

LIST OF EXAMINATION QUESTIONS
Master's program in
11.04.02 Infocommunications and digital media
("Network & Cloud Technology" study track)

1. Data structures and types of programming languages
2. Fundamentals of the semantics and syntax of high-level programming languages
3. The principles of object-oriented programming
4. Stages of software development
5. Visual programming environments
6. Key points of software development methodologies Microsoft Solutions Framework (MSF)
7. Design and implementation of databases
8. Relational data models
9. Database applications development
10. Web Application Development Technologies
11. The concept of a carrier signal. Modulation and detection of signals. Spectra of modulated signals
12. The main types of modulation used in the channels of telecommunication systems.
13. Classification of messages, signals and interference
14. Information characteristics of message sources and communication channels
15. Communication quality parameters. Quality of Service models (QoS)
16. Open Systems Interaction Architecture
17. Ways of transition to next generation communication networks (NGN)
18. Features and specifics of personal, local and city radio access networks
19. Definition of the radio frequency spectrum and its main characteristics. Methods of managing the use of RFS
20. Switching methods in communication networks
21. Sorting and search algorithms
22. Typical development and debugging environments of programs
23. Differences in the following approaches in cloud computing: PaaS (Platform as a Service); IaaS (Infrastructure-as-a-Service); SaaS (Software as a Service)
24. Programming languages. Compilers and interpreters. Static and dynamic languages. Areas of functional application
25. Working with data in languages to choose the one responsible (C, C ++, Python, Perl, PHP, JavaScript, Shell ...)
26. The concept of platform virtualization. Advantages over the traditional "one computer - one platform" approach
27. The main software constructs in languages to choose the one responsible (C, C ++, Python, Perl, PHP, JavaScript, Shell)
28. Relational database principles
29. Standard data structures (lists, stacks, queues, decks, trees, graphs) and ways of representing them
30. Basic algorithms and principles of data mining and machine learning