2017

COMPUTER SCIENCE

PAPER—VIIA (SET — 1)

(Honours)

(PRACTICAL)

Full Marks : 50

Time : 3 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any *one* question from Group—A & any *one* question from Group—B.

Unit—I

Group—A

(UNIX)

(*Marks* : 15)

Answer any *one* question from this group :   1×15

1. Write a shell script program to perform all Arithmetic operations on integers.

2. Write a shell script program to find whether number is even or odd.

3. Write a shell script program to print the Fibonacci series.

4. Write a shell script program to accept a character and check whether it is an

   ♦ Lower case alphabet

   ♦ Upper case alphabet

   ♦ A digit

   ♦ Special symbol

   ♦ Vowel

   Using case control structure

5. Write a shell script program to check whether given file is a directory or not.

6. Write a shell script program to find sum of digits of a number.

7. Write a shell program for construct the following sequence.

```
*
*   *
*   *   *
*   *   *
```

8. Write a shell program to check whether a year is leap year or not.

9. Write a shell program to convert Decimal to its Binary number.

10. Write a shell program to find a number from a set of given number.

11. Write a shell program so sort a set of numbers in descending order.

12. Write a shell program to find largest among three number.

Group—B

(C++)

(Marks : 20)

Answer any *one* question :   1×20

1. An electrical board charges the following rates to domestic users to discourage large consumption of energy :

> For the first 100 units – 60p per unit
>
> For next 100 units – 80p per unit
>
> Beyond 300 units – 90p per unit

All users are charged a minimum of Rs. 50.00. If the total amount is more than Rs. 300.00 then an additional surcharge of 15% is added. Write a program to read the names of usesrs and number of units consumed and print out the charges with names.

2. Write a program to display the following output for any given height.

   (Here Height = 5)

   ```
   1
   1    1
   1    2    1
   1    3    3    1
   1    4    6    4    1
   ```

3. Write a program that creates an abstract class clallled Dimension, creates two subclasses Rectangle and Triangle. Include appropriate methods for both the subclasses that calculate and display the area of rectangle and triangle.

4. Create two classes dist_m and dist_f, which stores the value of distances in meters and in feet-inches respectively. Write a program to perform the following operations :

   • Read distances of objects of both the classes

   • Display distances of the class objects.

   Calculates the sum of distances, where the distances may be objects of any of the classes using the concepts of function overloading and friend functions.

5. Write a program to define a class with following description :

Private Members

A data member Flight number of type integer

A data member Destination of type string

A data member Distance of type float

A data member Fuel of type float

A member function CALFUEL() to calculate the value of Fuel as per following :

Criteria

Distance	Fuel
< = 100	500
more than 1000 and < = 2000	1100
more than 2000	2200

Public Members

A functionFEEDINFO() to allow user to enter values for Flight Number, Destinattion,

Distance & call function CALFUEL() to calculate the quantity of Fuel.

A function SHOWINFO() to allow user to view the content of all the the data members.

6. Write the definition for a class called *time* that has hours and minutes as integer. The class has the following member functions :

void settime(int, int) to set the specified value in object

void showtime() to display time object

time sum(time) to sum two time object & return time

1. Write the definitions for each of the above member functions.

2. Write main function to create three time objects. Set the value in two objects and call sum() to calculate sum and assign it in third object. Display all time objects.

7. Write a C++ program to sort a list of names in ascending order.

8. Write a C++ program to find the 2's complement of a binary number.

9. Write a C++ program to display the contents of a text file.

10. Write a C++ program to add two objects using binary plus (+) operator overloading.

11. Write a C++ program for unary logical NOT operator overloading.

12. Write a C++ program to count the lines, words and characters in a given text.

13. Write a C++ program to compute the sine series.

VIVA — 10

Practical Note Book : 05

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