2018 Paper 1A

Q1.

ABC higher education institute offers three courses in this academic year. The courses and their registration fees are given in the following table.

Course Type	Course Name	Registration Fee (Rs.)
H	Diploma in Hospitality Management	1500.00
M	Diploma in Marketing	2000.00
F	Diploma in Finance	2500.00

Only hundred students will be registered for all three courses within one academic year. The registration for all three courses will be held on the same day first come first serve basis.

Write a C program to register students for the above courses by entering their course type from the keyboard. The program should accept both uppercase and lowercase letters as correct inputs for course type. Your program should display the number of students registered for each course and the total registration fee earned from each course. When the course type is invalid, program should display an error message.

The program should terminate the registration process when the total number of registrations becomes **100** or there is no more registration to be done.

Q2.Part_A.

An array stores the details of customer transactions (account number, name, transaction type (w -withdrawals, d - deposits) and amount) in a bank. Write a C program to create such an array and store the details of five customer transactions. Using the stored details, calculate the following.

(a) Total deposit amount.
(b) Total withdrawal amount.
(c) Name of the customer who has deposited the maximum amount.
(d) Name of the customer who has withdrawn the minimum amount.

Use a structure to create your array. Use suitable data types for members of the structure.

Sample input:

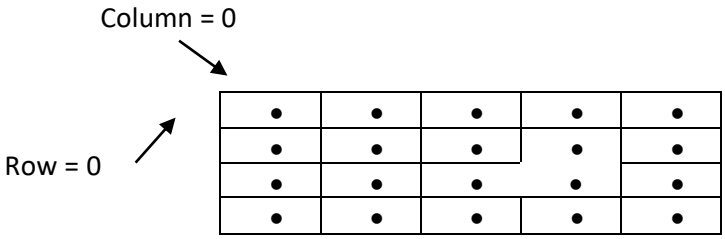
8254	1267	7823	9023	4587
Viraj	Sudesh	Ama	Danuli	Hiran
D	D	W	W	D
500.00	1000.00	350.00	250.00	750.00

Sample output:

Total deposit amount : 2250.00
Total withdrawal amount : 600.00
Name of, the customer with the maximum deposit amount: Sudesh Name of the customer with the minimum withdraw amount : Danuli

Q2.Part_B.

A 4 x 4 square display panel consists of LED bulbs of red, green and blue colors. Write a C program to create a character array to represent the LED panel as shown below.



Enter the color of the LED bulbs ('R', 'G' or 'B') of the panel from the keyboard. Display the colors of the LED display. Go through the array and display the position (row and column) of the "Red" bulbs.

Sample output is given below

R	R	G	B
G	G	G	B
R	G	B	B
B	B	B	G

Red LED bulb positions
[0,0] [0,1] [2,0]

Q3.

The "On the Go" family supermarket is giving discounts for their customers who shop between 16:00 to 22:00 hrs. The discounts are given according to the time and the amount they spend at the shop. The discount percentages are shown in the following table.

Time (24 firs)	**Total amount > =5000**	**5000 >Total amount >= 2500**
16:00 to 19:00	10%	7%
20:00 to 22:00	12%	9%

a) Write a function called ***calDiscount()*** to calculate the discount given for a transaction by sending the time as and integer (e.g. : between 16:00 to 16:59 enter only 16) and the total amount as parameters.

float calDiscount (int time, float totAmount)

b) Write a function called ***testCalDiscount()*** which contains two assert statements to debug the above implemented function.

The supermarket has also decided to give a free gift for the customers according to the amount after deducting the discount. The table below shows the criteria for the gifts.

Final Amount(after discount)	**Gift**
>=7,000	Packet of Milk
5000 — 6999	1 kg of Sugar
3000 - 4999	Pack of 6 Eggs

c) Write a function called ***displayGift()*** to display the gills obtained by each customer. ***void***

displayGift (float finalTot)

d) In your main program do the following :

i. Call the ***testCalDiscount()*** function.

ii. Input the time and the total amount from keyboard. If the user enters an invalid time, then display an error message. Display the final amount (after discount) and the gift obtained using the two functions implemented in part (a) and part (c).

Q4.

A company uses a text file to maintain their employee attendance. For each employee the following details will be added to the file.

Employee Number (string)
Name (string)
Attendance status (boolean) - 0 for absent and I for present

a) Write a C program to input the attendance of **two employees for 7 days** from keyboard and save them in a file called "attendance.dat"

111	Perera	1 0 1 1 0 1 1
112	Silva	1 0 1 1 0 0 0

b) Write a C program to input an employee number from the keyboard and display the total number of days that employee reported to work according to "attendance.dat" file.