Virtusa Sample Placement Paper 2009

Mathematic, Reasoning

Directions (1-8): Each of the following questions is based on a set of facts. Choose the correct answer in each case.

1. The workers union of Grain Corp, a grain-processing plant, is attempting to obtain a pay raise from Grian Corp management. To pressurize the Graincorp management into accepting the union's proposal, the president of the union has proposed a boycott against Square Mart food stores, which are owned by Mega Food, the parent company of the GrainCorp.
The answer to which of the following is LEAST directly relevant to the union president's consideration of whether a boycott of Square Mart will lead to acceptance of their pay rate proposal?

(1) Are the staple food products purchased by the consumers at Square Mart stores readily available at other stores not owned by Mega Food?
(2) Would the loss of business at Square Mart stores materially affect Mega Food?
(3) How many Square Marts are within the region of the GrainCorp plant?
(4) Is Mega Food the only corporation that operates both grain-processing plants and Stores?

2. The owner of a four-story commercial building discovered termites in the building's first and second floors and called an exterminator. The exterminator pumped gar into the walls on both the first and second floors. Due to the exterminator's work the termites on those floors were killed quickly.
Which of the following if true, most seriously undermines the validity of the explanation for the speed with which the termites were killed?

(1) Even though the exterminator did not pump gas into the walls of the fourth storey, the termites there died as quickly as they did on the first and second storeys.
(2) The third floor had on termite infestation.
(3) The speed at which termites are killed increase as the concentration of an exterminator's gas increases.
(4) The speed with which the exterminator's gas kills termites drops off sharply as the gas dissipates throughout the building's walls.

3. A chemical company recently introduced a new type of foam spray that it claims will reduce the rate of erosion from walls of road cuts. A study by the company showed that the rate of erosion was low on a road cut where the from was applied.
Which of the following, if true, would most seriously weaken the company's conclusion?

(1) Because the foam itself weathers, the foam would have to be reapplied every four years in order to maintain protection against erosion.
(2) Road cuts similar to the one studied typically show low rates of erosion without the foam.
(3) Studies by the company that produces the material are sometimes unreliable because of conflicts of interest.
(4) The rate of erosion from the road cut in the study was greater then expected based on computer

simulation models.

4. The Laysan Rail, an insectivore bird once present on several of the Hawaiian Islands, can no longer be found and is thought to be extinct. Scientist originally thought that a decrease in the amount of ground vegetation available for nesting was responsible for the decline of the bird. However, for the decline that increased competition for food was ultimately responsible for the Latsan Rail's inability to survive.
When of the following would best help to account for the change in the accepted explanation for the Laysan Rail's extinctions?

(1) When attempts were made to relocate the Laysan Rail to other islands, the birds lost the geographical cues that they relied on for finding mating sites.
(2) The vegetation on the Laysan Rail's home island was decimated when rabbits were introduced to the island in the 1910s.
(3) The Laysan Rail builds nests under dense ground cover to protect the eggs.
(4) An increase in the use of pesticide resulted in a decrease in the numbers of flies and moths present in the Laysan Rail's territory.

5. Retail clothing stores hold "one day only" sales to clear merchandise that has been returned because it is defective in some way. The stores should sell this merchandise for up to 70 percent less then the original retail price. Stores will find these sales to be an effective way of getting rid of defective merchandise as long as they inform customers that the discounted merchandise is non-returnable.
The author assumes which of the following about the "one-day only" sale merchandise in predicting the effectiveness
of these sale?

(1) The rate of returns when merchandise is new makes this "one day only" sale key to a store profitably.
(2) The defects in the merchandise are not so significant that customers will be unwilling to pay even the sale price.
(3) Too few shoppers purchase merchandise at full retail price.
(4) If these sales become popular, then stores will have to have them more after.

6. "Some me are certainly intelligent, others are certainly not intelligent, but of intermediate men, we should say, 'intelligent'? Yes. I think so, or no, I shouldn't be inclined to call him intelligent."
Which of the following most accurately reflects the intention of writer of the above?

(1) Every empirical concept has a degree of vagueness.
(2) To call men intelligent who are not strikingly so much be to use the concept with undue imprecision.
(3) Calling someone intelligent or not depends upon one's whim.
(4) There is no need to be as indecisive as the writer of the above.

7. A highly cohesive work group is a prerequisite for high team performance. Sociologists point that the association between groups cohesion and success is owing to the support individual team members give to one another and their acceptance of the group's goals and activities.
Each of the following, if true, either providers support for or cannot weaken the sociologists' assumption about the relationship between cohesion and success EXCEPT

(1) University researchers found that there was a significant correlation between team productivity and the extent to which team members understood and complied with the group's objectives.
(2) A group of Japanese researchers found that successful work teams were headed by dominant leaders.
(3) American researchers found that successful team member tended to rate their fellow members more favorable.
(4) Industrial Psychologists in the UK found that work groups who tended to participate in after hours social activities were more productive.

8. Many business offices are located in buildings having two to eight floors. If a building has more than three floors, then it has a lift if the statements above are true, then which of following must also be true?
(1) Seventh floors have lifts.
(2) Second floors do not have lifts.
(3) Only floors above the third floors have lifts.
(4) All floors may be reached by lifts.

Directions (9-12): Study the following information carefully and answer the question given below them:

After months of talent searching for an Administrative Assistant to the President of the college, the field of applicants has been narrowed down to five (A, B, C, D, and E,). It was announced that the finalist would be chosen after holding a series of all day group personal interviews. The examining committee agreed upon the following procedure:
(I) The interviews will be held once a week.
(II) Not more then three candidates will appear at any all-day interview session.
(III) Each candidate will appear at least once.
(IV) If it becomes necessary to call applicants for additional interview, then not more than one such applicant should be asked to appear the next week.
(V) Because of a detail in the written application, it was agreed that whenever Candidate B appears, A should also present.
(VI) Because of the travel difficulties, it was agreed that C will appear for only one interview.

9. At the first interview, the following candidates appear: A,B and D. Which of the following combinations can be called for the interview to be held the next week?
1) CDE
2) BCD
3) ABE
4) ABC

10. Which of the following is a possible sequence of combinations for interviews in two successive weeks?
1) ABC:ABE
2) ABC:BDE
3) ADE:ABC
4) BDE:ACD

11. If A, B and D appear at the interviews and D is called for an additional interview the following week, then which two candidates may be asked to appear with D?

I. A
II.B
III. C
IV. E
1) I and III only
2) I and II only
3) II and III only
4) III and IV only

12. Which of the following correctly states the procedure followed by the search committee?
I. After the second interview, all the applicants have appeared at least once.
II. The committee sees at least one applicant a second time.
III. If a third session is held, then it is possible for all the applicants to appear at least twice.

1) II only
2) I only
3) I and II only
4) III only

Directions (13-15): Study the following in formation carefully and answer the question given below them:
I. There is a family of five persons A,B,C,D and E.
II. They are working as a doctor a teacher, a trader, a lawyer and a farmer.
III. B, an unmarried teacher, is the daughter of A.
IV. E, a lawyer, is the brother of C.
V. C is the husband of the only married couple in the family.
VI. A, a farmer, is a farther of two sons and an unmarried daughter.
VII. Daughter-in-law of A is a doctor.

13. Which of the following is a group of female members in the family?

1) D and E
2) B and D
3) A,C and E
4) B and C

14. which of the following is the married couple?

1) C and D
2) A and B
3) A and D
4) B and D

15. Which of the following is a group of male members in the family?

1) B and D
2) A, B and C
3) A, C and E
4) A, C and D

Directions (16-18): Read the following information to answer these questions:

For getting selected as a Marketing Manager in a company, the candidate must:
I. Be a graduate with at least 50% marks.
II. Have secured at least 40% marks in the Written Test.
III. Not be less than 24 years and more then 29 years as on October 10, 1997.
IV. Should have work experience of at least two years as an officer.
However, if a candidate:
V. Fulfills all other criteria except at (IV) above but has a diploma in Marketing Management, his/her case is to be referred to the General Manager, Marketing.
VI. Fulfills all other criteria except at (III) above but has worked as Marketing Officer at least for three years, his/her case is to be referred to the Director, Marketing.
Based on the above criteria and the information given each of the questions 16 to18, you have to take the decision with regard to each case. You are not to assume anything. These cases are given to you as on October 10, 1997.

Mark your answer as
(1) If the candidate is not to be appointed
(2) If the candidate is to be referred to the Director, Marketing.
(3) If the data given are not sufficient to take the decision
(4) If the candidate is be referred to the General Manager, Marketing

16. Amit Khanna, born on June 5, 1973, has done his post-graduation in Marketing Management with first class. He has secured 50% marks in the written Test. He has been working in an organisation as a Marketing Officer for the last four years.

17. Rohit verma has been working in as organisation as Officer for the least ten years. His date of birth is February 17, 1964, He has secured 60% marks in the Degree Examination And 40% marks in the Written Test.

18. Manju Sharma is a first class graduate and has done a diploma in Marketing Management. She has secured 50% marks in the written Test. She was 23 years old as on September 5, 1996.

Directions (19-20): Find the set which is most similar to the given set:

19. Given Set : (6, 15, 28)
1) (46, 56, 66)
2) (50, 59, 71)
3) (60, 69, 72)
4) (60, 69, 82)

20. Given Set : (81, 77, 69)
1) (64, 61, 53)
2) (56, 52, 44)
3) (92, 88, 79)
4) (75, 71, 60)

Directions (21-23): Study the information given below to answer these questions:

(i) A certain city is served by six subway lines, designated by the letters A, B and C, and the numbers 1,2 and 3.
(ii) When it snows, morning service on the B line is delayed.
(iii) When it rains or snows, service on the A, 2 and 3 lines is delayed both in the morning as well as in the afternoon.
(iv) When the temperature drops below 30o F, afternoon service if cancelled on either the A line or the 3 line, but not both.
(v) When the temperature rises above 90o F, afternoon service is cancelled on either the C line or the 3 line, but not both.
(vi) When service on the A line is cancelled, service on the C line, which connects the A line, is delayed
(vii) When service on the 3 line is cancelled, service on the B line which connects the 3 line, is delayed.

21. On January 10, with the temperature at 15o F, it snows all day. On how many lines will the service be affected, both in the morning as well as in the afternoon?
1) 3
2) 2
3) 4
4) 5

22. On August 15, with the temperature at 97o F, it begins to rain at 1 p.m. What is the minimum number of lines on which the service will be affected?
1) 3
2) 2
3) 4
4) 5

23. On which of the following occasions would service on the least number of lines be disrupted?
1) A snowy morning with temperature 45o F
2) A snowy afternoon with temperature 45o F
3) A rainy morning with temperature 45o F
4) A snowy afternoon with temperature 20o F

Directions (24-25): Six products U,V,W, X,Y, and Z are to be placed in display windows of a shop. There are six display windows 1,2,3,4,5,6, and one product is to be displayed in one window. Moreover, U cannot be displayed immediately to the left or immediately to the right of V. W must be displayed immediately to the left of X. Z cannot be displayed in window number 6.

24. Which of the following products cannot be displayed in window number 1?
1) V
2) U
3) W
4) X

25. If X is displayed in window number 3, then W must be displayed in which window?
1) 2
2) 1
3) 4

4) 5

ANSWERS: 1. (3)   2. (1)   3. (2)   4. (4)   5. (4)   6. (2)   7. (4)   8. (1)   9. (1)   10. (3)   11. (4)   12. (3)   13. (2)   14. (1)   15. (3)   16. (3)   17. (2)   18.(4)   19. (4)   20. (2)   21. (4)   22. (1)   23. (4)   24. (4)   25. (1)