 199 acres
   4. 200 to 439 acres
   5. Over 440 acres

35. What type of farm did you live on? (If you lived on more than one, check the type you lived on longest.)
   1. Cash grain
   2. Livestock (hogs, cattle, horses, etc.)
   3. Dairy
   4. Truck farm
   5. Combined grain and livestock
   6. Another type (__________)

- 25 -

28
36. Would you rather have lived in a town or city than on a farm?
   Yes _____ No _____ Undecided _____

37. If you did not live on a farm before you were 19 years old, did you work on a farm?
   (A) Yes _____ No _____
   (B) If you said "yes" above, for how long did you work?
      _____ 1. Part-time work (1-2 yrs.)
      _____ 2. Part-time work (3 or more yrs.)
      _____ 3. Full-time work (1-2 yrs.)
      _____ 4. Full-time work (3 or more yrs.)
      _____ 5. I lived on a farm

38. Were you ever in the Armed Forces of the United States?
   (A) Yes _____ No _____
   (B) If you answered "yes", how many years of active duty did you serve? _____ Years
   (C) Which branch of the armed services were you in?
      _____ 1. Army
      _____ 2. Navy
      _____ 3. Marines
      _____ 4. Coast Guard
      _____ 5. Air Force
      _____ 6. Merchant Marine

39. How old were you when you were married?
   _____ 1. Less than 19 years old
   _____ 2. 19 to 22 years old
   _____ 3. 23 to 26 years old
   _____ 4. 27 to 30 years old
   _____ 5. Over 30 years old
   _____ 6. I am not married

40. Which of the following sports have you engaged in during the past five years?
   (Check all that apply.)
   _____ 1. Team sports (baseball, volleyball)
   _____ 2. Swimming, diving, or surfing
   _____ 3. Golf
   _____ 4. Tennis
   _____ 5. Bowling
   _____ 6. Racing (cars, cycles)
   _____ 7. Boating (power or sail)
   _____ 8. Chess, checkers, cards
   _____ 9. Horseback riding
   _____ 10. Hunting
   _____ 11. Fishing
   _____ 12. I have not engaged in sports
   _____ 13. Other than the above list below)

41. Did you have an animal as a pet during your boyhood? Yes _____ No _____
   If you answered "yes" above, please answer questions 42 thru 46.

42. What type of pet or pets did you have for the longest time?
   _____ 1. Dog
   _____ 2. Cat
   _____ 3. Horse
   _____ 4. Bird
   _____ 5. Fish
   _____ 6. Amphibians or reptiles
   _____ 7. Rabbits or rodents
   _____ 8. Other (list below)

43. Did you train your pet to perform tricks or for uses such as hunting?
   Yes _____ No _____
44. What was the longest period you had a particular pet?
   ____ 1. Less than 1 year
   ____ 2. 1-2 years
   ____ 3. 2-4 years
   ____ 4. 4-6 years
   ____ 5. Over 6 years

45. Did you ever enter your pet in a competitive event?
   Yes ____ No ____

46. Were you totally responsible for the care, feeding, and general welfare of your pet?
   Yes ____ No ____

47. If you went to college, answer questions 48 thru 53. (If you went to more than one college, answer for the one you attended longest.)

48. How old were you when you graduated college?
   ____ 1. Younger than 18
   ____ 2. 18 to 20
   ____ 3. 20 to 22
   ____ 4. 22 to 24
   ____ 5. 24 to 26
   ____ 6. Over 26
   ____ 7. I did not graduate college

49. What sort of grades did you usually receive in college?
   ____ 1. Straight "A's"
   ____ 2. Mostly A's
   ____ 3. Mostly B's
   ____ 4. Mostly C's
   ____ 5. Mostly D's

50. If you did not graduate from college, why did you leave?
   ____ 1. To get married
   ____ 2. To take a job
   ____ 3. Because of poor health
   ____ 4. I was not interested or fell behind
   ____ 5. Lack of adequate finances
   ____ 6. To enter the armed forces
   ____ 7. None of these
   ____ 8. I graduated college

51. What was your main subject in college.
   ____ 1. Business or Economics
   ____ 2. Biology
   ____ 3. Zoology
   ____ 4. Math or physics
   ____ 5. Liberal arts
   ____ 6. Engineering
   ____ 7. Other (___________)

52. Which of the following types of colleges did you attend?
   ____ 1. Private (all men)
   ____ 2. Private (men and women)
   ____ 3. State operated
   ____ 4. City operated
   ____ 5. Church sponsored
   ____ 6. Other (___________)

53. What was the total enrollment of your college?
   ____ 1. Less than 500
   ____ 2. From 500 to 999
   ____ 3. From 1000 to 4999
   ____ 4. From 5000 to 9999
   ____ 5. More than 10,000
54. Check any of the following that are, or were your hobbies at one time.
   1. Photography
   2. Woodworking
   3. Electronics
   4. Metal working
   5. Crafts (ceramics, etc.)
   6. Cars; boats
   7. Painting; sculpting
   8. Model plane building
   9. Fish aquaria
   10. I have not had a hobby
   11. Other than the above (list below)

55. What is your present marital status?
   1. Single
   2. Married, no children
   3. Married, one or more children
   4. Widowed
   5. Separated or divorced

   If you checked No. 3, 4, or 5 above, how many children do you have? ___

56. To what extent is your wife currently employed?
   1. Full-time
   2. About half-time
   3. Several hours per week
   4. She is not employed
   5. I am not married

57. How often have you voted in local, state, and national elections?
   1. I am not eligible
   2. Never, although eligible
   3. Occasionally
   4. Frequently
   5. Almost every time

58. Check any of the following that you read frequently. (Check all that apply.)
   1. Sports magazines
   2. Newspapers
   3. News magazines (Time, Newsweek)
   4. Pictorial magazines (Life, Look)
   5. Scientific magazines
   6. Trade journals
   7. Scientific journals
   8. Novels
   9. Non-fiction books
   10. Playboy
   11. Other than the above (list below)

59. How many full-time jobs have you had during the past 10 years?

   Enter number here (_______)

60. Which of the following types of TV programs do you generally watch? (Check all that apply.)
   1. News programs
   2. Situation comedies
   3. Musical variety shows
   4. Panel/Game shows
   5. Sports
   6. Movies
   7. Comedy shows
   8. I do not have TV
   9. I seldom watch TV
   10. None of the above
61. What type of radio programs do you generally listen to? (Check all that apply)
   1. Classical music
   2. Western music
   3. Popular music
   4. News programs
   5. Plays
   6. Sports broadcasts
   7. I have no radio
   8. I seldom listen to the radio
   9. None of the above (list below)

62. Have you ever performed work in some way related to marine mammals?
   Yes ___  No ___

63. If you answered yes, please complete the following form by entering the number of months experience you have had in each capacity for each type of animal.

<table>
<thead>
<tr>
<th>Capacities</th>
<th>Dolphins/ Porpoises</th>
<th>Pilot Whales</th>
<th>Killer Whales</th>
<th>Pinnipeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeding/Handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Biologist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ocean Capturing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Gordon Personal Inventory, the Gordon Personal Profile, and the Kuder Occupational Preference Record Form D have been removed due to copyright restrictions. These materials can be obtained from the publishers:

**Gordon Personal Inventory**

The Psychological Corporation  
757 Third Avenue  
New York, New York 10017

**Gordon Personal Profile**

The Psychological Corporation  
757 Third Avenue  
New York, New York 10017

**Kuder Occupational Preference Record, Form D**

Science Research Associates, Inc.  
259 East Erie Street  
Chicago, Illinois 60611
APPENDIX B

TEST BATTERY SCORING KEYS

A. Biosystems General Information Test (BGIT)
B. Personnel History Questionnaire (PHQ)
C. Gordon Personal Inventory
D. Gordon Personal Profile
E. Kuder Occupational Preference Record Form D (Selected Keys)
<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Last Job Title</th>
<th>Initial</th>
<th>Initial Grade/Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a b c d</td>
<td>26. a b c d</td>
<td>51. a b c d</td>
<td>76. a b c d</td>
</tr>
<tr>
<td>2</td>
<td>a b c d</td>
<td>27. a b c d</td>
<td>52. a b c d</td>
<td>77. a b c d</td>
</tr>
<tr>
<td>3</td>
<td>a b c d</td>
<td>28. a b c d</td>
<td>53. a b c d</td>
<td>78. a b c d</td>
</tr>
<tr>
<td>4</td>
<td>a b c d</td>
<td>29. a b c d</td>
<td>54. a b c d</td>
<td>79. a b c d</td>
</tr>
<tr>
<td>5</td>
<td>a b c d</td>
<td>30. a b c d</td>
<td>55. a b c d</td>
<td>80. a b c d</td>
</tr>
<tr>
<td>6</td>
<td>a b c d</td>
<td>31. a b c d</td>
<td>56. a b c d</td>
<td>81. a b c d</td>
</tr>
<tr>
<td>7</td>
<td>a b c d</td>
<td>32. a b c d</td>
<td>57. a b c d</td>
<td>82. a b c d</td>
</tr>
<tr>
<td>8</td>
<td>a b c d</td>
<td>33. a b c d</td>
<td>58. a b c d</td>
<td>83. a b c d</td>
</tr>
<tr>
<td>9</td>
<td>a b c d</td>
<td>34. a b c d</td>
<td>59. a b c d</td>
<td>84. a b c d</td>
</tr>
<tr>
<td>10</td>
<td>a b c d</td>
<td>35. a b c d</td>
<td>60. a b c d</td>
<td>85. a b c d</td>
</tr>
<tr>
<td>11</td>
<td>a b c d</td>
<td>36. a b c d</td>
<td>61. a b c d</td>
<td>86. a b c d</td>
</tr>
<tr>
<td>12</td>
<td>a b c d</td>
<td>37. a b c d</td>
<td>62. a b c d</td>
<td>87. a b c d</td>
</tr>
<tr>
<td>13</td>
<td>a b c d</td>
<td>38. a b c d</td>
<td>63. a b c d</td>
<td>88. a b c d</td>
</tr>
<tr>
<td>14</td>
<td>a b c d</td>
<td>39. a b c d</td>
<td>64. a b c d</td>
<td>89. a b c d</td>
</tr>
<tr>
<td>15</td>
<td>a b c d</td>
<td>40. a b c d</td>
<td>65. a b c d</td>
<td>90. a b c d</td>
</tr>
<tr>
<td>16</td>
<td>a b c d</td>
<td>41. a b c d</td>
<td>66. a b c d</td>
<td>91. a b c d</td>
</tr>
<tr>
<td>17</td>
<td>a b c d</td>
<td>42. a b c d</td>
<td>67. a b c d</td>
<td>92. a b c d</td>
</tr>
<tr>
<td>18</td>
<td>a b c d</td>
<td>43. a b c d</td>
<td>68. a b c d</td>
<td>93. a b c d</td>
</tr>
<tr>
<td>19</td>
<td>a b c d</td>
<td>44. a b c d</td>
<td>69. a b c d</td>
<td>94. a b c d</td>
</tr>
<tr>
<td>20</td>
<td>a b c d</td>
<td>45. a b c d</td>
<td>70. a b c d</td>
<td>95. a b c d</td>
</tr>
<tr>
<td>21</td>
<td>a b c d</td>
<td>46. a b c d</td>
<td>71. a b c d</td>
<td>96. a b c d</td>
</tr>
<tr>
<td>22</td>
<td>a b c d</td>
<td>47. a b c d</td>
<td>72. a b c d</td>
<td>97. a b c d</td>
</tr>
<tr>
<td>23</td>
<td>a b c d</td>
<td>48. a b c d</td>
<td>73. a b c d</td>
<td>98. a b c d</td>
</tr>
<tr>
<td>24</td>
<td>a b c d</td>
<td>49. a b c d</td>
<td>74. a b c d</td>
<td>99. a b c d</td>
</tr>
<tr>
<td>25</td>
<td>a b c d</td>
<td>50. a b c d</td>
<td>75. a b c d</td>
<td>100. a b c d</td>
</tr>
</tbody>
</table>

Part I | Part II | Part III | Part IV
---|---|---|---
- 49 -

35
B. Scoring Keys for the Personal History Questionnaire for Each of Six Job Factors

and a Global Criterion of Performance.

<table>
<thead>
<tr>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17-28</td>
<td>-1</td>
<td>1</td>
<td>1 yr Coll</td>
<td>-1</td>
<td>5</td>
<td>3</td>
<td>+1</td>
<td>1</td>
<td>1 yr Coll</td>
<td>-1</td>
<td>1</td>
<td>2 yr Coll</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>29-45</td>
<td>+1</td>
<td>11</td>
<td>2 yr Coll</td>
<td>+1</td>
<td>8</td>
<td>2</td>
<td>-1</td>
<td>2</td>
<td>1-2 Coll</td>
<td>-1</td>
<td>3</td>
<td>3-4 Coll</td>
<td>-1</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>-1</td>
<td>15</td>
<td>1-2 Coll</td>
<td>-1</td>
<td>10</td>
<td>3-5 Coll</td>
<td>+1</td>
<td>18</td>
<td>3 yr Coll</td>
<td>-1</td>
<td>10</td>
<td>5</td>
<td>-1</td>
</tr>
<tr>
<td>11</td>
<td>4-5</td>
<td>+1</td>
<td>3</td>
<td>3-6 Coll</td>
<td>+1</td>
<td>21</td>
<td>1-2 Coll</td>
<td>-1</td>
<td>21</td>
<td>1-2 Coll</td>
<td>-1</td>
<td>21</td>
<td>1-2 Coll</td>
<td>+1</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>+1</td>
<td>19</td>
<td>1-2 Coll</td>
<td>+1</td>
<td>23</td>
<td>3-6 Coll</td>
<td>+1</td>
<td>3</td>
<td>3-6 Coll</td>
<td>+1</td>
<td>3</td>
<td>3-6 Coll</td>
<td>+1</td>
</tr>
<tr>
<td>15</td>
<td>1-2</td>
<td>-1</td>
<td>23</td>
<td>1</td>
<td>-1</td>
<td>23</td>
<td>5</td>
<td>+1</td>
<td>22</td>
<td>1-2 Coll</td>
<td>-1</td>
<td>22</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td>21</td>
<td>1-2</td>
<td>-1</td>
<td>26</td>
<td>1</td>
<td>-1</td>
<td>27</td>
<td>2</td>
<td>-1</td>
<td>26</td>
<td>1-2 Coll</td>
<td>+1</td>
<td>26</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>27</td>
<td>4</td>
<td>+1</td>
<td>27</td>
<td>4</td>
<td>+1</td>
<td>54</td>
<td>8</td>
<td>-1</td>
<td>27</td>
<td>4</td>
<td>-1</td>
<td>54</td>
<td>8</td>
<td>+1</td>
</tr>
<tr>
<td>29</td>
<td>1-3</td>
<td>+1</td>
<td>38A</td>
<td>Yes</td>
<td>+1</td>
<td>58</td>
<td>3</td>
<td>-1</td>
<td>37A</td>
<td>Yes</td>
<td>+1</td>
<td>37A</td>
<td>Yes</td>
<td>+1</td>
</tr>
<tr>
<td>40</td>
<td>5-4</td>
<td>-1</td>
<td>38C</td>
<td>2</td>
<td>+1</td>
<td>40</td>
<td>5</td>
<td>-1</td>
<td>40</td>
<td>5</td>
<td>-1</td>
<td>40</td>
<td>5</td>
<td>-1</td>
</tr>
<tr>
<td>43</td>
<td>Yes</td>
<td>-1</td>
<td>6</td>
<td>6</td>
<td>-1</td>
<td>50</td>
<td>6</td>
<td>-1</td>
<td>36</td>
<td>6</td>
<td>-1</td>
<td>36</td>
<td>6</td>
<td>-1</td>
</tr>
<tr>
<td>51</td>
<td>Yes</td>
<td>+1</td>
<td>50</td>
<td>8</td>
<td>+1</td>
<td>50</td>
<td>8</td>
<td>+1</td>
<td>50</td>
<td>8</td>
<td>+1</td>
<td>50</td>
<td>8</td>
<td>+1</td>
</tr>
<tr>
<td>54</td>
<td>7</td>
<td>+1</td>
<td>56</td>
<td>3</td>
<td>-1</td>
<td>56</td>
<td>3</td>
<td>-1</td>
<td>56</td>
<td>3</td>
<td>-1</td>
<td>56</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>55</td>
<td>1</td>
<td>-1</td>
<td>58</td>
<td>7</td>
<td>+1</td>
<td>58</td>
<td>7</td>
<td>+1</td>
<td>58</td>
<td>7</td>
<td>+1</td>
<td>58</td>
<td>7</td>
<td>+1</td>
</tr>
<tr>
<td>59</td>
<td>3</td>
<td>+1</td>
<td>59</td>
<td>3 or less</td>
<td>+1</td>
<td>59</td>
<td>3 or less</td>
<td>+1</td>
<td>59</td>
<td>3 or less</td>
<td>+1</td>
<td>59</td>
<td>3 or less</td>
<td>+1</td>
</tr>
<tr>
<td>60</td>
<td>2</td>
<td>-1</td>
<td>61</td>
<td>4</td>
<td>-1</td>
<td>61</td>
<td>4</td>
<td>-1</td>
<td>61</td>
<td>4</td>
<td>-1</td>
<td>61</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
<td>+1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>31 Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>+16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total | 12 Items |     |      |          |     |      |          |     |      |          |     |      |          |     |
|       | Constant | +7   |      |          |     |      |          |     |      |          |     |      |          |     |

| Total | 24 Items |     |      |          |     |      |          |     |      |          |     |      |          |     |
|       | Constant | +16  |      |          |     |      |          |     |      |          |     |      |          |     |
### Key E (F-V)

<table>
<thead>
<tr>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17-28</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>29-45</td>
<td>+1</td>
</tr>
<tr>
<td>1</td>
<td>1 yr Coll</td>
<td>-1</td>
</tr>
<tr>
<td>2</td>
<td>2 yr Coll</td>
<td>+1</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>26</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>2-5</td>
<td>+1</td>
</tr>
<tr>
<td>27</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>+1</td>
</tr>
<tr>
<td>37A</td>
<td>Yes</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>-1</td>
</tr>
<tr>
<td>40</td>
<td>6</td>
<td>-1</td>
</tr>
<tr>
<td>43</td>
<td>Yes</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>+1</td>
</tr>
<tr>
<td>50</td>
<td>8</td>
<td>+1</td>
</tr>
<tr>
<td>51</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>54</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td>55</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>58</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>-1</td>
</tr>
<tr>
<td>61</td>
<td>1</td>
<td>+1</td>
</tr>
<tr>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
<td>+1</td>
</tr>
</tbody>
</table>

**Total = 23 Items**

**Constant = +13**

### Key F (F-IV)

<table>
<thead>
<tr>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17-28</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>29-45</td>
<td>+1</td>
</tr>
<tr>
<td>1</td>
<td>1 yr Coll</td>
<td>-1</td>
</tr>
<tr>
<td>2</td>
<td>2 yr Coll</td>
<td>+1</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>19</td>
<td>1-2</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>3-5</td>
<td>-1</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>+1</td>
</tr>
<tr>
<td>27</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>39</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>1-2</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>3-5</td>
<td>-1</td>
</tr>
<tr>
<td>40</td>
<td>6</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>-1</td>
</tr>
<tr>
<td>43</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>46</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>50</td>
<td>8</td>
<td>+1</td>
</tr>
<tr>
<td>54</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>58</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>60</td>
<td>2</td>
<td>+1</td>
</tr>
</tbody>
</table>

**Total = 27 Items**

**Constant = +12**

### Key G (Global)

<table>
<thead>
<tr>
<th>Item</th>
<th>Category</th>
<th>Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17-28</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>29-45</td>
<td>+1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>+1</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td>27</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>2-3</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>3-5</td>
<td>-1</td>
</tr>
<tr>
<td>40</td>
<td>5</td>
<td>-1</td>
</tr>
<tr>
<td>38C</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>46</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>51</td>
<td>5</td>
<td>-1</td>
</tr>
<tr>
<td>54</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>56</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>57</td>
<td>2-3</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>4-5</td>
<td>-1</td>
</tr>
<tr>
<td>58</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>+1</td>
</tr>
<tr>
<td>63</td>
<td>0-3 yrs</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
<td>+1</td>
</tr>
</tbody>
</table>

**Total = 33 Items**

**Constant = +16**
The Gordon Personal Inventory, the Gordon Personal Profile, and the Kuder Occupational Preference Record Form D have been removed due to copyright restrictions. These materials can be obtained from the publishers:

Gordon Personal Inventory
The Psychological Corporation
757 Third Avenue
New York, New York 10017

Gordon Personal Profile
The Psychological Corporation
757 Third Avenue
New York, New York 10017

Kuder Occupational Preference Record, Form D
Science Research Associates, Inc.
259 East Erie Street
Chicago, Illinois 60611