



COMPUTER SCIENCE HSSC-II

SECTION – A (Marks 15)

42

Time allowed: 20 Minutes

Version Number 4 1 2 2

Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 20 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.

- 1) Which of the following is **NOT** a file opening mode?
A. ios::bin B. ios::in C. ios::out D. ios::app
- 2) Which of the following creates user groups and assigns privileges to them?
A. Network management B. Memory management
C. I/O management D. File management
- 3) In which operating system response time is very critical?
A. Quick response B. Time sharing C. Batch D. Real time
- 4) In _____ phase, the project team determines the end-user requirements.
A. Implementation B. Analysis C. Design D. Coding
- 5) What is the output produced by the statement? `cout << "\\nnow\\n" ;`
A. "nnow" B. "\\nnow" C. \\nnow D. "\\nnow"
- 6) The equivalent statement of `sum=sum+num` is:
A. `num+=sum` B. `sum+=num` C. `sum=num++` D. `sum+=num`
- 7) Which of the following can be used to replace ternary operator?
A. switch statement B. if statement
C. if-else statement D. else-if statement
- 8) Which of the following statements is used to skip some statements inside loop and transfer control to the beginning of loop?
A. skip B. continue C. default D. switch
- 9) The dereference operator is denoted by:
A. ! B. * C. & D. &&
- 10) Which of the following is correct declaration of an array?
A. `int arr(10);` B. `int arr;` C. `int arr{10};` D. `int arr[10];`
- 11) All strings end with a special character called null character. That character is represented by:
A. '\0' B. '\n' C. '\e' D. '\u'
- 12) The first line of function definition is known as:
A. Function prototype B. Function header
C. Function body D. Argument
- 13) The phenomenon of having two or more functions in a program with the same names but with different numbers and types of parameters is known as:
A. Recursive function B. Inline function
C. Nested function D. Function overloading
- 14) The ability of a class to derive properties from a previously defined class is:
A. Information hiding B. Encapsulation
C. Inheritance D. Polymorphism
- 15) A constructor is called whenever:
A. A class is used B. An object is destroyed
C. An object is created D. A class is declared

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Time allowed: 2:40 Hours

Total Marks Sections B, C and D: 60

NOTE: Answer any Seven parts each from Section 'B' and 'C' any three questions from Section 'D' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 21)

Note: Section-B consists of following topics of the syllabus:

- | | |
|--|---------------------------------------|
| 1. Operating Systems (10%) | 2. System Development Life Cycle(10%) |
| 3. Object Oriented Programming In C++(10%) | 4. Control Structure (15%) |
| 5. Pointers (05%) | |

Q. 2 Answer any SEVEN parts. All questions carry equal marks.

(7 x 3 = 21)

- Differentiate between multiprocessing and multithreading by giving one example of each.
- What is determined in different types of feasibility studies?
- What is the purpose of operating system in the computer?
- Highlight six responsibilities of system analyst.
- Why is escape sequence used? Give any four examples with brief explanation.
- Determine the output of the following code segment:

```
int i=2;
cout <<i;
cout <<i++;
cout <<++i;
```
- What is the usage of break and continue statement in C++ program?
- Write a program that reads an integer and prints whether it is odd or even number.
- Differentiate between while and do while loop.
- What is pointer variable? Describe two advantages of using pointer variable.

SECTION – C (Marks 21)

Note: Section-B consists of following topics of the syllabus:

- | | |
|------------------------------|------------------------|
| 1. Arrays and Strings (15%) | 2. Functions (15%) |
| 3. Classes and Objects (10%) | 4. File Handling (10%) |

Q. 3 Answer any SEVEN parts. All questions carry equal marks.

(7 x 3 = 21)

- Differentiate between one dimensional and two dimensional array.
- What is the advantage of using cin.get() function over cin statement for reading a string? Give an example.
- Trace output of the following program segment:

```
int a[5]={10,3,5,1,2};
for (int i=4; i>0; i--){
a[i]+=a[i-1];
cout <<a[i]<<" "; }
```
- What is function? Describe different types of functions used in C++.
- Distinguish between formal parameters and actual parameters used in functions.
- Define default arguments. Give two advantages of using default arguments.
- Briefly explain the concept of data hiding in C++.
- What are access specifiers? How are private and public access specifiers used in C++?
- Describe different modes of opening files in C++.
- What is the role of bof() and eof() functions in file handling?

SECTION – D (Marks 18)

Note: Attempt any THREE questions. All questions carry equal marks.

(6 x 3 = 18)

- Q. 4 a. What is a process? Draw and describe the process states model diagram. (01+03)
- b. Which is the safest method of implementation in SDLC, and why? (01+01)

Q. 5 Write a program to print the following pattern using nested loop. (06)

```
1 2 3 4 5
2 3 4 5
3 4 5
4 5
5
```

Q. 6 Write a program with a function named rectangle that inputs the length and width of a rectangle and finds its area. The result is returned to main() to be displayed on screen. (06)

Q. 7 Explain the concept of inheritance and polymorphism in C++ with daily life examples. (03+03)

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COMPUTER SCIENCE HSSC-II

SECTION – A (Marks 15)

(Old syllabus)

Time allowed: 20 Minutes

Version Number	8	1	2	1
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Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 20 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.

- 1) The process of linking library files with object code is known as:
A. Compilation B. Execution C. Linking D. Saving
- 2) The scope of the variable refers to:
A. Length B. Name C. Accessibility D. Lifetime
- 3) What will be the result of the expression $1*1+2--$?
A. 3 B. 0 C. 2 D. 4
- 4) Which of the following is used to add comments on a single line?
A. ? B. // C. /* D. %
- 5) It is NOT the characteristics of relation:
A. Each row is unique B. Order of column is significant
C. Order of row is insignificant D. Columns are atomic
- 6) The parameters specified in function header are _____ parameters.
A. Actual B. Formal C. Default D. Command line
- 7) An association between two or more entities is called:
A. Table B. Relation C. Relationship D. Link
- 8) The logical not (!) operator is a _____ operator.
A. Unary B. Binary C. Ternary D. Relational
- 9) Which of the following is actual container of data?
A. Table B. Form C. Query D. Report
- 10) A table must have:
A. Primary Key B. Composite key C. Secondary key D. Sort key
- 11) The expression `printf("%d", 10 % 3);` has a value equal to:
A. 3 B. 5 C. 0 D. 1
- 12) Which problem does occur when data is repeated in different files?
A. Data redundancy B. Data consistency
C. Data atomicity D. Data integrity
- 13) In 2NF, all non-key attributes are fully _____ dependent on primary key.
A. Functional B. Non-functional C. Associative D. Transitive
- 14) Which of the following functions is used for writing one character at a time to a file?
A. `putc()` B. `getc()` C. `fputc()` D. `fgets()`
- 15) Which of the following is **NOT** a valid identifier?
A. `return` B. `myInt` C. `myInteger` D. `total3`

تاریخ: _____

مقام: _____



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COMPUTER SCIENCE HSSC-II

(Old syllabus)

45

Time allowed: 2:40 Hours

Total Marks Sections B, C and D: 60

NOTE: Answer any Seven parts from Section 'B' and 'C' any three questions from Section 'D' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 21)

Note: Section – B consist of Part – I (Programming Using C Language)

Q. 2 Answer any SEVEN parts. All questions carry equal marks.

(7 x 3 = 21)

- (i) Differentiate between while and do-while loop.
- (ii) Define function. Give two benefits of using functions in a program.
- (iii) (a) How many times will the following loop display "OK"?

```
for (int i = 1; i<20 ; i++)  
{ printf ("OK"); }
```
- (b) Rewrite the while loop as do-while loop.

```
int i = 1;  
while (i<=15)  
{ printf ("a");  
i=i+1; }
```
- (iv) Differentiate between local and global variables.
- (v) Write down variable naming rules.
- (vi) Describe scanf(). Why gets() is preferred over scanf() while taking input into a string variable?
- (vii) If there is a function named "factorial" of integer type and has an integer parameter "n"
 - (a) Write the prototype for this function.
 - (b) What will be the header of its function definition?
 - (c) What will be the return type of this function?
- (viii) Explain switch statement.
- (ix) We use fopen() to open a file. What can happen to a file if it already exists and we used fopen() with parameters "a", "w+" and "a+"?
- (x) Write a program in C that accepts three numbers from user and displays the smallest number.

SECTION – C (Marks 21)

Note: Section – C consist of Part – I I (Database)

Q. 3 Answer any SEVEN parts. All questions carry equal marks.

(7 x 3 = 21)

- (i) What is the purpose of following data types in MS Access?
 - (a) Number
 - (b) AutoNumer
- (ii) Differentiate between Primary Key and Composite key.
- (iii) (a) Define the tuple and the attribute with an example.
- (b) What is the degree in the following table:

EMP_Code	Address	Contact
010	Lahore	2254101
022	Rawalpindi	3042951
015	Lahore	9800250

- (iv) What are the uses of queries in database?
- (v) Write down the advantages of using Reports in MS Access.
- (vi) List the main problems that can be faced in a file-based management system.

- (vii) What is the correct variable type to store following information?
 (a) Name of student (b) Temperature of a day (c) Age of a student
- (viii) How record, file and database are related to one another?
- (ix) Identify the type of relationship between:
 (a) Student and Book (b) Student and Teacher (c) Student and College
- (x) Differentiate between data and information with examples.

SECTION – D (Marks 18)

Note: Attempt any THREE questions. All questions carry equal marks. (3 x 6 = 18)

Q. 4 Read the following scenario to make a program for taking SALARY as an input and print an appropriate activity accordingly:

Salary	Allowance
Less than or equal to 6000	Allowance 5% of salary
More than > 7000 and less than or equal 8000	Allowance 10% of salary
More than > 8000 and less than or equal 9000	Allowance 15% of salary
More than > 9000 and less than or equal 10000	Allowance 20% of salary
More than 10000	Allowance 25% of salary

- (a) Write down a program using any selection structure. (4)
- (b) Which selection structure do you think is more appropriate and state the reason? (2)

Q. 5 A college uses a database to keep details of its teachers. Here is a Table of this database.

Name	Father's Name	Address	Salary
Aslam	Khalid	RAWALPINDI	10000
Naved	Ashraf	LAHORE	20000
Khalid	Zeshan	JHELUM	15000
Zafar	Tanveer	MULTAN	10000
Shahid	Shafqat	RAWALPINDI	7000
Kamran	Ali	MIANWALI	8500

- (a) Identify the fields that contains:
 i) Numeric data
 ii) Alphabetic data (1)
- (b) Suggest two additional fields with data types that could be added to this table. (2)
- (c) Write down the output using only SALARY field if the following search condition is input to query: (SALARY>7000)OR(ADDRESS IS "RAWALPINDI") (1)
- (d) The records need to be sorted into the key field order. Suggest which field would be used or added as Primary key field and why? (2)

- Q. 6** a) How is referential integrity achieved? (2)
 (b) Define database model? Also discuss its different types. (4)

Q. 7 Write a program in C that prints the following output. (6)

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
  
```