Infosys Sample Paper

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Company	:	Infosys
Date	:	21 Dec 2003
College	:	

Time: 60 Minutes

Marks: 50

ALL QUESTIONS DO NOT CARRY EQUAL MARKS

INSTRUCTIONS

- Please do not write / mark on the question paper

- Read the Questions carefully. Work your answers carefully and as rapidly as possible.

- Do not spend too much time on questions that seem difficult for you. If time permits go back to the ones you have left out.

- An answer sheet has been provided to you separately. Use this to write your answers. Use the rough sheets for the detailed working.

- On completion, please put your answer sheet along with the rough sheets, inside the question paper and hand them back to us.

- There is no negative marking.

Do not turn the page until you are told to begin

1. The following information is available about a group of young men in a colony.   [Marks: 8]

All handsome, fair skinned, muscular, lean, employed, and rich men are tall.
All handsome men are fair skinned.
Some muscular men are handsome.
Some muscular men are not fair skinned.
All lean men are muscular.
No lean man is handsome.
No fair skinned man who is not handsome is rich.

All tall men who are neither fair skinned nor muscular are employed.

1. Pramod is not fair skinned. Which of the following must be true?
    a) Pramod is employed.
    b) if Pramod is muscular, he is neither handsome nor lean.
    c) if Pramod is tall, he is employed or muscular.
    d) if Pramod is not employed, he is muscular.
    e) if Pramod is tall, he may be muscular or handsome, but not both.

2. Which must be false if the information given is true ?
    a) no lean men are fair skinned.
    b) some fair skinned men are lean.
    c) some rich men are both fair skinned and muscular.
    d) some tall men are neither fair skinned nor employed.
    e) some rich men are lean.

3. Which of the following can be deduced from the information given?
    a) all rich men are handsome.
    b) some rich men are handsome.
    c) some rich men are employed.
    d) some rich men are muscular.
    e) all rich men are handsome, muscular, or employed.

4. Which cannot be shown to be true or false on the basis of the information given?
     I. No fair skinned or muscular man is employed
    II. Some muscular men are fair skinned but not handsome
   III. No fair skinned man is both handsome and lean

   a) I only   b) II only   c) III only   d) I and II   e) II and III

Soln.

	Handsome	Fair skinned	Muscular	Lean	Employed	Rich	Tall
Handsome	*******	ALL					ALL
Fair skinned	NO	******				NO	ALL
Muscular	SOME	SOME	*******				ALL
Lean			ALL	*******			ALL
Employed					******		ALL
Rich						*****	ALL
Tall		NO	NO		ALL		******

1. (c)
2. (a)
3. (a)

4. (   )

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2.   [Marks : 4]

After gathering 770 chestnuts, three girls divided them up so that amounts were in the same proportion as their ages. As often as Mary took four chestnuts, Nelli took three, and for every six that Mary received, Susie took seven. How many chestnuts did each girl get?
Soln.

Mary	Nelli	Susie
4	3	0+
6	3+	7
8	6	7+
12	9	14

Therefore,
Mary's share :   Nelli's share : Susie's share :: 12 : 9 : 14

Thus,
Mary's share = 12/ (12 + 9 + 14) * 770 = (12 / 35) * 770 = 264 chestnuts.
Nelli's share   =   9/ (12 + 9 + 14) * 770 = (9 / 35) * 770 =   198 chestnuts.
Susie's share = 14/ (12 + 9 + 14) * 770 = (12 / 35) * 770 =   298 chestnuts.

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3.   [Marks : 5]

A supportive young hare and tortoise raced in opposite directions around a circular track that was 100 yards in diameter. They started at the same spot, but the hare did not move until the tortoise had a start of one eighth of the distance (that is, the circumference of the circle). The hare held such a poor opinion of the other's racing ability that he sauntered along, nibbling the grass until he met the tortoise. At this point the hare had gone one sixth of the distance. How many times faster than he went before must the hare now run in order to win the race ?

Soln:

It says the hare moves only after the tortoise covers 1/8 of distance, i.e., 100Pi.

Time traveled is same. (T)

Tortoise:

Distance traveled = 100Pi – 100Pi/8 – 100Pi/6 = 100Pi(17/24).
Speed $_T$ = 100Pi(17/24)/T

Hare:

Distance traveled = 100Pi/6.
Speed$_H$ =100Pi/6T.

To win the race hare should cover 100Pi * (5/6) distance by the time the tortoise covers 100Pi/6 distance in the same time T_2

As the speed of tortoise is constant,

T_2 = (100Pi/6) / Speed$_T$

   = (100Pi/6) / (1700Pi/24T)

   = 4T / 17

Speed$_{H\,2}$ = (500Pi/6) / T_2

     = (500Pi/6) / (4T / 17)

    = 2125 Pi/ 6T

Speed$_{H\,2}$/Speed $_H$ = (2125 Pi / 6T) / (100Pi/6T)

      = 21.25

Thus, to win the race the hare must now run 21.25 times faster than before in order to win the race.
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4. [Marks : 4]

Ajit was driving down the country side when he saw a farmer tending his pigs and ducks in his yard. Ajit asked the farmer how many of each he had.
The farmer replied that there were 60 eyes and 86 feet between them.
How many ducks and how many pigs were there?

Answer:

Let ducks be D and pigs be P.

No. of eyes = 60=> 2D+2P=60   => D + P=30…………………………………………(1)
No. of feet   = 86   => 2D+4P=86   => D +2P=43…………………………………(2)

On solving (1) & (2), we get :

P=13, D=17

--5.

[Marks : 4]

In Mulund, the shoe store is closed every Monday, the boutique is closed every Tuesday, the grocery store is closed every Thursday and the bank is open only on Monday, Wednesday and Friday. Everything is closed on Sunday.

One day A, B, C and D went shopping together, each with a different place to go. They made the following statements:

A	D and I wanted to go earlier in the week but there wasn't day when we could both take care of our errands.
B	I did not want to come today but tomorrow I will not be able to do what I want to do.
C	I could have gone yesterday or the day before just as well as today.
D	Either yesterday or tomorrow would have suited me.

Which place did each person visit?

Soln.

	Shoe store	Boutique	Grocery	Bank
Monday	×	√	√	√
Tuesday	√	×	√	×
Wednesday	√	√	√	√
Thursday	√	√	×	×
Friday	√	√	√	√
Saturday	√	√	√	×
Sunday	×	×	×	×

<u>From Statements 1, 2 , 3 & 4:</u>
All are open.
<u>The day can be either Wednesday or Friday.</u>

<u>From statement 1:</u>
Friday is eliminated.

Therefore, it was Wednesday.

From statement 2:
B visited either the Grocery or the Bank.

From statement 3:

C visited the Grocery.

Therefore, B visited the Bank.

From statement 4:

D visited the Shoe store.

Therefore, A visited the Boutique.

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6.   [Marks : 6]

The Novice hockey tournaments are on for beginners. Just three teams are in the league, and each plays the other two teams just once. Only part of the information appears in the result chart, which is given below.

Team	Games	Won	Lost	Tied	Goals For	Goals against
A	2			1	0	
B	2	1			1	2
C	2					

The scoring pattern in the tournament is as follows:

Two points are awarded to the winning team. In case of a tie, both teams are awarded one point, so the total points in the standings should always equal the total number of games played (since each game played is counted as one for each of the two participating teams). Of course, total goals scored for and goals scored against must be the same, since every goal scored for one team is scored against another.

The games are played in the following order: Game 1: A Vs B; Game 2: A Vs C; Game B Vs C

Can you determine the score of each of the above games ?

Soln.

For B:

Since, Goals for are 1 & Goals against are 2 & since it had won a Game, it means that it won one match 1-0 & lost the other 0-2.

<u>For A:</u>
It is given that A played a tied match. Thus, the tied match was played between A & C. Also, since Goals for A are 0, it means it played a 0-0 tied match with C.
Goals against A are 1. Thus, it lost its match to B by 0-1.

<u>For C:</u>
It played a 0-0 tied match with A.
Goals for are 2 & Goals against are 0.
Therefore, it beat B 2-0.

<u>Thus, the results of the three games are as follows:</u>
Game 1 : B bt. A 1-0 ; Game 2 : A tied with C 0-0; Game 3: C bt. B 2-0

Team	Games	Won	Lost	Tied	Goals For	Goals against
A	2	0	1	1	0	1
B	2	1	1	0	1	2
C	2	1	0	1	2	0

---7.
[Marks : 8]

A recent murder case centered around the six men: Clam, Flip, Gront, Herm, Mast, and Walt. In one order or another these men were the victim, the murderer, the witness, the police, the judge, and the hangman. The facts of the case were simple. The victim had died instantly from the effect of gunshot wound inflicted by a shot. After a lengthy trial the murderer was convicted, sentenced to death, and hanged.

1. Mast knew both the victim and the murderer.
2. In court the judge asked Clam his account of the shooting.
3. Walt was the last of the six to see Flip alive.
4. The police testified that he picked up Gront near the place where the body was found.
5. Herm and Walt never met.

What role did each of the following play in this melodrama ?
a) Murderer
b) Victim
c) Judge
d) Witness

Soln.

<u>From Stat 2:</u>
Clam can't be Judge, Hangman, Victim.

From Stat 3:
Walt can be the Murderer and Flip the Victim.
                      Or
Walt can be the Hangman and Flip the Murderer.

From Stat 5:
Walt cannot be the murderer, because, irrespective of who Herm was, Walt would have met Herm in that case.
Thus, Walt is the Hangman and Flip the Murderer.
Also, as the Victim and the Hangman never met, Herm is the Victim.

Thus, now from Stat 2:
Clam is either the Witness or the Police.

From Stat 5:
Gront is the Witness, since he can't be the Judge or the Police.
Thus, Clam is the Police.

This leaves only one option for Mast : The Judge.

These role assignments do not contradict any of the given 5 clues.

	Clam	Flip	Gront	Herm	Mast	*Walt*
Murderer	**	*YES*	**	**	**	**
Victim	**	**	**	*YES*	**	**
Judge	**	**	**	**	*YES*	**
Hangman	**	**	**	**	**	YES
Police	YES	**	**	**	**	**
Witness	**	**	YES	**	**	**

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8.   [Marks : 5]

Fodder, Pepsi and Cereale often eat dinner out.

a) each orders either coffee or tea after dinner.
b) if Fodder orders coffee, then Pepsi orders the drink that Cereale orders.
c) if Pepsi orders coffee, then Fodder orders the drink that Cereale does not order.
d) if Cereale orders tea, then Fodder orders the drink that Pepsi orders

Which person/persons always order(s) the same drink after dinner ?

Soln.

The following cases arise:

	Fodder	Pepsi	Cereale
Case 1	Coffee	Coffee	Coffee
Case 2	Coffee	Tea	Tea
Case 3	Coffee	Coffee	Tea
Case 4	Tea	Coffee	Coffee
Case 5	Tea	Tea	Tea
Case 6	Coffee	Coffee	Tea

From (b), Cases 3 & 6 are ruled out.
From (c), Case 1 is ruled out.
From (d), Case 2 is ruled out.

Thus, only Cases 4 & 5 are possible.

In either case, Fodder orders Tea.
Thus, Fodder always orders Tea after dinner.

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9.   [Marks : 6]

At a recent birthday party there were four mothers and their children aged 1,2,3 and 4. From the clues below can you work out whose child is who and their relevant ages?

- ❖ It was Jane's child's birthday party.
- ❖ Brian is not the oldest child.
- ❖ Sarah had Anne just over a year ago.
- ❖ Laura's child's will be the next birthday.
- ❖ Daniel is older than Charlie is.
- ❖ Teresa's child is the oldest.
- ❖ Charlie is older than Laura's child.

Soln.

	Brian(2)	Anne(1)	Daniel(4)	Charlie(3)
Jane(3)	--------------	------------	---------------	Yes
Sarah(1)	---------	Yes	------------	-----------
Laura(2)	Yes	-------------	------------	------------
Teresa(4)	----------	------------	Yes	----------