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Time: 120 minutes.

Max Marks: 120 Points

PAPER TYPE A

Question#1

[20 mins, 20 Points]

You are required to develop an appointment system for Dr. Sana Hoor's clinic using **switch case** that would display the following list of services after choosing any service, time slots will be displayed to the patient and generate a token number and bill. Bill should be generated according to the treatment and slot. [Note: no need to use rand() function for generating token number]

DATA FOR GENERATING BILL:

Total bill= treatment fee+ time slots charges.

Treatment fee: Consultation=2000, Teeth whitening=2500, Braces= 10000, Root canal=14000, Surgical gum graft= 8000.

Time Slot Charges: 9am-12pm=500, 2pm-4pm=1000 , 6pm-8pm=2000

Welcome to Dr. Sana Hoor Dental Clinic

1. Consultation.
2. Teeth Whitening.
3. Braces.
4. Root Canal.
5. Surgical gum graft
6. EXIT.

Time Slots:

1. 9am-12pm.
2. 2pm-4pm.
3. 6pm-8pm.

Question#2

[40 mins, 20+20=40 Points]

- a) Imagine you are working as a software developer for a company that needs to process salary data for its employees. One of the key functionalities involves finding the highest salary from a group of employees. This is a crucial aspect for determining bonuses and recognitions. Use these three variables to implement your code counter:
- A **counter** to count the number of employees (from 1 to 10) salary:
 - The current **salary** input to the program
 - The **highest salary** found so far

Requirements:

- ✓ The program should ensure that the salary entered is non-negative.
 - ✓ If the user enters a negative salary, the program should display an error message and request input again.
 - ✓ Assume that salaries are represented in whole numbers (e.g., 50000).
- b) Quick Response (QR) codes are essential tools for identifying products uniquely. A company recently acquired a batch of mixed-up stock that urgently needs to be categorized into three distinct groups. The company relies on a 6-digit long code for this purpose. The categorization criteria are defined as follows:
- Category 1: This category includes all codes whose starting two digits are divisible by either 2 or 4.
 - Category 2: This category comprises codes where the last digit is divisible by 3 and the second last digit is odd.
 - Category 3: All remaining codes not classified into Category 1 or 2 will belong to Category 3.

You are tasked with writing a C program using **1D-Array** that effectively sorts the given QR codes into their respective categories. The program should take an array of 4 QR codes as input and show categories.

Question#3**[60 mins, 60 Points]**

The Genetics Research Center is dedicated to studying genetic disorders, including Thalassemia. They have developed a sophisticated system for analyzing thalassemia disease types data to better understand the underlying genetic causes and develop more effective treatment plans. As part of this initiative, they use a specialized software program to manage the data associated with Thalassemia patients.

The program involves two main arrays: **Data1** and **Data2**. This data is crucial in tailoring treatments to individual Thalassemia patients.

Write a 'C' program and consider the following two 2D arrays named as **Data1** and **Data2** as given below. Out of the 4 different columns in **Data2** array, select only those columns that match with the levels given in **Data1** array. Store these data into new 2D array named as **RequiredData**. After getting selected columns, expected data in **RequiredData** array are shown below:

[Hint: You can assume numeric values to represent each row and column names. No points will be given on hard-coding except declaration and initialization statements]

Data1	
Disease No.	Levels
1	Trait
2	Intermedia

Data2				
Gnames	Trait	Minor	Intermedia	Major
Gene1	1	1.1	1.2	1.5
Gene2	2	2.1	2.2	2.5
Gene3	3	3.1	3.2	3.5
Gene4	4	4.1	4.2	4.5

RequiredData		
Gnames	Trait	Intermedia
Gene1	1	1.2
Gene2	2	2.2
Gene3	3	3.2
Gene4	4	4.2

***You have studied really hard. So be confident and do well in your exam.
Good luck!***