



Series - AA

HSBC Analytics Campus Aptitude Test

Instructions for the Candidates:

- Question paper is divided into four sections
- Total allotted time for the paper is 60 minutes
- Question paper consists of multiple choice questions which have only one correct answer
- Please shade the correct answer in the answer script provided separately
- Please bear in mind that each incorrect entry bears negative marks – so choose your answers carefully
- There is sectional cut-off threshold for each section. So allocate time to each section accordingly to qualify for the next round
- Do NOT open the paper before you are instructed to do so
- Any kind of malpractice will result in disqualification
- Do not scribble on the question paper. A separate sheet is provided for any calculations.

For official use only (Do not fill):

Section	Total Marks	Marks Earned
1		
2		
3		
4		
Total		

Section 1: Quantitative Aptitude

1. A thief has been accused of stealing. However, he is given an opportunity using which he can avoid going to jail.

He is given two baskets – One with 50 white marbles and other with 50 black marbles. He can rearrange the marbles in the baskets in any manner he wants, and after the rearrangement is done, he has to pick a basket randomly with his eyes closed. Then he has to pick a marble from the selected basket, eyes still closed.

If he picks a white marble, he gets punished.

What is the maximum probability of him avoiding the jail?

a. 1/2

b. 1/4

c. 151/198

d. 74/99

2. You have some marbles and some boxes. If you put 4 marbles in each box, you are left with 1 box empty. If you put 3 marbles in each box, you are left with 1 marble in your hand. How many marbles do you have in all?

a. 5

b. 16

c. 4

d. 13

$$4(n-1) = x$$

$$n = 8$$

$$3(n-1) + 1 = x = 4n - 4$$

$$x = 16$$

3. How many flowers do I have if all of them are roses except two, all of them are tulips except two, and all of them are daisies except two? Given that I have at least one rose.

$$(n-2) = \text{Roses}$$

a. 6

b. 3

c. 5

d. 4

4. Complete the series

2 4 9 28 125

a. 726

b. 1296

c. 729

d. 630

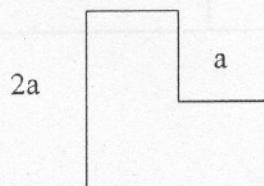
5. If the figure below is divided in 4 equal parts, then the side of the largest edge of any of the equal parts is

a. a

b. $a\sqrt{2}$

c. $a/\sqrt{2}$

d. $a/2$



6. A drunk man moves 4 steps forward and 2 steps backwards. There is a deep pit at 10th step from the starting point. After how many steps will he fall into the pit?

- a. 26 b. 24 c. 22 d. 28

7.

An insurance policy covering flood damage to stock pays 80% of the costs for the first \$1,000 and all of the cost thereafter up to a total of \$5,000. Following a claim, the claimant had to pay an additional \$1,000 to replace damaged stock. How much was the stock worth?

- A \$5,800
B \$6,400
C \$6,200
D \$6,800
E \$6,000

8. If 1 cm on a map corresponds to an actual distance of 40 kms. And the distance on the map between Bombay and Calcutta is 37.5 cms., the actual distance between them is :

- a. 375 kms
b. 3750 kms
c. 1500 kms
d. 1375 kms
e. None of the above

9. Two merchants sell, each an article for Rs.1000. If Merchant A computes his profit on cost price, while Merchant B computes his profit on selling price, they end up making profits of 25% respectively. By how much is the profit made by Merchant B greater than that of Merchant A?

- a. Rs.66.67 b. Rs. 50 c. Rs.125 d. Rs.200

10. If each interior angle of a regular polygon is 150 degrees, then it is
a. Octagon b. Decagon c. Dodecagon d. Tetrahedron

11. Three math classes: X, Y, and Z, take an algebra test.

The average score in class X is 83.

The average score in class Y is 76.

The average score in class Z is 85.

The average score of all students in classes X and Y together is 79.

The average score of all students in classes Y and Z together is 81.

What is the average for all the three classes?

- a. 81 b. 81.5 c. 82 d. 84.5

is the question number of the question which has the same answer as the question number A. &
The question number of the question which has the same answer as the question number A.

12. A railway half ticket costs half the full fare and the reservation charge is the same on half ticket as on full ticket. One reserved first class ticket from Chennai to Trivandrum costs Rs. 216 and one full and one half reserved first class tickets cost Rs. 327. What is the basic first class full fare and what is the reservation charge?

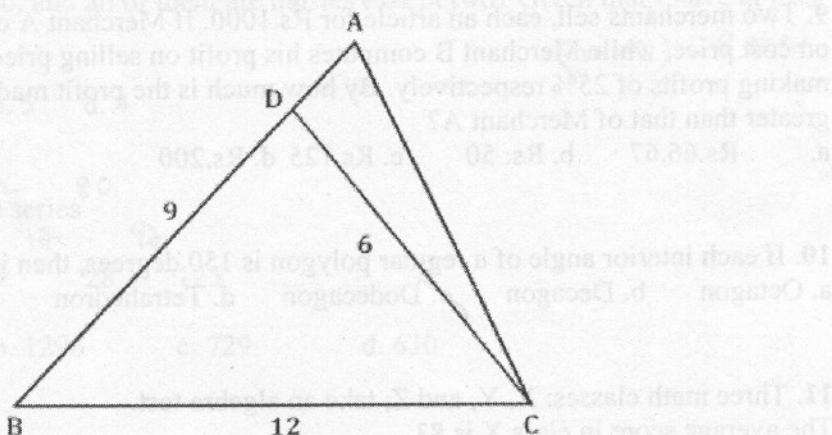
- a. Rs. 105 and Rs. 6
- b. Rs. 216 and Rs. 12
- c. Rs. 210 and Rs. 12
- d. Rs. 210 and Rs. 6

13. A merchant buys two articles for Rs. 600. He sells one of them at a profit of 22% and the other at a loss of 8% and makes no profit or loss in the end. What is the selling price of the article that he sold at a loss?

- A. Rs. 404.80
- B. Rs. 440
- C. Rs. 536.80
- D. Rs. 160

14.

Consider the triangle ABC shown in the following figure where $BC = 12 \text{ cm}$, $DB = 9 \text{ cm}$, $CD = 6 \text{ cm}$ and $\angle BCD = \angle BAC$. What is the ratio of the perimeter of the triangle ADC to that of the triangle BDC?



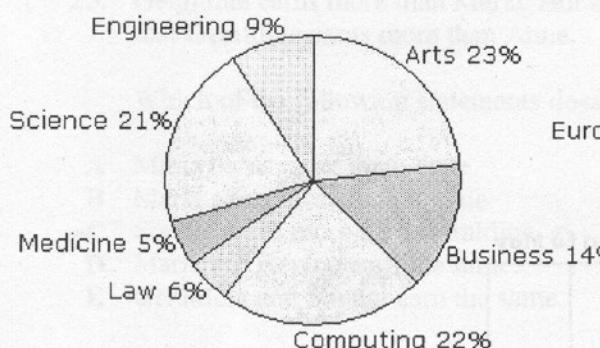
- A) $7/9$
- B) $8/9$
- C) $6/9$
- D) $5/9$

15. Let $g(x)$ be a function such that $g(x+1) + g(x-1) = g(x)$ for every real x . Then for what value of p is the relation $g(x+p) = g(x)$ necessarily true for every real x ?

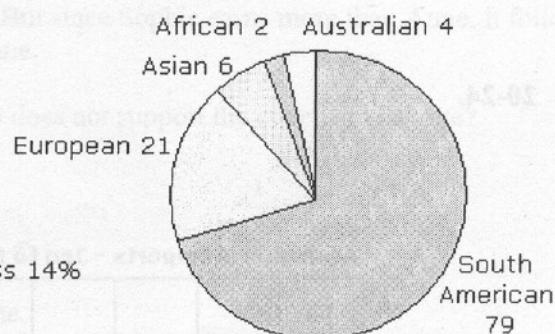
- (A) 5
- (B) 3
- (C) 2
- 12. A

Section 2: Logical Reasoning and Data Interpretation

to n2:Lcga:cIRsR2 d0Dr:ngDRngp dBta:s dRlcg:cdbLRpgdRocD : oabga:ca pLgc t



Students by Faculty



Arts Students (Non-US)

The pie charts above show the percentage of students in each faculty at North West University and the number of non-US students in the Arts faculty. These percentages have been rounded to the nearest whole number. There are a total of 1049 students in the Arts faculty. Use this information to answer the following questions.

- 16 What percentage of students in the Arts faculty are non-US students?

A	B	C	D	E
14%	9%	30%	11%	15%

- 17 How many students are there in the Engineering faculty?

A	B	C	D	E
420	410	390	440	400

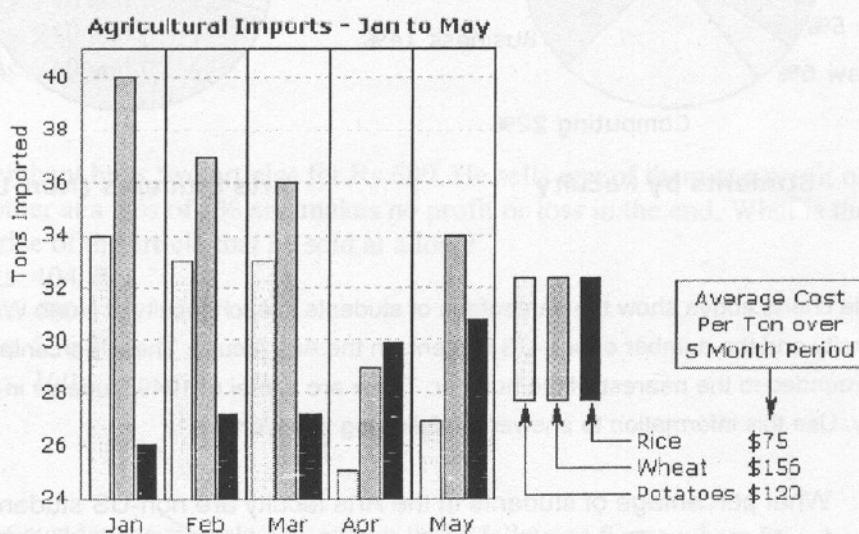
- 18 How many students are there at the university?

A	B	C	D	E
4650	4560	4640	4450	4460

- 19 If six percent of Science students are Asian. How many Asian students are there studying Science?

A	B	C	D	E
48	66	120	57	43

20-24.



The table above shows agricultural imports for the island of South Cerney for a period of five months. Use this information to answer the following questions.

20 How many tons of rice were imported over the 5 month period?

A	B	C	D	E
144	141	138	139	137

A B C D E

21 What was the total value of wheat imports, in dollars, over the 5 month period?

A	B	C	D	E
27,456	27,742	27,656	26,446	26,446

A B C D E

22 What was the average tonnage of rice imported per month over the whole period?

A	B	C	D	E
27.4	22.9	24.4	28.2	30.2

A B C D E

23 What was the average value of potatoes imported per month over the whole period?

A	B	C	D	E
\$3,448	\$3,648	\$3,728	\$3,348	\$3,655

A B C D E

24 Approximately what fraction of the total tonnage of imports is rice?

A	B	C	D	E
$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{10}$

A B C D E

25. Geraldine earns more than Maria. But since Sophie earns more than Anne, it follows that Geraldine earns more than Anne.

Which of the following statements does not support the conclusion above?

- A Maria earns more than Anne.
- B Maria earns more than Sophie.
- C Sophie earns more than Geraldine. ✓
- D Maria and Sophie earn the same.
- E Geraldine and Sophie earn the same.

- 26.

During the past four days over one hundred students at the university have reported symptoms of amoebic food poisoning, but only five students have tested positive for the condition. A public health inspector claims that this apparent outbreak can be attributed to a consignment of pork used by the refectory as an ingredient in a variety of meals served four days ago.

Which of the following statements best supports the health inspectors claims?

- A Food poisoning symptoms last only a few days.
- B The university refectory provides meals to over one thousand students a day.
- C People with amoebic food poisoning often do not exhibit symptoms for five days after contracting it.
- D A person can test positive for amoebic food poisoning without exhibiting any symptoms.
- E People with amoebic food poisoning do not usually test positive until at least four days after the onset of symptoms.

27. James was paid \$5 more for each day of work than he was paid for the preceding day of work. He was hired to work for five days. What was the total amount he was paid?

Statement 1 - He was paid twice as much for the last day as he was for the first. ✓
Statement 2 - He had made half of the total by the end of the third day.

Which of the statements above make it possible to answer the question.

- A Statement 1 alone is sufficient, but statement 2 alone is not sufficient.
- B Statement 2 alone is sufficient, but statement 1 alone is not sufficient.
- C Both statements together are sufficient, but neither statement alone is sufficient.
- D Each statement alone is sufficient.
- E Statements 1 and 2 together are not sufficient.

28. 'X' is a positive integer. Is 'X' odd or even?

Statement 1 - $2X$ is even.

Statement 2 - The square of X is odd.

Which of the statements above make it possible to answer the question.

- A Statement 1 alone is sufficient, but statement 2 alone is not sufficient.
- B Statement 2 alone is sufficient, but statement 1 alone is not sufficient.
- C Both statements together are sufficient, but neither statement alone is sufficient.
- D Each statement alone is sufficient.
- E Statements 1 and 2 together are not sufficient.

29. Kurt is a student of Spanish. All students study either Latin or English, but some students of English do not study Latin because they do not think it is a useful thing to know. Students of Spanish never study English. Therefore, Kurt must think Latin is a useful thing to know.

Which of the following must be true for the conclusion above to be logically correct?

- A Spanish is more useful than English.
- B All students who think Latin is useful study it.
- C All students of Latin think it is a useful thing to know.
- D Latin is more useful than Spanish.
- E All students who find Spanish difficult study English.

30. What percentage of all the marbles in the bag were black?

Statement 1 - The ratio of black to white marbles in the bag was $20 : 1$.

Statement 2 - There were 5 white marbles in the bag.

Which of the statements above make it possible to answer the question.

- A Statement 1 alone is sufficient, but statement 2 alone is not sufficient.
- B Statement 2 alone is sufficient, but statement 1 alone is not sufficient.
- C Both statements together are sufficient, but neither statement alone is sufficient.
- D Each statement alone is sufficient.
- E Statements 1 and 2 together are not sufficient.

Section 3: Reading Comprehension

Reading Comprehension Passage 1:

The poetic expressiveness and creativity of Japanese women poets of the Manyoshu era is generally regarded as a manifestation of the freedom and relatively high political and economic status women of that era enjoyed. During the Heian period (A.D. 794-1185) which followed, Japanese women became increasingly relegated to domestic roles under the influence of Buddhism and Confucianism, which excluded women from the political and economic arenas. Yet, since poetry of the period came to be defined solely as short lyrical poetry, known as waka, and became the prevailing means of expressing love, women continued to excel in and play a central role in the development of classical Japanese poetry. Moreover, while official Japanese documents were written in Chinese, the phonetic alphabet kana was used for poetry. Also referred to as onna moji ("women's letters"), kana was not deemed sufficiently sophisticated for use by Japanese men, who continued to write Chinese poetry, increasingly for expressing religious ideas and as an intellectual pastime. Chinese poetry ultimately yielded, then, to waka as the mainstream of Japanese poetry.

31. Based on the passage, mainstream Japanese poetry of the Heian period can best be described as

- (A) philosophical in its concern
- (B) more refined than the poetry of the Manyoshu era
- (C) an outgrowth of Buddhism and Confucianism
- (D) sentimental in nature and lyrical in style
- (E) written primarily for a female audience

32. Which of the following statements about kana finds the LEAST support in the passage?

- (A) It was based on the sound of the Japanese language.
- (B) It was used primarily by Japanese women.
- (C) It was used for Japanese poetry but not for Japanese prose.
- (D) It was used in Japan after A.D. 793.
- (E) It was considered inappropriate for austere subject matter



33. The author's primary purpose in the passage is to

- (A) refute a commonly accepted explanation for the role of women in the development of Japanese poetry
- (B) identify the reasons for the popularity of a distinct form of literary expression in Japan
- (C) distinguish between the Japanese poetry of one historical period with that of another
- (D) trace the influence of religion on the development of Japanese poetry

- (E) provide an explanation for the role of women in the development of Japanese poetry

Reading Comprehension Passage 2:

In nearly all human populations a majority of individuals can taste the artificially synthesized chemical phenylthiocarbonide (PTC). However, the percentage varies dramatically—from as low as 60 percent in India to as high as 95 percent in Africa. That this polymorphism is observed in non-human primates as well indicates a long evolutionary history which, although obviously not acting on PTC, might reflect evolutionary selection for taste discrimination of other, more significant bitter substances, such as certain toxic plants.

A somewhat more puzzling human polymorphism is the genetic variability in earwax, or cerumen, which is observed in two varieties. Among European populations 90 percent of individuals have a sticky yellow variety rather than a dry, gray one, whereas in northern China these numbers are approximately the reverse. Perhaps like PTC variability, cerumen variability is an incidental expression of something more adaptively significant. Indeed, the observed relationship between cerumen and odorous bodily secretions, to which non-human primates and, to a lesser extent humans, pay attention suggests that during the course of human evolution genes affecting body secretions, including cerumen, came under selective influence.

34. It can be inferred from the passage that human populations vary considerably in their

- (A) sensitivity to certain bodily odors
(B) capacity for hearing
~~(C) ability to assimilate artificial chemicals~~
(D) vulnerability to certain toxins found in plants
~~(E) ability to discern bitterness in taste~~

35. Which of the following provides the most reasonable explanation for the assertion in the first paragraph that evolutionary history "obviously" did not act on PTC?

- (A) PTC is not a naturally occurring chemical but rather has been produced only recently by scientists.
(B) Most humans lack sufficient taste sensitivity to discriminate between PTC and bitter chemicals occurring naturally.
(C) Variability among humans respecting PTC discrimination, like variability respecting earwax, cannot be explained in terms of evolutionary adaptivity.
(D) The sense of taste in humans is not as discriminating as that in non-human primates.
(E) Unlike non-human primates, humans can discriminate intellectually between toxic and non-toxic bitter substances

36. Which of the following best expresses the main idea of the passage?

- (A) Artificially synthesized chemicals might eventually serve to alter the course of evolution by desensitizing humans to certain tastes and odors.
 - (B) Some human polymorphisms might be explained as vestigial evidence of evolutionary adaptations that still serve vital purposes in other primates.
 - (C) Sensitivity to taste and to odors have been subject to far greater natural selectivity during the evolution of primates than previously thought.
 - (D) Polymorphism among human populations varies considerably from region to region throughout the world.
 - (E) The human senses of taste and smell have evolved considerably over the course of evolutionary history.

DIRECTIONS for Question 37 and 38: The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.

37

38

Taganay eit to zabi giam eit assenqra had gwollol eit to dudu? ac
provides an explanation for the role of women in the development of Japanese
to school's role of syne. illusnovo tigim eloimido beasrding vilasitina (A)
zibob bus eset nisets of emmed gamsitcech ve nothlovs
to onesibis laigirev or benisibis od tigim emsidipon dog ummid smo? (B)
esemding radio n' esemding levi ovse Hira iati-anolatqshe yamobolo
givitobis telanm ihatigis of rasegile food ered grobo of bus elot of vifitized (C)
arimudi denoving nedt esemding to goloboy am anid

DIRECTIONS for Questions 39 & 40: Four alternative summaries are given below each text. Choose the option that best captures the essence of the text.

39 You seemed at first to take no notice of your school-fellows, or rather to set yourself against them because they were strangers to you. They knew as little of you as you did of them; this would have been the reason for their keeping aloof from you as well, which you would have felt as a hardship. Learn never to conceive a prejudice against others because you know nothing of them. It is bad reasoning, and makes enemies of half the world. Do not think ill of them till they behave ill to you; and then strive to avoid the faults which you see in them. This will disarm their hostility sooner than pique or resentment or complaint.

- (1) The discomfort you felt with your school fellows was because both sides knew little of each other. You should not complain unless you find others prejudiced against you and have attempted to carefully analyze the faults you have observed in them.
- (2) The discomfort you felt with your school fellows was because both sides knew little of each other. Avoid prejudice and negative thoughts till you encounter bad behaviour from others, and then win them over by shunning the faults you have observed.
- (3) You encountered hardship amongst your school fellows because you did not know them well. You should learn to not make enemies because of your prejudices irrespective of their behaviour towards you.
- (4) You encountered hardship amongst your school fellows because you did not know them well. You should learn to not make enemies because of your prejudices unless they behave badly with you.

40 The human race is spread all over the world, from the polar regions to the tropics. The people of whom it is made up eat different kinds of food, partly according to the climate in which they live, and partly according to the kind of food which their country produces. In hot climates, meat and fat are not much needed; but in the Arctic regions they seem to be very necessary for keeping up the heat of the body. Thus, in India, people live chiefly on different kinds of grains, eggs, milk, or sometimes fish and meat. In Europe, people eat more meat and less grain. In the Arctic regions, where no grains and fruits are produced, the Eskimo and other races live almost entirely on meat and fish.

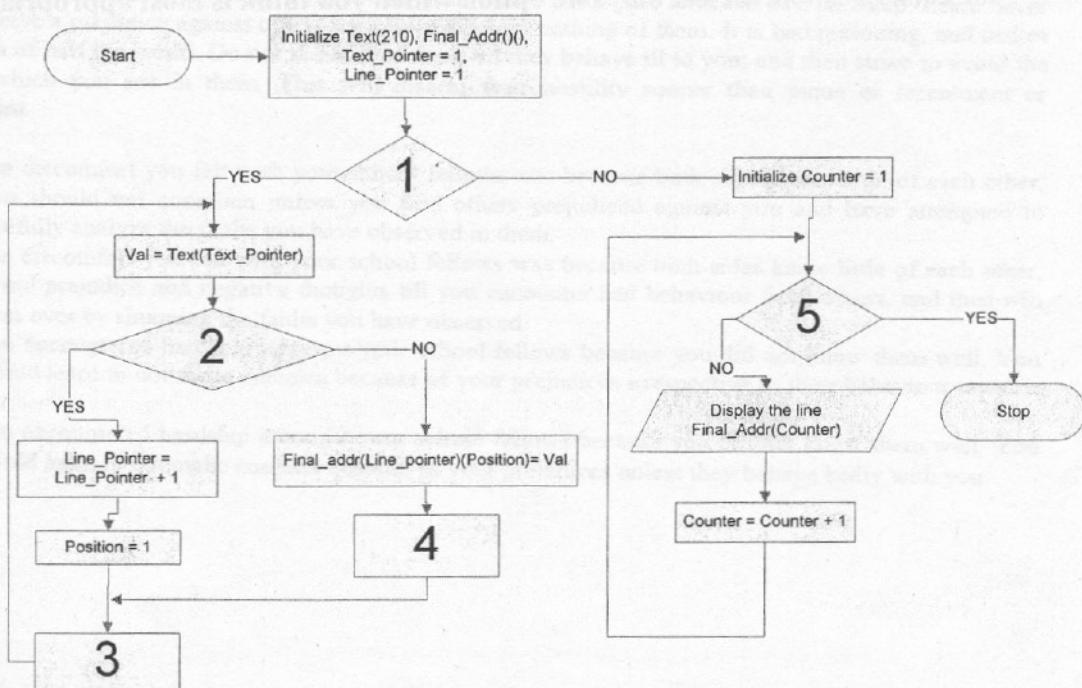
- (1) Food eaten by people in different regions of the world depends on the climate and produce of the region, and varies from meat and fish in the Arctic to predominantly grains in the tropics.
- (2) Hot climates require people to eat grains while cold regions require people to eat meat and fish.
- (3) In hot countries people eat mainly grains while in the Arctic, they eat meat and fish because they cannot grow grains.
- (4) While people in Arctic regions like meat and fish and those in hot regions like India prefer mainly grains, they have to change what they eat depending on the local climate and the local produce.

Section 4: Flow Diagrams

The below section provides a flow diagram with certain concept and logic. You should read the concepts carefully, understand them and determine the logic to implement the same. The flow diagram has blanks at certain places where you need to fill with the appropriate answer from the options listed. The blanks are numbered 1 to 5. Each flow diagram has 5 questions and followed by 4 options for each question. Select only one option which you think is most appropriate.

Mailing Address Generation

The mailing address of a customer is stored in the system in a text array of 210 characters. The task is to develop a process to split the one complete line into set of line not exceeding 35 characters. The split should be made such that each line contains complete word or at most 35 characters. Each word in the text array is separated by a blank.



41)

- A. If Text_Pointer < 210
- B. If Text_Pointer >= 210
- C. If Text_Pointer = 210
- D. If Text_Pointer <= 210

42)

- A. If Modulus(Pointer,35) = 0

B. Val = Blank

C. If Modulus(Pointer,35) = 0 OR Val = Bla

D. If Modulus(Pointer,35) = 0 AND Val = B

* Modulus(A,B) provides the remainder when A is divided by B

43)

A. Position = Position + 1

- B. Text_Pointer = Text_Pointer + 1

C. Counter = Counter + 1

D. Text_Pointer = Text_Pointer - 1

44)

A. Position = Position + 1

B. Text_Pointer = Text_Pointer + 1

C. Counter = Counter + 1

D. Text_Pointer = Text_Pointer - 1

45)

A. IF Counter < Line_Pointer

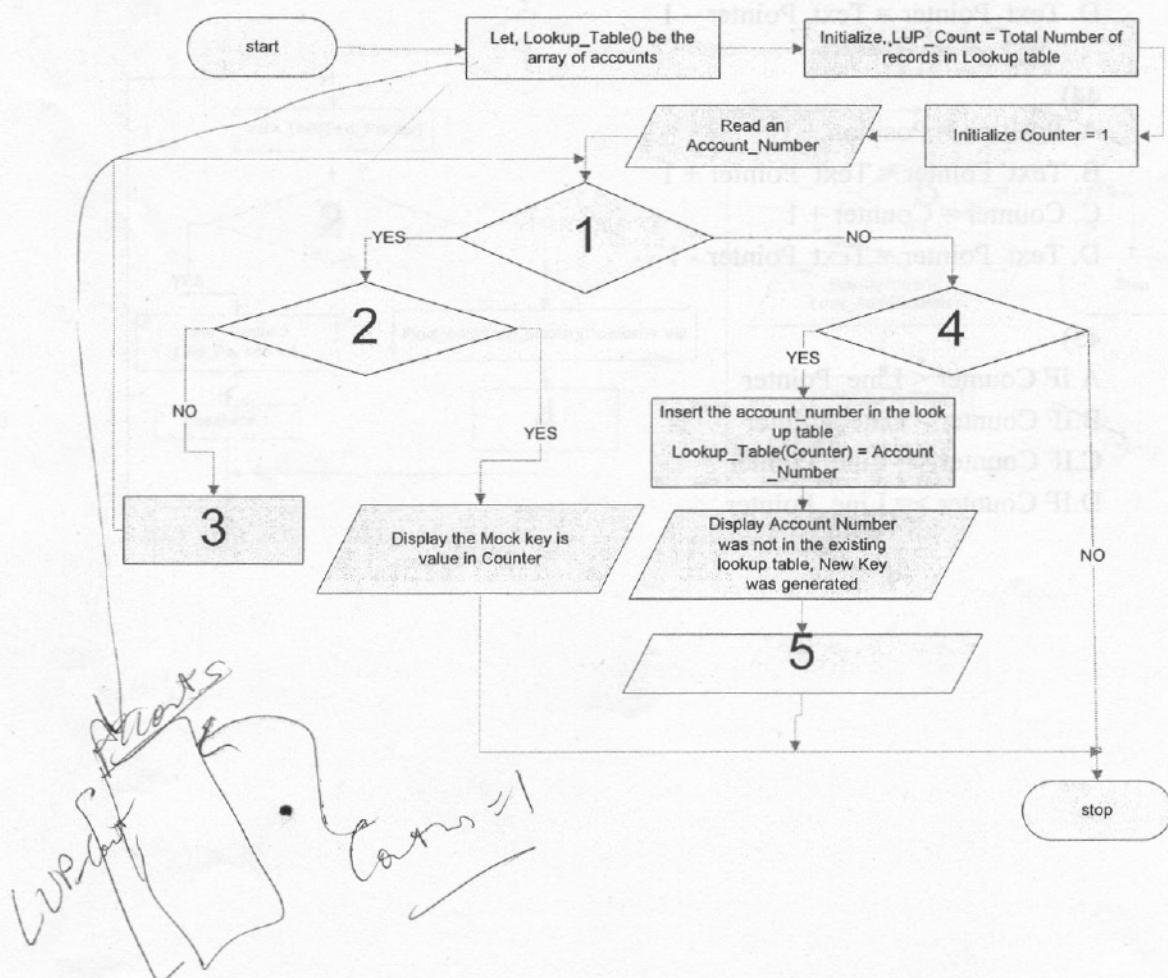
B. IF Counter > Line_Pointer

C. IF Counter <= Line_Pointer

D. IF Counter >= Line_Pointer

Unique Key Generation

Given that customer sensitive information (eg. Account_number) should not be shared to any vendors, but there is a need to send some details to a vendor to get certain analysis done and have the results back to us. A process needs to be developed to generate a unique key to identify each record sent to the vendor, so that we would be able to match back the results with the corresponding account. It is possible that at any day, at any time, any number of records to be sent, so a lookup table is created to store the account number variables and the mock key generated by the process. So at every time the details are sent to the vendor, the mock key for that account number would be sent and if the account number is not in the look up table, a new mock key would be generated for the account and it would be added into the look up table.



46)

- A. IF Counter < LUP_Count
- ~~B.~~ IF Counter <= LUP_Count
- C. IF Counter > LUP_Count
- D. IF Counter >= LUP_Count

47)

- ~~A.~~ IF Account_number = Lookup_Table(Count
- B. IF Account_number <= Lookup_Table(Cou
- C. IF Account_number < Lookup_Table(Coun
- D. IF Account_number > Lookup_Table(Coun

48)

- A.Counter = Counter - 1
- B. Counter = LUP_Count - 1
- ~~C.~~ Counter = Counter + 1
- D.Counter = LUP_Count + 1

49)

- ~~A.~~ IF Counter <= LUP_Count
- B. IF Counter < LUP_Count
- C. IF Counter >= LUP_Count
- ~~D.~~ IF Counter > LUP_Count

50)

- ~~A.~~ Display 'The Mock key is value of Counter'
- B. Display 'Mock Key cannot be identified'
- C. Display 'The Mock key is the value of Coun
- D. Display 'The Mock key is the value of Cour