**Exam questions /A group – January, 2023.**

**Примерные вопросы для собеседования на экзамене в группе A. 2023г.**

1. What are your plans for the future professional career?
2. What are the jobs available in IT? (See the Google Doc completed by your group)
3. What is the difference between web-designers and web-developers; between back-end-developers and front-end-developers?
4. What formal letters should you submit when applying for a job? (describe their format and purpose)
5. What should you do if you are invited for the first interview?
6. What types of company culture are presented in IT? Where would you like to work? Why?

**Computers:**

1. How often do you use a computer? What do you use it for?
2. How are computers used in a) studying? b) banking? c) travelling?
3. How are computers used in sports, medicine, crime investigation, business and other areas of life?
4. How do you think computers will be used in the future? Will computers be able to replace human beings?
5. What is a computer? How many parts does it include and what are they?
6. What are the basic parts of hardware? Describe them briefly.
7. What types of computers and gadgets are there? Enumerate them. What is the difference between them?
8. What are the functions and peculiarities of a) PC, b) PDA, c) mainframe, d) supercomputer, e) server, f) workstation?
9. What types of computers do you use? How often do you use them? What do you use computers for? Can you live without computers?
10. What is software? What are the verbs used to start a software program?
11. Is it useful to learn programming? Why?
12. What is the difference between open source and closed source software? Give an example.
13. Think about advantages and disadvantages of open source / closed source. Enumerate them.
14. What would happen if all the software were open source (closed source)?
15. Have you ever written a software program yourself? If yes, what kind of program was it? What language did you use? How long did it take you?
16. Have you ever had a bug in the program run? Did you try to debug it yourself or did you ask for help? How long did it take you to fix the problem?

**Programming languages:**

1. Do computers understand human language? Why? /Why not?
2. What is the function of an assembler?
3. Why did software developers design high-level languages? What are they? Provide some facts from their history (2-3 names and facts).
4. What is the difference between a compiler and an interpreter?
5. What three broad categories do programming languages fall into?
6. What is a machine language? Why don’t programmers write machine code at least anymore?
7. What is an assembly language?
8. Which task is more complicated: compiling or assembling and why?
9. Why is it interesting to learn assembly language?
10. Where is assembly typically used today?
11. What is the position of C, C++, Rust? What languages are they referred to? Provide some information about each of them (development, peculiarities and functions)
12. What is the difference between compiled and interpreted languages?
13. What is the difference between statically typed and dynamically typed languages?
14. Provide some information about popular programming languages (Python, Ruby, Java etc.), their development, peculiarities and functions.
15. What are the programming languages everyone should know according to Larry Wall? Do you agree? Why?
16. What are the best programming languages to learn according to Eli? Do you agree? Why?
17. Advanced programming languages: what are they? Why are students encouraged to learn them?
18. In your opinion, what are the best programming languages for first-time learners? Be ready to say some words about each of them (characteristics, functions, some facts from the history, strengths and weaknesses).

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* 1-4 – (CW: Computer Languages, p.148-152)
* 5-7 – (CW: Additional Texts, File 6, p. 240, video The Porgramming Language Guide)
* 8-11 – (video The Porgramming Language Guide)
* 12 - (CW: p.154, video 5 Programming Languages Everyone Should Know
* 13 – (video Best Programming Language by Eli the Computer Guy)
* 14 - (CW: p.152-153, Internet)

**Internet security:**

1. What is the Internet? When and where did the Internet appear? Who contributed into its development?
2. Is it correct to use the terms Internet and Web interchangeably? Why/Why not?
3. What do you use the Internet for?
4. What is a computer virus? How does it work? In what ways can a virus enter a computer system?
5. What are the most common types of viruses and other malicious programs?
6. How can we protect a computer system from viruses? Is it possible?
7. What cyber crimes can you enumerate? Give their brief description.
8. Which crimes are considered to be the most dangerous? Why? What measures can be taken by government to stop cybercrimes?
9. Hacking: provide some facts from the history of hacking: who were the most dangerous hackers of all time and what did they do?
10. What are the types of hackers?
11. What can incentivize the good actors to stay on the right side of the law and ethics? (minimum 3 incentives).
12. What is Pwn2Own? What other hacking contests do you know?
13. Present the Glossary you made on the topic Internet Issues (you may use your notes).
14. Render the article you chose for extracurricular reading on the topic (you may use your notes).

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* 1-3 – (CW: Internet Issues, p.161-162, 224, 242; <https://www.freecodecamp.org/news/brief-history-of-the-internet/> )
* 4-6 – (CW: Internet Issues, p.165-167, 170, 244)
* 7-8 – (CW: p.176-177, <https://www.tutorialsmate.com/2020/09/what-is-cybercrime.html> ; <https://www.tutorialsmate.com/2020/10/types-of-cybercrime.html> )
* 9-10 – два текста hacking, types of hackers от 07.12
* 11-12 – (CW: p.173-176 - video)

**New technologies (robotics, artificial intelligence, biometrics, smart stuff or IoT, nanotechnology, VR, AR)**

1. What are the trends in new information technologies? Enumerate them and give their brief description. What is the most interesting technology in your opinion?
2. Robotics: what jobs are meant for robots? Where can robots be used? Can robots replace humans?
3. How do you think new technologies will affect our lives in future?
4. What are advantages and disadvantages of new technologies?
5. Share the details about the technology you chose for extracurricular reading on the topic (you may use your notes).