

Roll No.: Date:

NORTHWEST ACCREDITATION COMMISSION, USA
SR. SECONDARY/12TH
2017-2018

Subject- COMPUTER SCIENCE (PRACTICAL)

Question Paper No. :

C	P	2	8
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Subject Code : PCS1214

Question Paper Code:

C	P	0	9
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Total Time: 01.30 Hours.

Total Marks: 30

GENERAL INSTRUCTIONS

1. OPENING AND CHECKING OF THE QUESTION-BOOKLET

Break open the seal of the Question-Booklet only when the announcement is made by the Invigilator. After breaking the seal and before attempting the questions, student should immediately check for:

- a) The number of the printed page in the Question-Booklet is the same as mentioned on the cover page of the Booklet and
- b) Any printing error in the Booklet pages, if any.
Any discrepancy or error should be brought to the notice of the Invigilator who will then replace the Booklet. No additional time will be given for this.

2. No student, without the permission of the Superintendent or the Invigilator concerned, is to leave his/ her seat or the Examination Room.

3. FILLING UP THE REQUIRED INFORMATION ON QUESTION-BOOKLET AND ANSWER SHEET

After breaking open the seal and checking the Booklet, student should:

- a) Fill up the **Question Paper No.** and **Question Paper Code** (mentioned on the cover of Question-Booklet) in the space provided on the First Answer Sheet.
- b) Fill up his/her Roll Number on the First Answer Sheet and on each Supplementary Answer Sheet, if taken.
- c) Student should mention the total number of **Supplementary Answer Sheet**, if taken, in the space provided on the First Answer Sheet and also fill up the Serial Number mentioned on each **Supplementary Answer Sheet** along with his/her Roll Number in the register maintained by the Invigilator. Student must tie all the Answer Sheets with the thread provided by the Invigilator.

4. INSTRUCTIONS ABOUT QUESTION PAPER

This Question Paper is divided into three Sections – A, B and C. All Sections are compulsory. Attempt all Sections as per instructions.

- a) This Question Paper includes five questions. All questions are compulsory.
- b) All questions are carrying six marks each.

5. Student found in possession of Cellular Phone / Mobile Phone / Pager or any other Communication Device and/or any Book/Note whether using or not, will be liable to be debarred for taking examination(s) either permanently or for specified period or/and dealt with as per law or/and ordinance of the School/SERI according to the nature of offence, or/and he/she may be proceeded against and shall be liable for prosecution under the relevant provision of the Statutory Law.

THE ANSWER SHEET IS TO BE RETURNED ON COMPLETION OF THE TEST

This Question Paper MUST be attached with Answer Sheet

- Question 1.** Define a class named ADMISSION in C++ with the following descriptions:
 Private members:
 AD_NO integer (Ranges 10 - 2000)
 NAME Array of characters (String)
 CLASS Character
 FEES Float
 Public Members:
- Function Read_Data () to read an object of ADMISSION type
 - Function Display() to display the details of an object
 - Function Draw-Nos () to choose 2 students randomly.
- And display the details. Use random function to generate admission nos. to match with AD_NO.

OR

```
class queue
{
    int data [10];
    int front, rear;
public:
    queue () {front=-1; rear=-1;}
    void add(); //to add an element into the queue
    void remove(); //to remove an element from the queue
    void Delete(int ITEM); //To delete all elements which are equal to ITEM
};
```

Complete the class with all function definitions for a circular array Queue. Use another queue to transfer data temporarily

- Question 2.** (a) Write the equivalent infix expression for
 a, b, AND, a, c, AND, OR

(b) Following is the structure of each record in a data file named "COLONY.DAT".

```
struct                                COLONY
{
    char Colony Code[10];
    char Colony Name[10];
    int No of People;
};
```

Write a function in C++ to update the file with a new value of No_of_People. The value of Colony_Code and No_of_People are read during the execution of the program.

OR

(a) Given a binary file SPORTS.DAT, containing records of the following structure type:

```
struct Sports
{
char Event[20];
char Participant[10][30];
};
```

Write a function in C++ that would read contents from the file SPORTS.DAT and creates a file named ATHLETIC.DAT copying only those records from SPORTS.DAT where the event name is "Athletics".

(b) Evaluate the following postfix notation of expression:

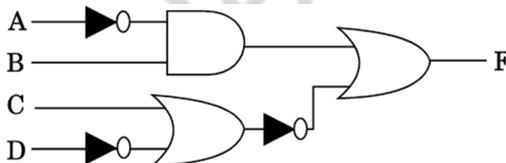
15 3 2 + / 7 + 2 *

Question 3.

(a) Name the law shown below and verify it using a truth table.

$X + X' \cdot Y = X + Y$

(b) Obtain the Boolean Expression for the logic circuit shown below:



(c) What is function overloading? write an example using C++ to illustrate the concept of function overloading.

OR

Define a class ITEM in C++ with following description:

Private Members

- Code of type integer (Item Code)
- Iname of type string (Item Name)
- Price of type float (Price of each item)
- Qty of type integer (Quantity of item in stock)
- Offer of type float (Offer percentage on the item)
- A member function GetOffer() to calculate Offer percentage as per the following rule:

If Qty ≤ 50	Offer is 0
If 50 < Qty ≤ 100	Offer is 5
If Qty > 100	Offer is 10

Public Members

- A function GetStock() to allow user to enter values for Code, Iname, Price, Qty and call function GetOffer() to calculate the offer
- A function ShowItem() to allow user to view the content of all the data Members

Question 4. Write a function in C++ to perform Delete operation on a dynamically allocated Queue containing Members details as given in the following definition of NODE:

```
struct NODE
{
long Mno                //Member Number
char Mname[20];        //Member Name
NODE *Link;
};
```

OR

Define member function delque() to perform delete operation on a linked queue where each node has the following structure:

```
struct node
{
char name[20]
int marks;
node *link;
};
class queue
{
node *front,*rear;
public:
queue(){front=rear=NULL;
}
void delque();
};
```

Question 5. An array A[20][30] is stored along the row in the memory with each element requiring 4 bytes of storage. If the base address of array A is 32000, find out the location of A[15][10]. Also, find the total number of elements present in this array.

OR

Write the definition of a class Photo in C++ with following description:

Private Members

- Pno //Data member for Photo Number (an integer)
- Category //Data member for Photo Category (a string)
- Exhibit //Data member for Exhibition Gallery (a string)
- FixExhibit //A member function to assign
//Exhibition Gallery as per Category
//as shown in the following table

Category	Exhibit
Antique	Zaveri
Modern	Johnsen
Classic	Terenida

Public Members

- Register() //A function to allow user to enter values
//Pno, Category and call FixExhibit() function

- ViewAll() //A function to display all the data members

END OF THE QUESTION PAPER

Sample Paper