Date: _____ / _____ / _____

First Name: _____

Surname: _____

Position: _____

Expert Software Services

Selection Tests

INSTRUCTIONS

The Expert Software Services selection tests are designed to help us evaluate the verbal, quantitative, analytical and industry skills you have developed. We have found a strong correlation between high selection test scores and the probability of success on the job.

There are four sections to the selection tests:

□ Verbal Section	10 minutes	15 multiple choice questions (sentence completion, analogy, reading comprehension and antonym questions)
□ Quantitative Section	10 minutes	15 multiple choice questions (quantitative comparison, discrete quantitative and data interpretation questions)
□ Analytical Section	10 minutes	10 multiple choice questions (analytical and logical reasoning questions)
□ Industry Skills Section	10 minutes	6 multiple choice, 2 written answer questions.

You are given 10 minutes to answer the questions in each section. You may *not* go back to a section once the time for that section has elapsed.

Each multiple choice question in the verbal, quantitative and analytical sections is worth the same number of points. Whether it is easy or difficult, whether it takes you 10 seconds or two minutes to answer, you get the same number of points for each question answered correctly. In each group of questions within these sections, the questions tend to go from easy to more difficult.

You will be penalised for each incorrect answer. When uncertain about an answer, skip the question. You can always come back to the question if you have time. (For most of the multiple choice questions, guessing gives you an 80% chance of a penalty.)

Do worry if you fail to complete a section. The selection test is designed such that it's unlikely that you'll be able to fully complete all sections.

Expert Software Services

Verbal Section

Time — 10 Minutes

15 Questions

Directions: Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five lettered words or sets of words. Choose the word or set of words for each blank that best fits the meaning of the sentence as a whole.

Questions 1–3

1. Woolf ---------- conventional notions of truth: in her words, one cannot receive from any lecture "a nugget of pure truth" to wrap up between the pages of one's notebook and keep on the mantlepiece forever.

   A) anticipates
   B) articulates
   C) neglects
   D) mocks
   E) rationalises

   1. _____

2. The term "rare earth" is in fact a ----------, for, paradoxically, the rare-earth elements are in actuality ----------, being present in low concentration in virtually all minerals.

   A) truism…essential
   B) misnomer…ubiquitous
   C) disclaimer…ephemeral
   D) metaphor…figurative
   E) mnemonic…unmemorable

   2. _____

3. While the disease is in ---------- state it is almost impossible to determine its existence by ----------.

   A) a dormant…postulate
   B) a critical…examination
   C) an acute…analysis
   D) a suspended…estimate
   E) a latent…observation

   3. _____

Directions: In each of the following questions, a related pair of words or phrases is followed by five lettered pairs of words or phrases. Select the lettered pair that best expresses a relationship similar to that expressed in the original pair.

Questions 4–7

4. MOLT : FEATHERS ::

   A) slough : skin
   B) sharpen : talons
   C) curry : hide
   D) flutter : wings
   E) bare : fangs

4. _____

5. OFFHAND : PREMEDITATION ::

   A) upright : integrity
   B) aboveboard : guile
   C) cutthroat : competition
   D) backward : direction
   E) underlying : foundation

5. _____

6. POLTERGEIST : APPARATION ::

   A) dwarf : stature
   B) witch : familiar
   C) ogre : monster
   D) sorcerer : spell
   E) gremlin : mischief

6. _____

7. AUSTERE : STYLE ::

   A) controlled : movement
   B) affluent : wealth
   C) subservient : demeanour
   D) inspirational : faith
   E) pragmatic : speech

7. _____

Directions: The following passage is followed by questions based on its content. After reading the passage, choose the best answer to each question. Answer all questions following the passage on the basis of what is *stated* or *implied* in the passage.

At night, schools of prey and predators are almost always spectacularly illuminated by the bioluminescence produced by the microscopic and larger plankton. The reason for the ubiquitous production of light by the micro organisms of the sea remains obscure and suggested explanations are controversial. It has been suggested that light is a kind of inadvertent by-product of life in transparent organisms. It has also been hypothesised that the emission of light on disturbance is advantageous to the plankton in making the predators of the plankton conspicuous to *their* predators! Unquestionably, it does act this way. Indeed, some fisheries base the detection of their prey on the bioluminescence that the fish excite. It is difficult, however, to defend the thesis that this effect was the direct factor in the original development of bioluminescence, since the effect was of no advantage to the individual micro organism that first developed it. Perhaps the luminescence of a micro organism also discourages attack by light-avoiding predators and is of initial survival benefit to the individual. As it becomes general in the population, the effect of revealing plankton predators to their predators would also become important.

Questions 8–11

8. The primary topic of the passage is which of the following?

   A) The origin of bioluminescence in plankton predators.
   B) The disadvantages of bioluminescence in micro organisms.
   C) The varieties of marine bioluminescent life forms.
   D) Symbiotic relationships between predators and their prey.
   E) Hypotheses on the causes of bioluminescence in plankton.

   8. _____

9. The author mentions the activities of fisheries in order to provide an example of

   A) how ubiquitous the phenomenon of bioluminescence is coastally.
   B) how predators do make use of bioluminescence in locating their prey.
   C) how human intervention imperils bioluminescent micro organisms.
   D) how nocturnal fishing expeditions are becoming more and more widespread.
   E) how limited bioluminescence is as a source of light for human use.

   9. _____

10. The passage provides an answer to which of the following questions?

   A) What is the explanation for the phenomenon of bioluminescence in marine life?
   B) Does the phenomenon of plankton bioluminescence have any practical applications?
   C) Why do only certain specimens of marine life exhibit the phenomenon of bioluminescence?
   D) How does underwater bioluminescence differ from atmospheric bioluminescence?
   E) What are the steps that take place as an individual micro organism becomes bioluminescent?

   10. _____

11. The author's attitude towards the hypothesis that plankton chiefly benefited from their bioluminescence because it made the plankton predators visible to their predators can best be described as

   A) perplexed B) derisive C) intrigued D) defensive E) dispassionate

   11. _____

Directions: Each question below consists of a word printed in capital letters, followed by five lettered words or phrases. Choose the lettered word or phrase that is most nearly *opposite* in meaning to the word in capital letters.

Since some of the questions require you to distinguish fine shades of meaning, be sure to consider all the choices before deciding which one is best.

Questions 12–15

12. DISARRAY:

A) neaten
B) empower
C) combine
D) oscillate
E) select

12. _____

13. INUNDATE:

A) uproot
B) channel
C) wallow
D) embroil
E) drain

13. _____

14. TOPICAL:

A) general
B) disinterested
C) chronological
D) fallacious
E) imperceptible

14. _____

15. FULMINATE:

A) authorise
B) dominate
C) edify
D) illuminate
E) praise

15. _____

STOP

If you finish before time is called, you may check your work on this section only.
Do not work on any other section in the test.

Quantitative Section

Time — 10 Minutes

15 Questions

Numbers: All numbers used are real numbers.

Directions: Each of the Questions 1–5 consists of two quantities, one in Column A and one in column B. You are to compare the two quantities and choose

A) if the quantity in Column A is greater;

B) if the quantity in Column B is greater;

C) if the two quantities are equal;

D) if the relationship cannot be determined from the information given.

	Column A	**Column B**
1.	The number of posts needed for a fence 144 metres long if posts are placed 12 metres apart.	12 posts

1. _____

The houses on Jordan Drive are numbered as follows:
West side (1801–1837), with consecutive odd numbers;
East side has 18 houses.

2.	Number of houses on the west side.	Number of houses on the east side.

2. _____

Radius of circle A = ½ radius of circle B

3.	Circumference of circle B	Twice the circumference of circle A

3. _____

4.	$7(10^4) + 3(10^3) + 2(10^2) + 5(10) + 6$	73,256

4. _____

$0 < x < y$

5.	$3x$	y

5. _____

Directions: Each of questions 6–15 has five answer choices. For each of these questions, select the best of the answer choices given.

Questions 6–10

6. In a group of 15, 7 have studied Latin, 8 have studied Greek and 3 have not studied either. How many of these have studied both Latin and Greek?

   A) 0 B) 3 C) 4 D) 5 E) 7

   6. _____

7. *S* dollars are divided among 4 persons so that each person after the first one receives $10 more than the preceding person. How much does the first person *L* receive?

   A) $S / (4L + 60)$ B) $4 (S - 60)$ C) $(S + 60) / 4$ D) $S / (4L + 40)$ E) $(S - 60) / 4$

   7. _____

8. A team that played 60 games had won 30% of its games played. After a phenomenal winning streak this team raised its average to 50%. How many games must the team have won in a row to attain this average?

   A) 12 B) 20 C) 24 D) 30 E) 45

   8. _____

9. A train covers the distance *d* between two cities in *h* hours arriving 2 hours late. What rate would permit the train to arrive on schedule?

   A) $h - 2$
   B) $(d / h) - 2$
   C) $d / (h - 2)$
   D) $dh - 2$
   E) $d / (h + 2)$

   9. _____

10. Nancy would like to complete all her homework before 10 p.m. in order to watch an important television programme. She has 40-minute assignments in each of her five prepared subjects. What is the latest time at which she can start and still complete her homework in time for the programme?

    A) 6:30 p.m.
    B) 6:40 p.m.
    C) 7:10 p.m.
    D) 7:20 p.m.
    E) 8:00 p.m.

    10. _____

Questions 11–15 refer to the following tables.

HOW THE BROWNS SPENT THEIR MONEY LAST YEAR

Item	**Amount Expended**
Housing (mortgage, taxes, insurance, utilities)	$13,750
Clothing	1,300
Medical Insurance	1,500
Medical costs	2,600
Student loan repayments	4,200
Household furniture and appliances	1,700
Contributions (charitable, political)	750
Entertainment	2,200
Food	4,000
Transportation	3,000
Total expenditures	**$35,000**

HOW THE AVERAGE PERSON SPENDS MONEY

Housing	15%
Nondurables (clothing, gasoline)	14%
Durables	13%
Savings	3%
Interest on loans	3%
Services (transport, electricity, medical care)	35%
Food	17%

11. For a family with an annual income of $30,000, how much would be put into savings according to the figures for the average person?

A) $90 B) $300 C) $900 D) $3000 E) $9000

11. _____

12. How much, out of every dollar spent, does the average person spend for housing?

A) 5c B) 7½c C) 10c D) 12½c E) 15c

12. _____

13. How does the expenditure for food by the Browns compare with what the average person spends for food? The Browns spend…

A) 5.6% less B) 5.6% more C) 9% less D) 13% less E) 13% more

13. _____

14. What part of the Browns' expenditure is spent for medical care and medical insurance?

A) 15/350 B) 41/350 C) 26/350 D) 35/100 E) 41/100

14. _____

15. Which of the following can be inferred from the way the average person spend money?

I. Out of every dollar spent, the average person spends 2c less for food than housing.

II. The average person spends more for medical care, transportation and electricity than for food and housing.

III. The average person saves $3.00 of every $100 earned.

A) I only B) II only C) III only D) I and III E) II and III

15. _____

STOP

If you finish before time is called, you may check your work on this section only.
Do not work on any other section in the test.

Analytical Section

Time — 10 Minutes

10 Questions

Directions: Each question or group of questions is based on a passage or set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. For each question, select the best answer choice given.

Questions 1–3

The union organiser of the hospital workers is forming a five-person team to leaflet a nearby hospital. The team must contain two persons to distribute leaflets, one speaker to address the workers who stop, and a two person defence squad. A, B and C are possible leafletters; C, D and E are possible speakers; F, G and H are possible members of the defence guard. A and C prefer to work with each other on the same team. E prefers to work only if F works.

1. Which choice of personnel is impossible if all preferences are respected?

   A) A and B as leafletters, C as speaker.
   B) B and C as leafletters.
   C) A and C as leafletters, F and H on defence.
   D) Either D or E as speaker, with F on defence.
   E) G and H on defence.

   1. _____

2. If A and B are leafletters and all preferences are respected, which is (are) true?

   I. C is the speaker.
   II. F is on defence.
   III. Either F or G is on defence.

   A) I only.
   B) II only.
   C) III only.
   D) I and II only.
   E) I and III only.

   2. _____

3. Which is a possible team if all preferences are respected?

   A) A, B, C, D, F
   B) A, C, D, E, F
   C) A, B, C, F, G
   D) A, C, E, G, H
   E) B, C, D, F, G

   3. _____

Questions 4 and 5

In 1978 Thomas Malthus published "Essay on Population" in which he postulated that food supply can never keep pace with the rate of increase in human population.

4. Which of the following statements, if true, would tend to *weaken* Malthus's argument?

   I. The total population of humans has risen at a rapid rate partly because of the removal of natural checks on the population.

   II. In many nations, the increase in human population has far outstripped the food-producing capacity.

   III. Human population growth may be halted by the use of contraception.

   IV. For many ethnic and religious groups, artificial control of contraception is morally unacceptable.

   A) I only.
   B) I and II.
   C) II only.
   D) II and IV only.
   E) III only.

   4. _____

5. Which of the following would be most likely to help limit the demands placed on food supplies?

   A) Wars.
   B) Conservation of natural resources.
   C) Better farming methods.
   D) Better international relations.
   E) Improved disease control.

   5. _____

Question 6

6. Most people who take the experimental medicine ABC/123 develop headaches; therefore, if Alice does not take ABC/123, she will probably not develop headaches.

   The argument above most resembles which of the following?

   A) Most Dobermans are easy to train, so Beth is sure to have no trouble training the Doberman she has just bought.
   B) Most Polish built cars are poorly made; since this car is well made, it was probably not built in Poland.
   C) Most Broadway plays are very well acted, so The Logic Game, which is not a Broadway play, is probably not well acted.
   D) Most engineers spend many years in school, so Sharon, who has spent many years in school, is probably an engineer.
   E) All societies known to history have had clearly defined social hierarchies, so there will probably never be a truly nonhierarchical society.

   6. _____

Questions 7 and 8

Delegations from Wallachia and Rumelia are meeting to discuss military, trade and diplomatic problems. Each delegation consists of a chairperson, two military attaches and two trade experts. The Wallachian delegation consists of A, B, C, D, E; the Rumelian delegation of F, G, H, I and J. Each chairperson is to occupy the middle seat in a row of five on each of two sides of a rectangular table.

(1) A insists on being seated at the opposite end of the table from B.

(2) G, who is deaf in his right ear, must be at the right end of the table.

(3) Neither D nor F is a chairperson.

(4) The Wallachian military attaches, one of whom is B, are seated together, and neither is opposite either of the Rumelian military attaches, neither of whom is G.

(5) C, a trade expert, is seated opposite H.

7. F may be a

A) trade expert seated next to I.
B) military attache seated next to I.
C) military attache seated next to J.
D) trade expert seated next to H.
E) trade expert seated opposite B.

7. _____

8. About which of the following do the stated conditions provide the least information?

A) The identity of the Wallachian chairperson.
B) The identity of the Rumelian chairperson.
C) The identities and seating positions of the Wallachian military attaches.
D) Which delegate is immediately to the right of the Wallachian chairperson.
E) Which delegate is immediately to the right of the Rumelian chairperson.

8. _____

Questions 9 and 10

All good athletes want to win and all athletes who want to win eat a well-balanced diet; therefore, all athletes who do not eat a well-balanced diet are bad athletes.

9. If the assumptions above are true, then which of the following statements must be true?

   A) No bad athlete wants to win.
   B) No athlete who does not eat a well-balanced diet is a good athlete.
   C) Every athlete who eats a well-balanced diet is a good athlete.
   D) All athletes who want to win are good athletes.
   E) Some good athletes do not eat a well-balanced diet.

9. _____

10. Which of the following, if true, would refute the assumptions of the argument above?

   A) Ann wants to win, but she is not a good athlete.
   B) Bob, the accountant, eats a well-balanced diet, but he is not a good athlete.
   C) All of the players on the football team eat a well-balanced diet.
   D) No athlete who does not eat a well-balanced diet wants to win.
   E) Kathy, the netball star, does not eat a well-balanced diet, but she is a good athlete.

10. _____

STOP

If you finish before time is called, you may check your work on this section only.
Do not work on any other section in the test.

Industry Skills Section

Time — 10 Minutes

8 Questions

Questions 1 –5

These questions relate to a flow chart that illustrates the process by which a problem is solved. The cells in the flow chart contain statements, questions or question answers (Y or N). However, the flow chart is not complete. Your task is to complete the flow chart by selecting the correct contents for the five incomplete cells.

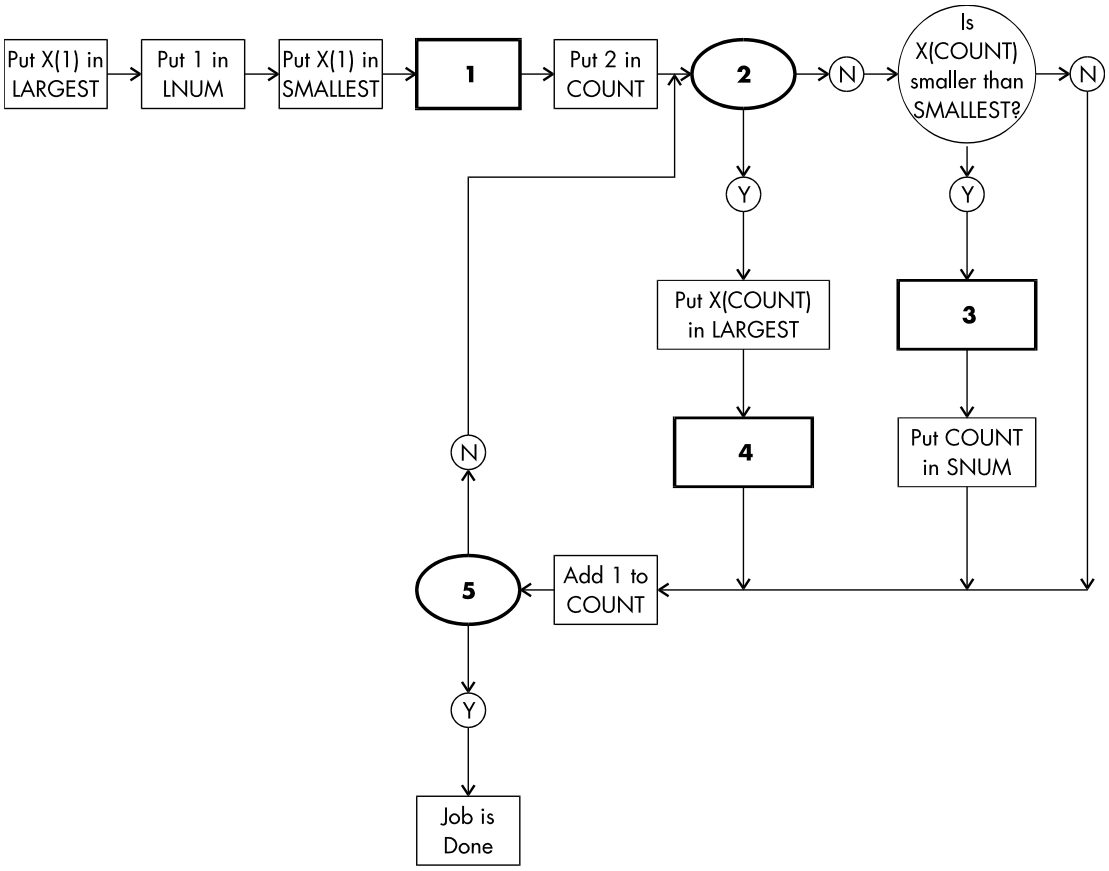
Problem and Conditions

A. Find the LARGEST and SMALLEST of 100 numbers and their location in the series, where the location of LARGEST will be shown in LNUM, and the location of SMALLEST in SNUM.

B. The series is shown as X(1), (X2)… X(COUNT)… X(100), with the bracketed variable referring to the count or location of the number (X) in the series.

C. The method is to put X(1) in both LARGEST and SMALLEST, and location (1) in both LNUM and SNUM.

D. Then each of the remaining 99 numbers is tested against LARGEST and SMALLEST, with replacement of number, and location in LNUM or SNUM, when appropriate.



1. Cell 1 should be?

   A) Continue testing.
   B) Start next set.
   C) Add LNUM and SNUM.
   D) Put 1 in SNUM.
   E) Set COUNT to 1.

1. _____

2. Cell 2 should be?

   A) Is COUNT equal to LNUM?
   B) Is COUNT equal to SNUM?
   C) Is X(COUNT) 100?
   D) Is X(COUNT) smaller than LARGEST?
   E) Is X(COUNT) larger than LARGEST?

2. _____

3. Cell 3 should be?

   A) Continue testing.
   B) Put X(COUNT) in SMALLEST.
   C) Put X(COUNT) in LARGEST.
   D) Add 1 to COUNT.
   E) X(COUNT) is bigger.

3. _____

4. Cell 4 should be?

   A) Put X(1) in SMALLEST.
   B) Put X(1) in LARGEST.
   C) Put COUNT in LNUM.
   D) Put X(2) in SMALLEST.
   E) Set COUNT to 1.

4. _____

5. Cell 5 should be?

   A) Is LNUM complete?
   B) Is SNUM complete?
   C) Is LARGEST found?
   D) Is SMALLEST found?
   E) Is COUNT 101?

5. _____

Question 6

Write a program in the programming language of your choice which does the following:

- when the input is 1, the output is 2; and
- when the input is 2, the output is 1.

6.

Questions 7 and 8

The table below shows the current financial projections for a project team over the next quarter year without Project X. It also shows the financial estimates for Project X. If accepted, Project X would have to be completed by the project team during the next quarter.

CASE STUDY FOR PROJECT X

	Current Projection for Next Quarter $'000	**Project X Estimate $'000**
Net Fees	1775	140
Other Charges	500	20
TOTAL REVENUE	**2275**	**160**
Direct Labour Cost	800	140
Unsold Direct Labour	200	
Other Direct Costs	500	20
TOTAL DIRECT COSTS	**1500**	**160**
GROSS MARGIN	**775**	**0**
Selling Costs	125	0
Overheads	150	0
CONTRIBUTION	**500**	**0**

7. Should Project X be accepted? Yes No (circle correct answer)

8. What are the reasons for your answer?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

STOP

If you finish before time is called, you may check your work on this section only.
Do not work on any other section in the test.