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**ОТЧЕТ**

**UNIT 2**

«**Computer architecture**»

по дисциплине:

**Профессиональная подготовка на английском языке**

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**Starter**

Name these different types of computers. Then match the possible users below to each type. Justify your choice

Table A

|  |  |  |
| --- | --- | --- |
| 1 | Marketing research person collecting data from the general public | Notebook |
| 2 | Large company processing payroll data | Server |
| 3 | Travelling salesperson giving marketing presentations | Tablet computer |
| 4 | Large scientific organization processing work on nuclear research | Supercomputer |
| 5 | Businessperson keeping track of appointments while travelling | Pocket computer |
| 6 | Graphic designer | Workstation |
| 7 | Secretary doing general office work | Desktop computer |

What do these abbreviations mean? Use the Glossary if necessary.

|  |  |  |
| --- | --- | --- |
| 1 | CD-ROM | A device that can read CD disks and get data from them. |
| 2 | RDRAM | It is a type of computer memory developed and licensed by Rambus Inc. |
| 3 | MB | A measurement unit used for measuring computer memory capacity. |
| 4 | GHz | A measurement unit used for measuring frequency. |
| 5 | AGP | It is a type of graphic interface of hardware. |
| 6 | SDRAM | It is a type of computer dynamic memory. |
| 7 | SVGA | It is a type of graphic interface of hardware. |

**Reading**

Now study the text below to find this information:

|  |  |  |
| --- | --- | --- |
| 1 | What is the memory size of this PC? | 256 MB Rambus RDRAM |
| 2 | Which input devices are supplied? | Microsoft Intellimouse and 105-key keyboard |
| 3 | What size is the monitor? | 19 inches but viewable area is only 17,9 inches |
| 4 | How fast is the processor? | It operates at clock speed 1.7 GHz. |
| 5 | What is the capacity of the hard drive? | The capacity of the hard drive is 60 GB |
| 6 | Which operating system does it use? | It uses Microsoft Windows XP |
| 7 | What multimedia features does the computer have? | It has a soundcard with the wavetable system |

**Language work**

Match each item in Column A with its function in Column B. Then describe its function in two ways.

Table A

|  |  |
| --- | --- |
| 1 | RAM |
| 2 | Processor |
| 3 | Mouse |
| 4 | Clock |
| 5 | 3.5” floppy drive |
| 6 | Monitor |
| 7 | Keyboard |
| 8 | DVD-ROM drive |
| 9 | Cache |
| 10 | ROM |

Table B

|  |  |
| --- | --- |
| 1 | Controls the cursor |
| 2 | Inputs data through keys like a typewriter |
| 3 | Displays the output from a computer on a screen |
| 4 | Reads DVD-ROMs |
| 5 | Reads and writes to removable magnetic disks |
| 6 | Holds instructions which are needed to start up the computer |
| 7 | Holds data read or written to it by the processor |
| 8 | Provides extremely fast access for sections of a program and its data |
| 9 | Controls the timing of signals in the computer |
| 10 | Controls all the operations in a computer |

Answers

|  |  |  |
| --- | --- | --- |
| RAM | RAM is used for holding data read or written to it by the processor | RAM holds data read or written to it by the processor |
| Processor | Processor is used to control all the operations in a computer | Processor controls all the operations in a computer |
| Mouse | Mouse is used to control the cursor | Mouse controls the cursor |
| Clock | Clock is used to control the timing of signals in the computer | Clock controls the timing of signals in the computer |
| 3.5” floppy drive | 3.5” floppy drive is used for reading and writing to removable magnetic disks | 3.5” floppy drive reads and writes to removable magnetic disks |
| Monitor | Monitor is used to display the output from a computer on a screen | Monitor displays the output from a computer on a screen |
| Keyboard | Keyboard is used to input data through keys like a typewriter | Keyboard inputs data through keys like a typewriter |
| DVD-ROM drive | DVD-ROM drive is used for reading DVD-ROMs | DVD-ROM drive reads DVD-ROMs |
| Cache | Cache is used for providing extremely fast access for sections of a program and its data | Cache provides extremely fast access for sections of a program and its data |
| ROM | ROM is used for holding instructions which are needed to start up the computer | ROM holds instructions which are needed to start up the computer |

With the help of the Glossary if necessary, describe the functions of these items.

|  |  |  |
| --- | --- | --- |
| 1 | Scanner | The function of a scanner is to read images from a paper convert it to a digital format and input it into a computer. |
| 2 | Printer | The function of a printer is to print texts and images on paper. |
| 3 | ATM | The function of an ATM is to withdraw cash from the user's bank account. |
| 4 | PDA | The function of a PDA is to serve as a phone, computer, and internet communicator together. |
| 5 | Hard disk drive | The function of a hard disk drive is to store a big amount of data. |
| 6 | Supercomputer | The function of a supercomputer is to handle big and complex data quickly. |
| 7 | Mainframe computer | The function of a mainframe computer is to process bulk data, statistics, and transactions. |
| 8 | Barcodes | The function of barcodes is to identify goods in stores and warehouses. |
| 9 | Swipe cards | The function of swipe cards is to make purchases, work as keys to enter doors. |
| 10 | Memory | The function of memory is to store data that a processor uses on its operations. |

Complete each sentence using the correct preposition.

|  |  |
| --- | --- |
| 1 | The CPU is a large chip **inside** the computer. |
| 2 | Data always flows **from** the CPU **to** the address bus. |
| 3 | The CPU can be divided **into** three parts. |
| 4 | Data flows **between** the CPU and memory. |
| 5 | Peripherals are devices **outside** the computer but linked **to** it. |
| 6 | The signal moves **across** the VDU screen **from** one side **to** the other. |
| 7 | The CPU puts the address **onto** the address bus. |
| 8 | The CPU can fetch data **from** memory **and from** the data bus. |

**Problem solving**

Study these 'System upgrades and options' for the computer described in Task 3. Which upgrades and/or options would improve these aspects of this computer?

Upgrades and options

|  |  |
| --- | --- |
| 1 | 3Com 10/100 Ethernet controller |
| 2 | CD-RW Drive |
| 3 | Extra memory module |
| 4 | APC 1400 Smart-UPS |
| 5 | 3 Year Next-Business-Day On-site Service |

Answers

|  |  |  |
| --- | --- | --- |
| 1 | Capacity | CD-RW Drive |
| 2 | Speed | Extra memory module |
| 3 | Protection from damage due to power failure | APC 1400 Smart-UPS and 3 Year Next-Business-Day On-site Service |
| 4 | Network connections | 3Com 10/100 Ethernet controller |

**Speaking**

Find out as much as you can about your partner's computer and complete this table.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Question | Answer |
| 1 | Processor type | What a processor type has your computer? | My computer runs XEON. |
| 2 | Processor speed | What is the speed of your processor? | It operates at a frequency of 2.8 GHz |
| 3 | Bus speed | What is the bus speed? | It is 800 MHz |
| 4 | Memory (RAM) | What is the capacity of the system memory? | It is only 2 GB yet. Nevertheless, it can be expanded up to 8 GB. |
| 5 | Memory type | What is the type of system memory on your computer? | It is DRR2 400 MHz |
| 6 | Hard disk capacity | How large is the capacity of the hard disk? | It's large enough - 250 GB. |
| 7 | Hard disk type | What type is your hard disk? | The type of interface is SATA. The spindle rotating speed is 7200 rpm. |
| 8 | Monitor size | Has it a big monitor? | Not really. It is just 19 inches in diagonal. |
| 9 | Monitor resolution | What is the monitor resolution? | The monitor has a resolution of 1024 on 728 |
| 10 | CD-ROM drive speed | What is the CD-ROM speed? | Its speed is 48 times of regular CD reading speed. |

**Writing**

Put these instructions for opening a computer in the correct sequence.

|  |  |
| --- | --- |
| A | Release the two catches underneath and lift up to remove panel. |
| B | Shut down your computer by choosing Shut Down from the Apple menu or the Special menu. |
| C | If there are security screws on the vertical plate on the back of the computer, remove them with a Philips screwdriver. |
| D | Unplug all the cables except the power cord from your computer. |
| E | Pulling gently, slide the tray out. |

Answer:

First, shut down your computer by choosing Shut Down from the Apple menu or the Special menu.

Next, if there are security screws on the vertical plate on the back of the computer, remove them with a Philips screwdriver.

Then unplug all the cables except the power cord from your computer.

After that release the two catches underneath and lift up to remove panel.

Finally, pulling gently, slide the tray out.

**Specialist reading**

Find the answers to these questions in the following texts.

|  |  |  |
| --- | --- | --- |
|  | Question | Answers |
| 1 | What is one of the main causes of a PC not running at its highest potential speed? | The cause of it is that the process of moving data in and out of memory takes a long time. |
| 2 | What word in the text is used instead of 'buffer'? | It is used the word ‘cache’. |
| 3 | What device looks after cache coherency? | A device that looks after cache coherency called ‘cache controller’. |
| 4 | What is the main alternative to 'write-through cache'? | The main alternative to the slow ‘write-through’ cache is the ‘write-back’ cache. |
| 5 | When does a write-back cache write its contents back to main memory? | A ‘write-back’ cache controller writes the cache data that has been changed by the processor before it starts loading the next portion of data from main memory to the cache. |
| 6 | When is data marked as 'dirty' in a write-back cache? | When the processor has changed the data in a cache entry, it marked as 'dirty'. |
| 7 | What determines what data is replaced in a disk cache? | Depending on the applied cache controller algorithm, it can be data that has been in the cache the longest or data that has been used by the processor recently. |

Match the terms in Table A with the statements in Table B.

Table A

|  |  |
| --- | --- |
| a | Cache hit |
| b | Cache controller |
| c | Cache coherency |
| d | Write-through cache |
| e | Write-back cache |
| f | Line size |

Table B

|  |  |
| --- | --- |
| I | The process of writing changes only to the cache and not to main memory unless the  space is used to cache new data |
| II | The amount of data transferred to the cache at any one time |
| III | The process of writing directly to both the cache and main memory at the same time |
| IV | The processor is successful in finding the data in the cache |
| V | Ensuring that any changes written to main memory are reflected within the cache and vice versa |
| VI | The logic circuits used to control the cache process |

Answers

|  |  |
| --- | --- |
| The process of writing changes only to the cache and not to main memory unless the space is used to cache new data | Write-back cache |
| The amount of data transferred to the cache at any one time | Line size |
| The process of writing directly to both the cache and main memory at the same time | Write-through cache |
| The processor is successful in finding the data in the cache | Cache hit |
| Ensuring that any changes written to main memory are reflected within the cache and vice versa | Cache coherency |
| The logic circuits used to control the cache process | Cache controller |

Mark the following statements as True or False:

|  |  |  |
| --- | --- | --- |
| a | Cache memory is faster than RAM. | True |
| b | The processor looks for data in the main memory first. | False |
| c | Write-through cache is faster than write-back cache. | False |
| d | Write-back cache requires a more intelligent cache controller. | True |
| e | Most programs use instructions that are stored in sequence in memory. | True |
| f | Most cache controllers transfer one item of data at a time. | False |
| g | Hardware and software disk caches work in much the same way. | True |