ИУК4 **Module 2 (3rd year 6-th term)**
ИУК5

Variant 1

1. Translate into Russian.

1. to find the roots of a quadratic equation
2. precisely defined instructions
3. a specification document
4. a dominant implementation
5. the flow of execution.
6. to follow alternative paths of execution
7. to repeat a sequence of steps
8. a loop nested within
9. a factorial function
10. a recursive routine:

2. Translate into Russian.

Some languages, like Russell and CSP, allow conditionals to have any number of branches, each with its own Boolean condition, called a guard. The guards may be evaluated in any order, and execution chooses any branch whose guard evaluates to true. These conditionals are called nondeterministic, since running the program a second time with the same input may result in a different branch being selected. In such languages, else means "when all the guards are false." A wide range of iterative statements (loops) is available. An iterative statement must indicate under what condition the iteration is to terminate and when that condition is tested.
When 'go to' statements became unpopular because they lead to unreadable and unmaintainable programs, languages tried to avoid all control jumps. But loops often need to exit from the middle or to abandon the current iteration and start the next one. The break and next statements were invented to provide these facilities without reintroducing unconstrained control jumps.

2. Give a short summary of the text

The Languages

By: Eric Suh *Code Journal* (http://www.cprogramming.com/codej.html) 2012

C++ is well-suited for large projects because it has an object-oriented structure. People can collaborate on one program by breaking it up into parts and having a small group or even one individual work on each part. The object-oriented structure also allows code to be reused a lot, which can cut down development time. C++ is also a fairly efficient language - although many C programmers will disagree.

C is a popular language, especially in game programming, because it doesn't have the extra packaging of the object-oriented C++. Programmers use C because it makes programs slightly faster and smaller than

programs written in C++. You might wonder, however, whether it's worth giving up the reusability of C++ to get the small increase in performance with C, especially when C++ can, where necessary, be written in a C programming style.

Pascal is primarily a teaching language. Few industrial programs are written in Pascal. Pascal tends to use keywords instead of C-style braces and symbols, so it is a bit easier for beginners to understand than languages like C++. Still, not everyone thinks Pascal is just for the schools. Borland, the huge compiler software company, has been pushing Delphi as an industrial strength programming language. Delphi is an object-oriented version of Pascal, and currently, only Borland compilers use it.

Fortran is a number-crunching program, and it is still used by scientists because the language allows variables of any size up to the memory limit of the machine. Fortran is especially convenient for engineers, who have to mathematically model and compute values to high precision. Fortran, however, isn't nearly as flexible as C or C++. Programming in Fortran is rigid, with strict rules on whitespace and formatting, which sometimes makes reading Fortran programs difficult.

Java is a multi-platform language that is especially useful in networking. Of course, the most famous usage of Java is on the web, with Java applets, but Java is also used to build cross-platform programs that stand alone. Since it resembles C++ in syntax and structure, learning Java is usually quite easy for most C++ programmers. Java offers the advantages provided by object-oriented programming, such as reusability; on the other hand, it can be difficult to write highly efficient code in Java, and Swing, its primary user interface, is notoriously slow. Nevertheless, Java has increased in speed in recent years, and version 1.5 offers some new features for making programming easier

Perl was originally a file management language for Unix, but it has become well known for its use in CGI programming. CGI (Common Gateway Interface) is a term for programs that web servers can execute to allow web pages additional capabilities. Perl is great with regular expression pattern matching, which is a method for searching text. Perl can be used for databases and other useful server functions, and it is simple to pick up the basics if you have experience in any imperative language. Web hosting services prefer Perl over C++ as a CGI language because the web hosts can inspect Perl script files, since they're just text files, while C++ is compiled, so it can't be inspected for potentially dangerous code. Perl is, however, notorious for its "write once" style of code -- it's very easy to write Perl scripts taking advantage of lots of shortcuts that you later cannot understand.

PHP is a common language for webpage design that is sometimes used as a scripting language in *nix. PHP is designed for rapid website development, and as a result contains features that make it easy to link to databases, generate HTTP headers, and so forth. As a scripting language, it contains a relatively simple set of basic components that allow the programmer to quickly get up to speed, though it does have more sophisticated object-oriented features.