

EXERCISES FOR INTRODUCTION TO COMPUTER SCIENCES

(*excerpts from the book*)

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(*Check yourself*)

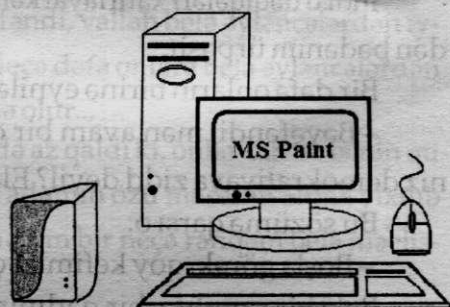
The subject is a requirement for all university qualifications. According to tradition of Khazar University, the exercises list consists of three languages. It is compulsory to answer open questions in English. Grammar mistakes don't impact the results. However, names of computer terms, commands, attributes should be correct. It is also possible to add comments to answers in the first language.

The midterm exam list contains two parts - Theoretical (questions) and Practical (drawing scheme). The theoretical part consists of opening

questions (3 or 2 points) and multiple choices (1 points). Only one answer should be selected for multiple choices. For drawing schemes you have to use some graphic editor. Draw schemes using standard shape tools (not pencil & not brushes).

The result of the task has to fit on one page of a WordPad file. Both parts together take 60-80 minutes. Use results of questions # 3 and 19 to check the elapsed time. Total maximum of the midterm exam is 20 points. If you get less than 60%, we highly recommend that you repeat the Introduction to Computer Sciences course.

Midterm; Variant 1



1. Load "PAINT" and draw scheme and insert current date and time	Загрузить «PAINT» и начертить рисунок	"Paint" – i yükləyin və şəkli çəkin	2
2. Write down this unit's <u>names</u> , <u>measurement units and types</u> inside (Bold, Italic, Underline).	Вписать <u>имена</u> , <u>единицы измерения</u> и <u>типы</u> устройств внутри рисунка (Bold, Italic, Underline).	Qurğuların <u>adını</u> , <u>tipini</u> və <u>vahidlərini</u> şəklin içərisinə yazın. (Bold, italic, Underline).	2
3. Create MS WordPad file under your department name, write down steps for this item, <u>insert date & time</u> and answer to the next questions: (text format is <i>Size-12, Times New Roman</i>)	Создать MS WordPad файл под ИМЕНЕМ КАФЕДРЫ, описать необходимые шаги, <u>вставить date & time</u> и ответить на следующие вопросы: (<i>Size-12, Times New Roman</i>)	Kafedranızın adı altında MS WordPad faylı yaradın, bunun üçün addımlar ardıcılığını göstərin, <u>tarix və vaxt daxil edin</u> və aşağıdakı suallara cavab verin: (<i>Size-12, Times New Roman olmaqla</i>)	1
4. Who are the first computer programmer and inventor?	Кто являются первыми - программист и изобретатель компьютера	İlk kompyuter ixtiraçısı və proqramçısının adlarını yazın	1

a. Bill Gates, Steve Jobs b. Bless Pascal, Leibniz c. N. Tusi, Lutfizade d. Charles Babbage, Ada Lovelace e. Alan Turing, Norbert Winner f. Iron Lady, Obama

5. Which of the following is not hardware?	Которое из нижеследующих не является hardware?	Aşağıdakılardan hansı hardware deyil?	1
a) CPU ör UPS b) Magnetic tape ör DVD c) Assembler ör Delphi d) Printer ör Scanner e) SVGA ör ICD			
6. In which kind of memory are located open files?	Где располагается открытый файл?	A ilmiş fayl harada yerləşir? (qürğu)	1
a) RAM b) ROM c) Index register d) Hard disk e) CD ROM			
7. What is the meaning of OLE?	Что означает OLE?	OLE nə deməkdir?	1
a) Object loading and embedding c) Object linking and entering e) Open Learning Exchange	b) Oriented language and encoding d) Object linking and embedding f) Office of Legal Education		
b) 8. Copy the paint picture to the right top corner of the MS WordPad file.	ç) Перенести рисунок в правый верхний угол MS WordPad файла.	Şekli MS WordPad faylının sağ yuxarı knc nə aparın.	1
9. Which in the following is a type of computer graphic?	Типы компьютерной графики:	Aşağıdakılardan hansı kömpyüter qrafikasının nvləridir?	1
a. Bitmap, vector, fractal b. CRT, LCD, plasma c. spreadsheet, database management, presentation d. LAN, WAN, MAN e. micro, mini, mainframe, super			
10. FIRST LINE in your text formatting : Font-Algerian, Size-14, Italic.	Отформатировать первую строку в тексте: Font- Algerian, Size-14, Italic.	Mətnin birinci sətirini formatlaşdırın: Font- Algerian, Size-14, Italic.	1
11. Write down how you can place your file in a new directory.	Распишите, как можно расположить Ваш файл в новой директории.	Faylı yeni direktoriyada yerləşdirməyin qaydasını yazın.	1
a) Copy, New folder, Cut b) Offis button, Save As, Word document, Up one level c) Copy, New folder, Paste d) Offis button, Save As, Word document, Create new folder			
12. What are hot keys for cut, paste, and save commands?	Горячие клавиши для – cut, paste, save:	çüt, paste, save kömandaları üçün istidymələr:	1
13 Write down parameters of CPU, monitor, RAM of your computer	Укажите параметры ЦПУ, ОЗУ и монитора вашего компьютера?	Kömpyüterinizin MƏQ, mōnitör və əməli yaddaşının parametrlərini yazın	1
14 What defines computer generation?	Что определяет поколение компьютера?	Kömpyüter nəslini nəm əyyən edir?	1
a. Speed, size, price b. basic elements, architecture, way of using c. operating system language level, file system d. flexibility, high design, fashionable e. PC IBM, Apple Macintosh			

Final of the subject contains two parts: Theoretical (questions - 25 points) and Practical (creation complicated table - 25 points). Both parts together take 80 minutes.

Both parts should be located in one MS Word page.

1) **Theoretical** questions cover main computer ideas and habits of working in MS Word text processor. There is a linear equation for testing converting between number systems in each exam list (hexadecimal, binary and decimal). Result-X value should be decimal (traditional, human number system). For example: $AF_{16} = A \cdot 16^1 + F \cdot 16^0 = 10 \cdot 16 + 15 \cdot 1 = 175$;

$1101_2 = 1 \cdot 2^0 + 0 \cdot 2^1 + 1 \cdot 2^2 + 1 \cdot 2^3 = 1 + 0 + 4 + 8 = 13$. Another calculation question checks knowledge of students about computer binary number systems. Consequently, kilo (thousand) in the computer's case is not ten to the third power (10^3) but two to the tenth power (2^{10}). So, base of binary number system (which applied on PC) is two. Questions about program features should be answered as sequences of key words which would consist of names of ribbons, tool bar, radio buttons and attributes. For instance: "How to change measurement unit of ruler in MS Word?" **Correct Answer** – "Office button-Word options-advanced-measurement unit". Other types of

theoretical questions assist in checking knowledge of students about common principles, components, features, etc. of computer systems, basic networks, Internet, etc. Students can get parameters of a particular computer from the window of DxDiag

(enter on Run line) command or "My Computer" properties. Furthermore, students have to be aware about history of computers, computer categories, generations, types, and families.

Final; Variant 1.

Create an MS Word file under your name and answer the following questions.

MS Word faylı yaradın və növbəti suallara cavab verin. Cəzdaıte MS Word faylı pod svoim imenem u otvetıte na nıjsesleduyııce voprosı.

1	What is a Cömpüter File?	Что такое файл?	1
		Fayl nədir?	
		a) Fames applicatiön süite b) It is a cöllectiön öf döçüments ç) The sölütiön öf task, realized ön the languäge öf the prögram d) Is the smaller named cöllectiön öf data, as üsüally similar e) It is süccessive, instrüctiön by steps	1
2	Two main types öf söftware? Shöw examples för each öne.	Основные два вида söftware? Приведите примеры для каждого.	1
		Software-nin iki əsas tipi? Nümunələrlə göstərin.	
3	Which are main fünctiöns öf öperating systems?	Какие основные функции операционных систем?	3
		Əməliyyat sistemlərinin əsas funksiyaları hansılardır?	
4	Which öf the föllöwing çaracterize the speed öf çömpüter pröcessörs?	Который из нижеследующих параметров может характеризовать скорость компьютерных процессоров?	1
		Aşağıdakılardan hansı kompüter prosessorlarının sürətini xarakterizə edə bilər?	
		a) çömmmands per day b) döt per inch c) Gigahertz d) sheet per minüte e) Giga byte f) PPM	
5	Höw many Kbytes arc in 4096 bytes?	Сколько Кбайтов в 4096 байте?	1
		4096 bayt ne ə Kbaytdır?	
		a) 16 b) 8 ç) 4 d) 2 e) 12	
6	Desçribe 3 basiç çömpönents and fünctiön öf CPU.	Опишите основные функции и компоненты CPU.	2
		CPÜ-nün 3 əsas qürqü və funksiyalarını açıqlayın.	
7	Höw many bytes arc störed in 32 Mbytes primary störage ünit? (algöritm)	Сколько байтов размещаются на внутренней памяти компьютера в 32 Мбайт ?	2
		32 Mbaytlıq əməli yaddaş ne ə baytdan ibarətdir? (algöritm)	
8	The ALÜ perförms arithmetic operations and?	ALÜ выполняет арифметические и операции ?	1
		ALÜ hesablamadan əlavə hansı əməliyyatı yerinə yetirir ?	
		a) çöölüing öperatiöns b) binary çalçülatiöns ç) lögiçal öperatiöns d) parity çecks e) störes data	
9	What is the smallest gröüp öf bits that çan be pröcessed tögether?	Как называется наименьшая группа битов обрабатываемые вместе?	1
		z ərinde əməliyyat aparılan ən kiçik bit qrupu necə adlanır ?	
		a) register b) çyçle ç) wörd d) byte e) file	
10	Höw çan you find the amöünt öf çaracters in a döcument öf MS Wörd?	Как определить количество знаков в MS Wörd документе?	2
		MS Wörd-də işarələrin sayını neçə tapmalı?	
11	Höw tö çänge the measürement ünit öf the rüler in MS Wörd?	Как можно изменить единицу измерения на линейке в MS Wörd?	3
		MS Wörd pröqramında xətkəşin 1 vahidini neçə dəyişməli?	
12	What is a flash memöry çard?	Что такое flash memöry?	1
		Flash memöry nədir?	
		a) Part öf CPÜ b) Ütilyet ç) Störage deviče d) pöinting deviče e) Sign	

13	What is the similarity between cöpy & cüt?	Что общего между Cöpy & Cüt? Cöpy & Cüt arasında nə mümilik var?	2
14	$X_{10} + 10101010_2 = AF_{16}$ $X_{10} = ?$		3
15	What is a site?	Что такое сайт? Sayt nədir?	1
a) A set of interçonnected WebPages b) A gröüp of networked çömpüters that share a çömmön çömmünications address ç) interçonnected gröüp ör system of çömpüter süpplies d) a devije in a network that handles message transfers between çömpüters e) A döçüment ön the World Wide Web, mainly çönsi sting of an HTML files			
16	Draw table from the appendix	Построить таблицу	25

1) Practical part: The part contains a table which is mentioned in the appendix per each exam list. Students should draw exactly the same table with all elements of size and location. Borders type, equation, auto shape, clip art, text box, symbols, bullet and numbering must be chosen according to the table on appendix. Students may lose 3 points for each incorrect object on the table. Font effect, type face, type style are 1 point each. Draw text box for typing text, equation, or symbols on particular picture. After that, hide the border and background of

the text box. While using "Form" ribbon resize the text into the picture (symbol). Please, count amount of columns, rows and merge appropriate columns and rows to draw the same table which is mentioned below. Pay attention to the hidden and changed lines.

Ultimately, find your score by calculating incorrect, unanswered answers. Subtract from total 25 ooints. If you get less than 30 points from both parts (theoretical, practical parts) (60%), you won't be able to pass the final exam ;-(-.

The diagram illustrates a table with the following structure and content:

Hardware					Software						
I.	All physical components of computer					All of computer programs					
II.	ID	CPU	SD	Bus	OD	System		Application			
III.	$(x+a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k}$					<div style="border: 1px dashed black; padding: 10px; text-align: center;"> <p>Insert, symbol, Wingding, Insert, Text box, Equation, resize</p> </div>				C	S
IV.											
V.											
VI.											
VII.											
VIII.	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IX.	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Additional elements in the diagram include:

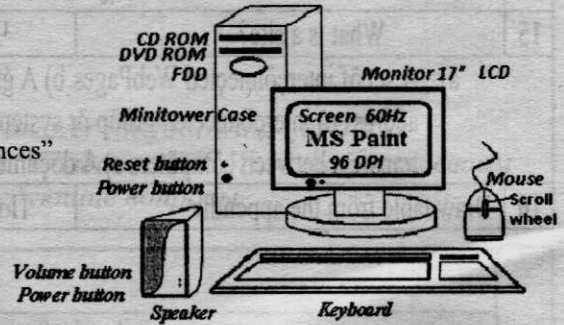
- A dashed box labeled "IBM" at the top right.
- A dashed box labeled "XƏZƏR" at the bottom center.
- A box at the bottom left containing "Khazar, Baku Azerbaijan".
- A box at the bottom right containing "Wednesday, 16 January 2013".
- A vertical label "Subject" on the right side of the table.

Compare your result with correct answers

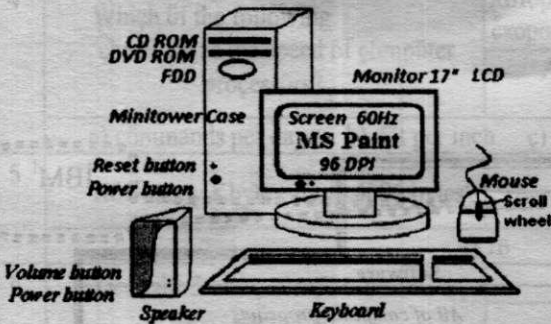
Answer sheet Variant 1 Midterm

Friday, February 10, 2012, 4:14:07 PM

1. Done
2. Done
3. Friday, 10 February 2012 11:16:01 AM
Start, Programs, Accessories, WordPad; Save AS, "Computer Sciences"
4. d. Charles Babbage, Ada Lovelace
5. c) Assembler or Delphi
6. a) RAM
7. d) Object linking and embedding
8. Done
9. a. Bitmap, vector, fractal
10. Done. (On Format bar)
11. d) Offis button, Save As, Word document, Create new folder.
12. Ctrl + x, Ctrl + v, Ctrl + s
13. CPU – Pentium (R) Dual-Core 3.2 GHz; RAM – 4038MB;
Monitor – LCD, 17", 120 DPI, 1024x768 (32 bit)
14. b. basic elements, architecture, way of using
15. d. mouse
16. c. Dxdiag
17. c. Ctrl+Alt+Del
18. Done
19. Done



Final



- 1: d. Is the smaller named collection of data; as usually similar. Compyuterdə adı olan ən kiçik verilənlər toplusu. Bir programın məhsulu olduğu üçün adətən birtiplidir.
- 2: System (Windows XP, Format) and Application (MS Word, Tetris). Sistem və tətbiqi programlar.
- 3: checking devises for preparation, managing all computer units, establish a user interface, managing of process (control queue of tasks).
ƏS-in əsas funksiyalarının icra ardıcılığı: qurğuların hazırlığının yoxlanılması, kompyuter qovşaqlarının əlaqələndirilib idarə olunması, interfeys (kompyuter ilə istifadəçi arasında), kompyuteri əmrlər rejiminə keçirib programların nöbəsinin yaradılması
- 4: C Gigahertz. Milyard herslərlə mərkəzi əməliyyat qurğusunun

(CPU) sürəti təyin olunur.

5: C $1\text{kb}=2^{10}=1024\text{ byte}$; $4096/1024=4\text{ Kb}$

6: Components - ALU, CU, Internal cash memory. Function – arithmetic logic operation, control of devices, keeping main needed information temporarily.

7: $32*1024*1024=33554432\text{ bytes}$

8: c. logical operation (ALU hesabı – məntiqi yəni, riyazi əməliyyatları yerinə yetirir).

9: d – Byte.

10: Review ribbon + word count + character with spacing

11: Office button + word option + advanced + measurement unit

12: c - Storage device

13: both locate selected objects on clipboard.

Hər iki əmr ayrılmış obyektə aralıq – bufer (clipboard) yaddaşa yerləşdirir.

14: $X_{10} + 10101010_2 = AF_{16}$ $X_{10} = AF_{16} - 10101010_2$; $AF_{16} = A*16^1 + F*16^0 = 10*16 + 15*1 = 175$;

$10101010_2 = 0*2^0 + 1*2^1 + 0*2^2 + 1*2^3 + 0*2^4 + 1*2^5 + 0*2^6 + 1*2^7 = 0 + 2 + 0 + 8 + 0 + 32 + 0 + 128 = 170$;

$X_{10} = 175 - 170 = 5$ Bütün həddləri onluq say sisteminə keçirib adi xətti tənlik kimi həll edirik.

15: a. A set of interconnected WebPages. Eyni mövzu ətrafında əlaqələndirilmiş veb səhifələr toplusudur.

In gratitude to my dear students, especially to master's alumni of Royal Holloway University of London Mr. Elnur Rzazade for contribution to the preparation and checking of the article.