SECTION A [40 MARKS]

Attempt **ALL** the Questions in this Section.

Question 1

a) Describe any two key principles of user interface design **(4 marks)**

b) Describe five advantages of having a well-designed user interface. **(5 marks)**

c) Differentiate between UI and UX. **(4 marks)**

d) Elaborate on the concept of responsive design in UI and its significance in web development. **(4 marks)**

e) Explain at least four properties of a label control as used on VB **(4 marks)**

f) With illustration, explain the difference between the **radio button** and **check box** as used in the design of interfaces **(4 marks)**

g) Clearly differentiate between direct and indirect manipulation as applied in Human Computer Interaction **(4 marks)**

h) Why do some users prefer Voice Based interfaces? **(3 marks)**

i) Using an example, illustrate an if then else statement as used in VB **(4 marks)**

j) Show how variables are created in VB. Contrast your statements with PHP **(4 marks)**

SECTION B [60 MARKS]

Attempt **ONLY THREE** Questions in this Section.

Question 2

a) Explain what is meant by command line User Interface **(2 marks)**

b) Explain any **four** limitations of using Command line interfaces. **(4 marks)**

c) You are tasked with developing a reservation system for a library management software using Visual Basic. The system aims to streamline the process of borrowing and returning books for library patrons. You are provided with the following requirements:

- Users will input their library card number.
- Users can select their preferred book category from options such as 'Fiction,' 'Non-Fiction,' or 'Reference.'
- Users should have the option to specify the due date for the borrowed book using a date picker control.
- The system should display the current availability status of the selected book.
- Users must confirm the book checkout by clicking a button.

Create a paper mockup(s) of the book reservation system, incorporating the appropriate Visual Basic controls to fulfil the specified conditions. Ensure that the

design is user-friendly, with meaningful labels and instructions to guide patrons through the book reservation process. **(14 marks)**

Question 3

a) Explain the concepts of tiled presentation style versus overlapping **(4 marks)**

b) Highlight the use of the following controls in VB.NET. **(10 marks)**

i) Textbox
ii) Checkbox
iii) Panel
iv) Button
v) List box
vi) Picture box

c) What is a constant variable? Write the correct syntax for declaring a constant type of variable. **(2 marks)**

d) Explain two advantages of object-oriented development approach to programming. **(4 marks)**

Question 4

a) For the following, design a paper mockup of the interface needed. Write a code **(languages allowed: VB, PHP)** that will capture a student's marks for four subjects, total up and average the marks, and every student will be graded as per the table below: **(10 marks)**

Average	>=80	75 – 79	70 – 74	65 – 69	60 – 64	55 – 59	50 – 54	< 50
Grade	A	B+	B	B-	C+	C	D	F

b) Using the table below, create a paper mockup of the would-be interface to be used to change the background color of the current form based on the captured character color criteria. Write the corresponding code to achieve the logic. In your logic, use a messagebox for any errors **(10 marks)**

Character	**For color**
R	Red
G	Green
B	Blue
Y	Yellow
Any other letter	Not valid color

Question 5

a) Study the program code below and answer the questions that follow:

```
Private sub cmdTotal_click ()
    Label1.caption=”enter a value”
```

```
    Text1.text=inputbox (“enter first value.”)
    Me.print ’’the value entered is’’ & text1. Text.
End sub
```

Identify the following items used in the code and write them down: **(8 marks)**

i) Any object used in the code
ii) The event involved
iii) One property used
iv) One method used in the code

b) Design a GUI that accepts the radius of a sphere using a text box control upon the click of a command button. The program should then calculate its volume and display it in a picture box control. Use this formula for volume calculation. V=4/3*Radius^3 **(6 marks)**

c) Clearly explain between POST and GET methods in PHP **(4 marks)**

d) How are sessions used in PHP **(2 marks)**

Question 6

a) Consider the following HTML code.

```
<form method =”POST” action=”signin.php”>
    <label for="email">Email Address</label>
    <input type="email" id="email" name="email" required>
    <label for="password">Password</label>
    <input type="password" id="password" name="password" required>
    <input type="submit" value="Login">
</form>
```

Write PHP code for the signin.php file needed to check if the user exists in the database table given below

Server name: **127.0.0.1**

Server Username: **root**

Server password: **news**

Database: **Farmers**

Table: **USERS {id int, email varchar(30), password varchar(200), role text}**

(20 marks)