**1.** Why is I/O tricky for a programmer?

It is hard to convert from one format to the one you need. Also, computers can’t read data that can be clearly understandable for human being, being written by him but it requires conversion to the format, that would be acceptable for processing by computer.

**2.** What does the notation << hex do?

A stream manipulator that makes istream to display all further numbers in hexadecimal notation.

**3.** What are hexadecimal numbers used for in computer science? Why?

They are used to express the value of a byte.

**4.** Name some of the options you may want to implement for formatting integer output.

1. Output a number of figures.

2. Precision for integer (rounding)

**5.** What is a manipulator?

A special term that changes the behaviour of a stream.

**6.** What is the prefix for decimal? For octal? For hexadecimal?

Dec - decimal, hex - hexadecimal, oct - octal

**7.** What is the default output format for floating-point values?

The number of figures (both before and after the point) is set by default precision, which equals 6. To represent the number in the most precise way, iostream chooses fixed or scientific notation.

**8.** What is a field?

A mechanism used to specify how much position figures will take integer or string value.

**9.** Explain what setprecision() and setw() do.

setprecision() sets how much numbers can be used to represent floating-point value. setw() sets the amount of position figures that integer or string value will take.

**10.** What is the purpose of file open modes?

Open mode indicates what can be done with the file after a stream was opened.

**11.** Which of the following manipulators does not “stick”: hex, scientific, setprecision(), showbase, setw?

Setw affects only the value that stands after the call of this function.

**12.** What is the difference between character I/O and binary I/O?

Character-oriented I/O processes sequences of bytes as characters, while binary I/O doesn’t convert bytes to characters, allowing programmer to choose the way of handling the “raw bytes”.

**13.** Give an example of when it would probably be beneficial to use a binary file instead of a text file.

When the data in file can’t be represented by characters.

**14.** Give two examples where a stringstream can be useful.

1. To produce a string from the values of different types.

2. To convert double to string and vice versa.

**15.** What is a file position?

A specific place in file which can be used to start reading of/writing in file.

**16.** What happens if you position a file position beyond the end of file?

An unexpected error can occur if the position has been set after the end of file.

**17.** When would you prefer line-oriented input to type-specific input?

When we need to process values of different types and the file doesn’t have any order of values that can be used in type-specific input using variables of corresponding types.

**18.** What does isalnum(c) do?

isalnum(c) checks whether ‘c’ is a letter or a decimal.