



Westminster International University in Tashkent

A set of sample questions on

LOGIC

2008

ANSWER ALL QUESTIONS

Section B contains ten logic questions.

You should allow one and a half hours for the logic questions.

It is advised that you work quickly and that you leave behind questions that are taking you too long to answer.

You should not remove anything from the examination room.

You should come into the examination with writing material only. Use the test paper for your rough work. Answers with no indication of calculations will score zero marks.

No dictionaries. No calculators. No mobile phones.

SECTION B

Logic

QUESTION B1

One of the numbers below is the sum of two others. Find these three numbers.

12 20 9 2 47 23
 6 33 15 19

QUESTION B2 Hutosiki

Place the numbers 1 – 6 so that

a) no number is repeated in any row or column and

b) numbers in cells linked by ... “less than” or † “greater than” must obey these signs.

E.g. 6 † 3 † 2, 1...5 and

6	†	3
^		‡
2	...	4

	...		5	3		
					6	
	...			†		
		†				...
	†	4	2	6		†

QUESTION B6

A standard set of dominoes has been laid out, using numbers instead of dots for clarity. Draw in the lines to show where each domino has been placed. Two dominoes have already been placed. You may find the check grid on the right useful – crossing off each domino as you find it.

QUESTION B7

During the summer, Mikhail earned money by working for four neighbours, doing a different job for each one. Find who lives in each house and what job Mikhail did for each one of them:

- F Zach hired Mikhail to feed the sheep;
- F Either Anna or Farukh lives at No 41;
- F Sultana lives two houses east of the person who employed Mikhail as a babysitter;
- F The person who employed Mikhail to do the gardening does not live in No 43;
- F The person who lives in No 39 and the person who asked Mikhail to cut the hedges are a man and a woman.



	No 37	No 39	No 41	No 43
Person				
Job				

QUESTION B8

The teachers in a school are angry. Each teacher is angry with a different teacher for a different reason. Find each teacher's subject, the teacher they are angry with and the reason why.

- .. The law teacher is angry with a male colleague;
- .. One teacher is angry because another teacher told a joke about them;
- .. Mr Green, who teaches business, is angry because another teacher said he was fat;
- .. The mathematics teacher is angry with Mrs White;
- .. A woman is angry with another teacher who said she was short;
- .. Mr Green is angry at Mrs Orange, who teaches computing;
- .. The teacher who is angry because another teacher took his or her pen does not teach law or mathematics;
- .. Mr Brown does not teach law;
- .. No pair of teachers is angry with each other.

Work Area

Teacher	Subject	Angry with	Reason

Answer:

Teacher	Subject	Angry with	Reason
			<i>'fat'</i>
			<i>'short'</i>
			<i>'told joke'</i>
			<i>'took pen'</i>

QUESTION B9

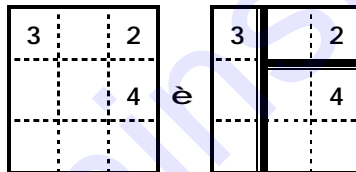
Place the letters of the word UZBEK so that no row, column or diagonal line of ANY size contains the same letter more than once:

		U		
Z				
				E
B		K		

QUESTION B10 Shikaku

Divide the grid below into rectangles so that a) each rectangle contains one of the given numbers and b) each rectangle contains as many cells as the number it encloses.

Remember: a square is also a rectangle



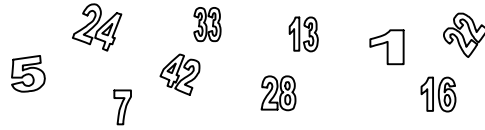
		4	3				3
		2		7		3	
		2			3		
	2						
8		10		6		3	
						8	
	4						
2		2		2			7

SECTION B

Logic

QUESTION B1

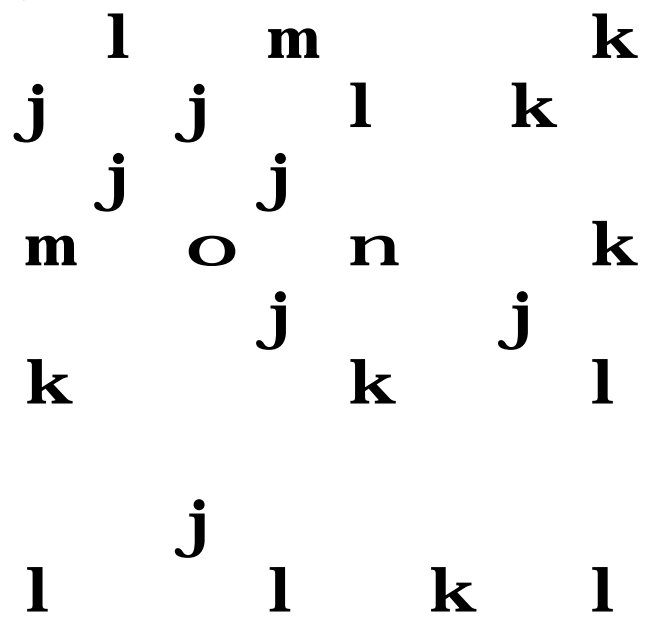
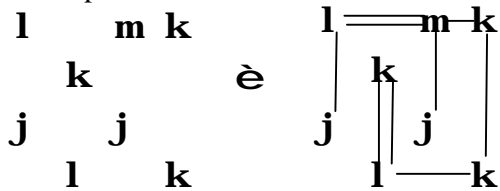
One of the numbers below is the sum of two others. Find these three numbers.



QUESTION B2 Bridges

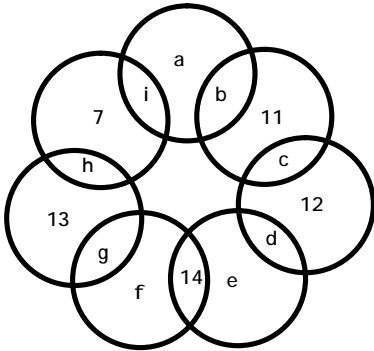
Each circle with a number represents an island. Connect each island with up to two vertical or horizontal bridges so that the number of bridges per island equals the number inside each island and ALL islands are connected (i.e. no set of islands remains isolated from the rest). Bridges cannot cross islands or other bridges.

Example



QUESTION B3

Replace the letters in the figure so that all the numbers from 1 to 14 appear and the total in each circle is 21



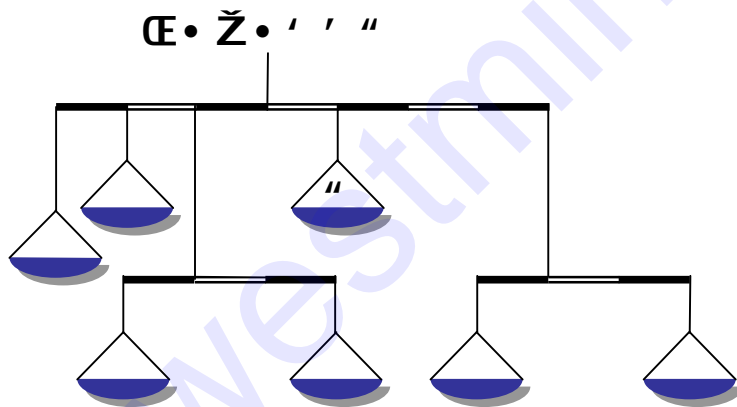
1 2 3 4 5 6 7 8 9 10 11 12 13 14

a= , b= , c= , d= , e= , f= , g= , h= and i=

QUESTION B4

Place the given weights in the pans – one weight per pan - so that the scales balance. One of the weights has already been placed.

Note: The weight of the rods and pans can be ignored; the stripes on each rod are exactly the same length.



QUESTION B5

Assume you are using a basic calculator and you press the numbers in the order – from left to right - shown below, replacing each question mark with a mathematical operation (plus, minus, multiply and divide). What is the highest score you can achieve if you use each operation once?

$$3 ? 9 ? 4 ? 2 ? 6 =$$

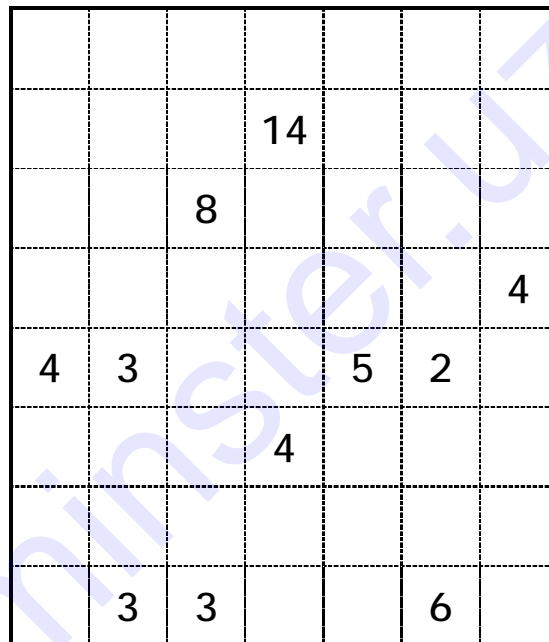
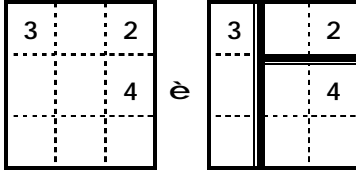
Answer: 3 9 4 2 6 =

QUESTION B6 Shikaku

Divide the grid below into rectangles so that a) each rectangle contains one of the given numbers and b) each rectangle contains as many cells as the number it encloses.

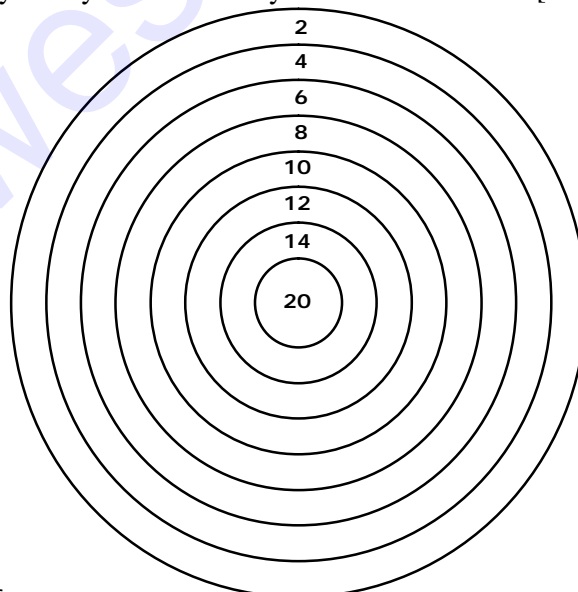
Remember: a square is also a rectangle

Example



QUESTION B7

In how many ways can you score 36 if you have three shots? [List all your combinations]



Hint: More than four

Remember: The sequence of hitting the target is not relevant, so "20, 14 and 2" is the same as "14, 20 and 2" or "2, 20 and 14"

Answer:

QUESTION B8

Over the last four years (2004-2007), Kozim learned four different things (including History), each year changing topic and each time using a different method. Use the following clues to find what Kozim learned each year, and the method he used.

- .. In 2005, Kozim learned the basics of Biology;
- .. He learned how to cook two years before learning something by reading books;
- .. He went to classes to learn English;
- .. He asked his mother to teach him something a year before he used the Internet to learn something else.

	Topic	Method
2004		
2005		
2006		
2007		

Methods: 'classes', 'Internet', 'mother' and 'books'.

QUESTION B9

When Katerina moved into her new house, four neighbours visited her with housewarming gifts (including cakes). As she got to know them, Katerina realised that those who lived on the even side of the street – where house numbers are 2, 4, 6, 8 etc. – always said the truth while those who lived in the odd side – where house numbers are 1, 3, 5, 7 etc. – always lied. If you know Betty says the truth, use the following statements to find the house number and the gift of each neighbour:

- ' Betty
 1. Cindy lives in either #58 or #65;
 2. Dina does not live in either #56 or #65.
- ' Cindy
 1. Betty and Dina live on the same side of the street;
 2. The woman who brought the salad does not live at #63 or #58;
 3. Dina does not live next door to me.
- ' Dina
 1. I live in either #56 or #65;
 2. Either Anna or Betty brought the fruits.
- ' Anna
 1. I live either at #63 or #56;
 2. The woman who lives in #65 brought the pilau.

Working Area

Neighbour's name	House number	Gift

Answer:

Neighbour's name	House number	Gift
Anna		
Betty		
Cindy		
Dina		

QUESTION B10

Find the 9 vehicles hidden in the diagram below. The vehicles consist of 5, 4, 3, 2 or 1 parts. Each part occupies one square. The following vehicles have been hidden:

One KV-1 tank, which looks like this: ☹ ☹ ☹ ☹ ☹

One KV-2 tank, which looks like this: ☹ ☹ ☹ ☹

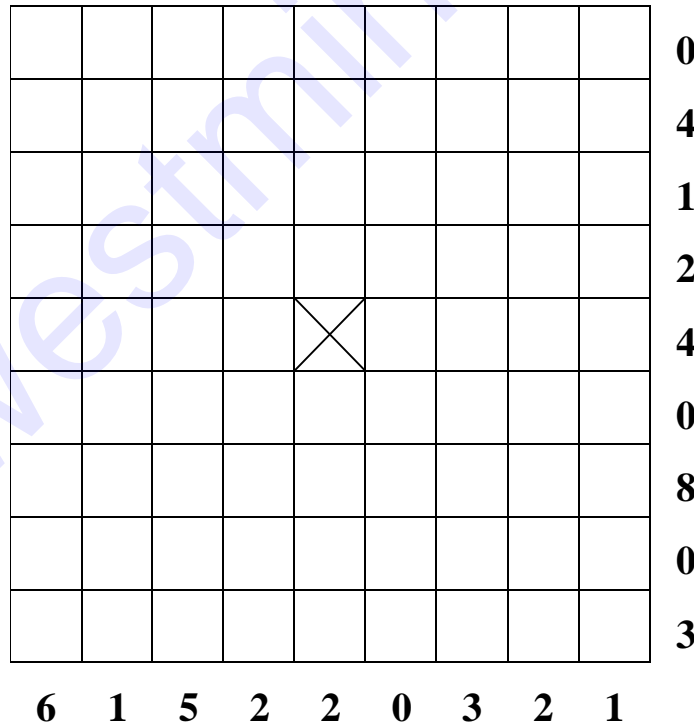
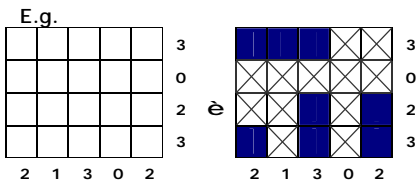
Two lorries, which look like this: ☹ ☹ ☹

Two jeeps, which look like this: ☹ ☹

and three motorcycles, which look like this: ☹

The vehicles are placed on the grid according to the following rules:

- The vehicles are positioned horizontally or vertically (not diagonally)
- All the squares around each vehicle are unoccupied. In other words, no two vehicles can have parts in adjacent squares horizontally, vertically or diagonally
- The number of squares occupied by parts of vehicles in each row or column is indicated by a number at the end of the row or column. For example, a number 3 at the end of a row indicates that there have to be exactly three occupied squares in that row. Similarly, a 0 indicates that all squares in that row or column must remain unoccupied



SECTION B

Logic

QUESTION B1

One of the numbers below is the sum of two others. Find these three numbers.

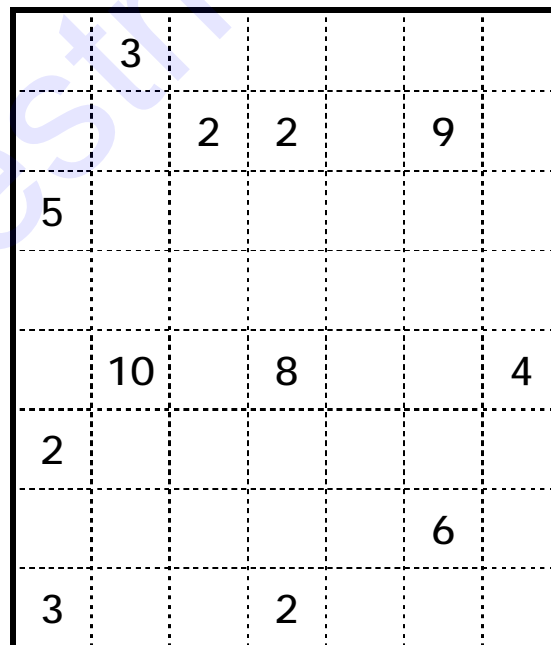
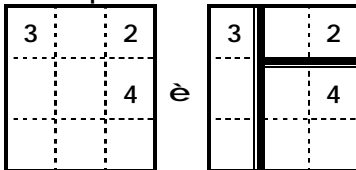
21 17 28 15 11 23 5
53 31 9 3

QUESTION B2 Shikaku

Divide the grid below into rectangles so that a) each rectangle contains one of the given numbers and b) each rectangle contains as many cells as the number it encloses.

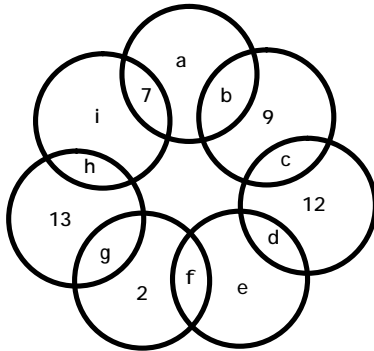
Remember: a square is also a rectangle

Example



QUESTION B3

Replace the letters in the figure so that all the numbers from 1 to 14 appear and the total in each circle is 21



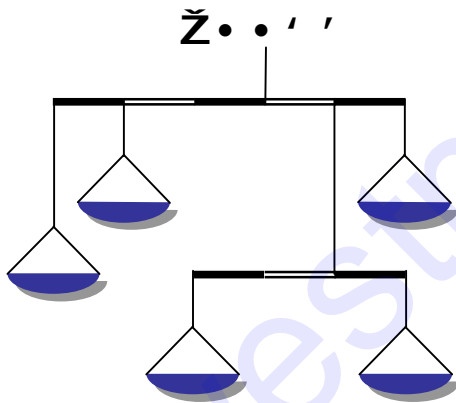
1 2 3 4 5 6 7 8 9 10 11 12 13 14

a= , b= , c= , d= , e= , f= , g= , h= and i=

QUESTION B4

Place the given weights in the pans – one weight per pan - so that the scales balance.

Note: The weight of the rods and pans can be ignored; the stripes on each rod are exactly the same length.



QUESTION B5

Replace the question marks with the mathematical signs ‘plus’, ‘minus’, ‘divide’ and ‘multiply’ so that the following expression is correct when typed from left to right in a simple calculator. Each sign is to be used once only.

$$7 ? 6 ? 1 ? 8 ? 5 = 99$$

Answer: **7 6 1 8 5 = 99**

QUESTION B6

A standard set of dominoes has been laid out, using numbers instead of dots for clarity. Draw in the lines to show where each domino has been placed. One domino has already been placed. You may find the check grid on the right useful – crossing off each domino as you find it.

0	4	0	4	4	2	1	3
0	2	5	2	3	2	2	1
2	0	3	6	3	5	5	1
4	1	6	6	5	0	0	1
4	5	1	3	1	4	5	5
2	2	0	1	4	3	3	0
6	6	4	6	5	6	3	6

0							
1							
2							
3							
4							
5				X			
6							
	0	1	2	3	4	5	6

QUESTION B7

Place the letters of the word UZBEK below so that no row, column or the two *major* diagonals contain the same letter more than once:

	K			
			U	
		E		
				Z

QUESTION B8

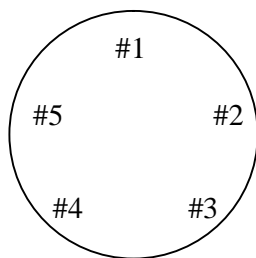
During her wedding, Anna danced with four of her relatives, including her father. Find the order in which she danced with each relative and how each is related to her.

- Kozim is Anna’s cousin;
- She danced with Olmijon third;
- Anna’s grandfather did not dance with her immediately after Umid;
- Bohodir danced with Anna after the man who danced with her after her uncle.

dancing order	name	relation
1 st		
2 nd		
3 rd		
4 th		

QUESTION B9

A, B, C, D and E, who work for the same law firm, are sitting in the round conference table below. Find where each person is sitting and his or her specialty:



- \$ Mrs A sits in seat #1;
- \$ Mrs C sits next to a woman;
- \$ D is not the matrimonial lawyer;
- \$ The estate lawyer and the matrimonial lawyer are both men and sit next to each other;
- \$ The tax lawyer sits to the immediate right of her friend;
- \$ The criminal defence lawyer sits in seat #3;
- \$ B (who is not the matrimonial lawyer) sits two seats to the right of the labour lawyer;
- \$ Two women and three men are sitting at the table.

Seat #	Mr or Mrs	Name	Specialty
1	Mrs	A	
2			
3			
4			
5			

QUESTION B10

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One KV-2 tank, which looks like this: ☪ ☪ ☪ ☪

Two lorries, which look like this: ☪ ☪ ☪

Two jeeps, which look like this: ☪ ☪

and three motorcycles, which look like this: ☪

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