LOVELY PROFESSIONAL UNIVERSITY

Academic Task No. 1

School: SCA **Faculty of: LFTS**

Course Title: OBJECT ORIENTED PROGRAMMING USING C++ (Lab) **Course Code:CAP445**

Max. Marks: 30[each question 10 Marks]

Date of Allotment: 20th Sept. 2021 **Date of Submission: 28th Sept. 2021**

Important Guidelines:

1. All questions in this Academic Task are compulsory.

2. It is mandatory to attempt all questions of the assignment in your own handwriting on A4 size sheets/pages with a blue color ink pen. Any other mode of attempt (typed or printed codes or table) except hand written/drawn will not be accepted/considered as valid submission(s) under any circumstances.

3. Every attempted sheet/page should carry clear details of student such as Name, Registration number, Roll number, Question number and Page number. The page numbers should be written clearly on the bottom of every attempted sheet in a prescribed format as: for page 1; **Page 1 of 4**, for page 2; **Page 2 of 4**, for page 3; **Page 3 of 4** and for page 4; **Page 4 of 4**, in case your assignment/document is of 4 pages.

4. After attempting the answer(s), student needs to take photograph of each of these answer sheets/pages and needs to convert the **jpeg** format images into a sequential single **pdf** format document (can be done with many free online available converters).

5. This PDF file should be uploaded onto the UMS interface on or before the last date of the submission.

6. Refrain from indulging into plagiarism as copy cases will be marked zero

7. For every program it is mandatory to give proper documentation.

SET-A

Q1. Suppose you are planning to go to park so you are going to check tickets criteria online. The ticket rates details have been given

*If children below 10 are not allowed to swing

*If age is between 10 to 15 allowed to swing and getting 10 % discount

*If age is between 15 to 20 allowed to swing and getting 5 % discount

*If age is more than 20 not then not eligible for swing and discount

The age of person will run until you enter the age of last family member and then calculate the total charge amount after entering each person's age. Assume price of ticket is 100 Rs. each person.

Q2. Write a program in C++, define a STUDENT class with RegNo, Name and Marks in 3 CA of a subject. Define one function to find the best two CA marks for student.

Q3. You have to generate electricity bill for a customer with the details as give below:
Customer ID, Customer Name, Customer Address, Contact No, Units Consumed, Total payable amount. Following are the norms to calculate the unit amount:
a) for initial 100 units it will cost 6rpu
b) for next 100 units it will cost 8rpu
c) for next all units it will cost 10rpu.
Implement the concept of hybrid inheritance in this program.

SET-B

Q1. Create a class student. Take data members: Student name, Registration Number and Total Marks. Create a function that will perform task student is pass or not in exam. If the student is Pass than it should display grade according to following conditions:

*If student's marks 95% or more then awarded O(Outstanding) grade

*If student's marks 85% or more but less than 95% then awarded E(Excellent) grade

*If student's marks 75% or more but less than 85% then awarded A(Good) grade

*If student's marks 60% or more but less than 75% then awarded S(Satisfactory) grade

*If student's marks 50% or more but less than 60% then awarded B(Average) grade

*If student's marks below 50% then awarded F(Fail) grade

Q2. Create a class product, take appropriate data members and functions which calculate net profit for a product after selling the product.

Q3. Suppose there is University and there are different departments like SCA, SCS, EEE etc. Dean of this University want to know about the detail of the students who got highest marks in each of the department. Write a program using the concept of inheritance.

SET-C

Q1. Write a program to perform following operations on a given number and check whether result value is prime or not?

a. Sum of given number
b. Product of given number

For e.g: Given number is: 1231
Sum of number is:(1+2+3+1) 7 is a prime no.
Product of number is:(1*2*3*1) 6 is not a prime no.

Q2. Write a program to generate Salary slip of an employee. Personal details of the employee are stored in different class and professional details are stored in different class. Attendance record and leave records are also stored in different classes. Also Calculate the final salary of employee by adding bonus into the basic salary based on salary>5000 = bonus 15 %, salary=40000<50000 bonus 10%, others all have bonus of 5% of the salary.

Q3. Suppose there is Bank and there are different branches in Jalandhar, Phagwara, Hoshiarpur etc. President of the Bank want to know about the detail of the branch managers who has more working experience. Write a program using the concept of inheritance.

SET-D

Q1. Write a program to implement the following: create a class representing a company where a company has a minimum and maximum limit of the quantity of products. Allow the user to order from the company product list (create a list of any ten products). Apply proper constraint if user order more than the quantity available with the company. Based on the quantity generate the customer bill. Use the concept of overloading in generating bill.

Q2. Write a program to print records of 5 Student's result (pass, fail) by using a appropriate method and variables. Apply appropriate conditions for result.

Q3. Suppose a customer having accounts in three different branches in Jalandhar, Phagwara and Hoshiarpur etc. Customer want to know about the detail of balance from all branches and also want to know branch name in which customer having more balance. Write a program using the concept of inheritance.

SET-E

Q1. Suppose there is University and there are different departments like SCA, SCS, EEE etc. Dean of this University want to know about the detail of the students who got highest marks in each of the department. Write a program using the concept of inheritance.

Q2. Write a program to implement the following: create a class representing a company where a company has a minimum and maximum limit of the quantity of products. Allow the user to order from the company product list (create a list of any ten products). Apply proper constraint if user order more than the quantity available with the company. Based on the quantity generate the customer bill. Use the concept of constructor in generating bill.

Q3. Suppose you are planning to go to park so you are going to check tickets criteria online. The ticket rates details have been given

*If children below 10 are not allowed to swing
*If age is between 10 to 15 allowed to swing and getting 10 % discount
*If age is between 15 to 20 allowed to swing and getting 5 % discount

*If age is more than 20 not then not eligible for swing and discount

The age of person will run until you enter the age of last family member and then calculate the total charge amount after entering each person's age. Assume price of ticket is 100 Rs. each person.

LIST OF STUDENTS WITH THEIR SET NAME

Sr. No	Reg. No.	Name	Roll No.	Set
1	12102666	Arunbakam Nagaraju Abhinay	RD2112A01	SET-A
2	12104517	Arun Pratap Singh	RD2112A02	SET-B
3	12106812	Abhishek Kumar	RD2112A03	SET-C
4	12106860	Prabhav Vaishnav	RD2112A04	SET-D
5	12106871	Raman Kumar	RD2112A05	SET-E
6	12106877	Anil Kumar	RD2112A06	SET-A
7	12106882	Bhaskarayini Bhargava	RD2112A07	SET-B
8	12106895	Mohit Khajuria	RD2112A08	SET-C
9	12106759	Akash Mondal	RD2112A09	SET-D
10	12106780	Akash Kumar Mall	RD2112A10	SET-E
11	12111694	Manish Kumar	RD2112A102	SET-A
12	12111670	Jayshri Lal Pandit	RD2112A103	SET-B
13	12111768	Aman Pathak	RD2112A104	SET-C
14	12111861	Srishti Saini	RD2112A105	SET-D
15	12111836	Shubham Pandey	RD2112A106	SET-E
16	12106562	Aviral Shukla	RD2112A11	SET-A
17	12112954	Shivani gupta	RD2112A114	SET-B
18	12113006	Mohammed Vahidulla	RD2112A115	SET-C
19	12113012	Dependra Garg	RD2112A116	SET-D
20	12113019	Md Aftab quraishi	RD2112A117	SET-E
21	12113027	Anjali Prasad	RD2112A118	SET-A
22	12113030	Kamlesh RaY	RD2112A119	SET-B
23	12107075	Garnipudi Siva Sai Kiran	RD2112A12	SET-C
24	12107106	Utkarsh Singh Chouhan	RD2112A13	SET-D
25	12107108	Shashi Kumar	RD2112A14	SET-E
26	12107218	Mukesh Patra	RD2112A15	SET-A
27	12107241	Subhash Chandra	RD2112A16	SET-B
28	12107142	Tapas Dey	RD2112A17	SET-C
29	12107144	Rijuan Mallick	RD2112A18	SET-D
30	12107168	Aman Kumar	RD2112A19	SET-E
31	12106969	Chorge Nishant bhagwan	RD2112A20	SET-A
32	12107069	Tannu Priya	RD2112A21	SET-B
33	12107037	Shobhit Pandey	RD2112A22	SET-C

34	12107039	Pradeep Chauhan	RD2112A23	SET-D
35	12107058	Manash Ranjan Purohita	RD2112A24	SET-E
36	12107030	Vivek Kumar	RD2112A25	SET-A
37	12106955	Chegu poornagopi Chandu	RD2112A26	SET-B
38	12107248	Rahul Kumar	RD2112A27	SET-C
39	12107249	Ankit Raj	RD2112A28	SET-D
40	12107216	Paras Sen	RD2112A29	SET-E
41	12107304	Raghuvansh Mani Tiwari	RD2112A30	SET-A
42	12107343	Yash Tandan	RD2112A31	SET-B
43	12112590	Sarthak Verma	RD2112A32	SET-C
44	12107372	Chandra Sekhar Baksi	RD2112A33	SET-D
45	12107348	Rahul Verma	RD2112A34	SET-E
46	12107352	Sahil	RD2112A35	SET-A
47	12107402	Komal Singh	RD2112A36	SET-B
48	12107389	Aklesh Kumar	RD2112A37	SET-C
49	12107390	Sujal Kumar Gupta	RD2112A38	SET-D
50	12107386	Manish Kumar Choudhary	RD2112A39	SET-E
51	12112598	Anwesha Singh	RD2112A40	SET-A
52	12107418	Madhav Jha	RD2112A41	SET-B
53	12109070	Nikita Kumari	RD2112A42	SET-C
54	12108986	Bharti	RD2112A43	SET-D
55	12108999	Deepak Kumar Prajapati	RD2112A44	SET-E