



Name: _____
Signature: _____
Roll # & Class: _____

The Islamia University of Bahawalpur

Department of CS&IT

Baghdad-ul-Jadeed Campus

Class:
Paper: Final Term

Paper: Programming Fundamentals
Course Code:

Objective-Type (Maximum Marks 20, Maximum Time 20 minutes)

Q1: Encircle the most appropriate choice. **Cutting overwriting** is **not allowed**.

1.1: In C++, a function contained within a class is called a(n)

- a)** member function **(b)** operator **(c)** class function **(d)** method

1.2: Specify which data type allocates number of bytes depending on the system

- a)** char **(b)** float **(c)** int **(d)** double

1.3: What header file must you #include with your program to use **setw**

- a)** stdio **(b)** conio **(c)** iomanip **(d)** iostream

1.4: The expression $24\%4$ evaluates to

- a)** 1 **(b)** 2 **(c)** 4 **(d)** 0

1.5: The actual code for library functions is contained in a

- a)** .h file **(b)** .exe file **(c)** .cpp file **(d)** .lib file

1.6: The _____ statement causes an exit from the innermost loop or switch

- a)** return **(b)** exit **(c)** break **(d)** continue

1.7: Members of a struct are _____ by default

- a)** private **(b)** public **(c)** protected **(d)** secured

1.8: When accessing a structure member, the identifier to the left of the dot operator is

- a)** a structure member **(b)** a structure variable **(c)** a structure tag **(d)** the keyword struct

1.9: A(n) _____ help organize a program into conceptual units

- a)** array **(b)** function **(c)** loop **(d)** switch statement

1.10: How many values we can return from the function using return statement?

- a)** 1 **(b)** 2 **(c)** 3 **(d)** any number of values

1.11: In C++, a variable declared inside a block is called

- a)** block variable **(b)** global **(c)** local **(d)** static

1.12: When the function is called by _____, it accesses the argument's original value.

- a)** value **(b)** reference **(c)** arguments **(d)** main()

1.13: An object has the same relationship to a class that a variable has to a _____

- a)** data type **(b)** main() **(c)** program **(d)** none of choice is correct

1.14: In C++ we can use _____ for handling matrices

- a)** 1D array **(b)** 2D array **(c)** table **(d)** class

1.15: The _____ of an array refers to its address

- a)** index **(b)** size **(c)** type **(d)** name

1.16: In C++, by default arrays are pass by _____ in function calls

- a)** value **(b)** reference **(c)** class **(d)** none of choice is correct

1.17: All elements in an array must be the _____ data type

- a)** different **(b)** same **(c)** any **(d)** int

1.18: For an array **A**, the statement **&A[2]** shows the address of the _____

- a)** 1st element **(b)** 2nd element **(c)** 3rd element **(d)** array

1.19: The contents of two pointers that point to adjacent variables of type **T** differ by _____

- a)** 2 **(b)** 4 **(c)** 1 **(d)** size of type **T**

1.20: A C++ _____ is a flow of data from one place to another

- a)** object **(b)** variable **(c)** stream **(d)** river



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Subjective Type (Maximum Marks 30, Maximum Time 85 minutes)

Q 2. Briefly discuss the followings. **(14 Marks)**

2(a) Draw a figure to discuss the difference between functions versus inline code. **(2)**

2(b) What is the difference between a structure and a class in C++? **(2)**

2(c) Write C++ code to discuss an alias of a variable. **(2)**

2(d) What is data hiding in object oriented programming? **(2)**

2(e) Why is **main()** function special.? **(2)**

2(f) What is type casting in C++? **(2)**

2(g) Write declarations for two overloaded functions of **swap()**? They both return void. **(2)**

Q 3. Write a complete C++ program to put a list of n-integers in increasing order using insertion sort. **(8)**

Instructions for Q 3:

- Before **main()**, use appropriate header file(s), name space(s), function prototype(s) **(1)**
- In **main()**, declare an array **A** of size n, then take input from the user using a for loop. **(2)**
- From **main()** call **insertion_sort()** algorithm, and pass array **A** to it. Define the function **insertion_sort()** **(3)**
- From **main()**, write the sorted array into a file, named sorted.txt, using binary file I/O **(2)**

Q 4. Suppose you want to analyze a student's performance in this course, i.e. Programming Fundamentals. Write down your plan, how you will tackle this project. **(8)**

- What kind of user defined data type (struct or class) you will use? What data members you will use? **(2)**
- What member functions you will use, write pseudo code of at-least three functions? **(6)**

Hint about Q 4: No need to write a complete C++ program. That is coding is optional. The intention is to check how you will design this project before implementation.