

**Informatics Practices (065)
Sample Question Paper –2**

Note

1. This question paper is divided into sections
2. Section – A: 30 marks.
3. Section – B and Section – C: 20 marks each
4. Answer the questions after carefully reading the text.

Section – A		
Q 1.	Answer the following questions	
	(a) Explain the following terms: i. UNICODE ii. GNU	2
	(b) Explain the term Client Server Computing using suitable example.	2
	(c) What does Object Oriented Modeling Technique mean? Why do we use UML?	2
	(d) Explain the term Data Dictionary, Data Warehousing, Data Mining and Meta Data using suitable Examples.	4
Q2	Answer the following questions	
	(a) How do we restrict duplicate rows in SQL SELECT Query? Give example	2
	(b) Define SQL Functions. Explain Single Row Functions and its subcategories giving examples in each category.	4
	(c) Differentiate between Row Level Triggers and Statement Level Triggers using suitable example	4
Q3	Answer the following questions	
	(a) Define the term Errors. Give any two general types of Errors with respect to visual basic error object.	2
	(b) Differentiate between System Defined and User Defined functions in Visual Basic. Define a function <i>funCheckNumeric()</i> to check for validity of a numeric value passed as argument to the function. The function will return True if the value is numeric else will return False .	4
	(c) Define the term Common Dialog Box. Explain the process to include and a Common Dialog Box in a visual Basic form and write the code fragment to show File Open Dialog when mnuFileNew is clicked?	4

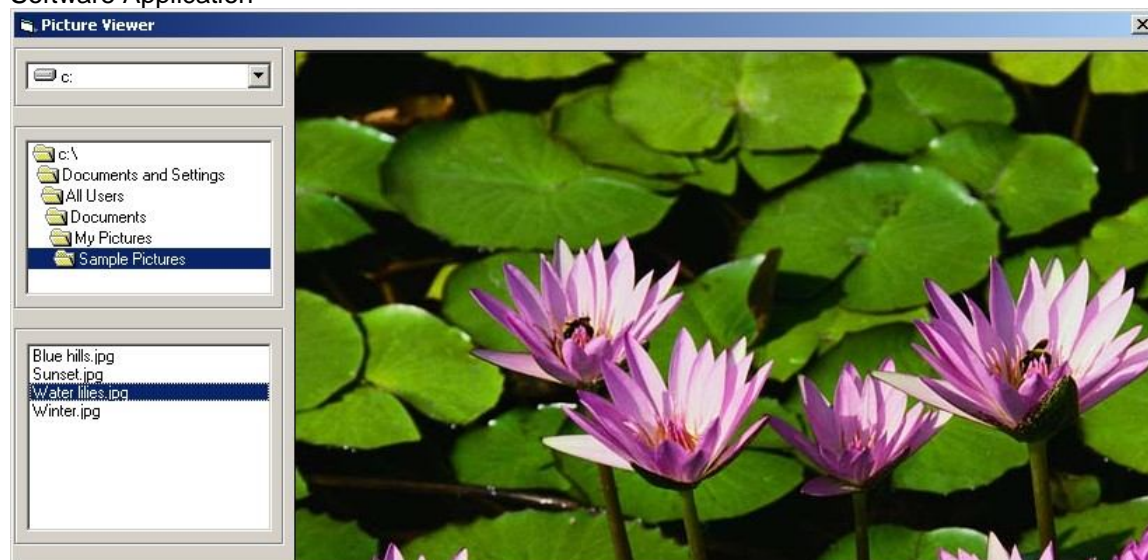
Section – B

Q4 Read the following case study and answer the questions that follows

A Class XII student studying Informatics Practices Course made a Picture Viewer using Visual Basic as programming tool. He had used a Form with Drive List Box, Directory List Box, File List Box and a Image control as described in the following table.

Object or Control Type	Object Name	Description
Form	frmPictureViewer	The Main Form Object
DriveListBox	drvMyDrive	To Select Drive
DirectoryListBox	dirMyDirectory	To select directory in the specified drive
FileListBox	filMyFile	To select file in the specified directory
Image	imgMyImage	To hold the image specified in the file box

Software Application



Answer the following questions based on the above program

(a)	What is the function Name used to assign picture to an Image Control	1
(b)	Give the value for the Pattern Property of File List Box to show only JPEG images.	1
(c)	Write the code statement for dirMyDirectory_Change() event such that whenever there is a change in directory list box the file list box (filMyFile)should point towards the file in that directory	2
(d)	Write a code statement for drvMyDrive_Change() event such that whenever there is a change in drive list box the directory list box should get modified	2
(e)	Write a code snippet to trap the error and report it, when user selects a: in the drive list box and there is no floppy disk present in a: (a drive). The drive list box should revert back to c: drive	4

Q5 Read the following text and answer the questions that follows:

	<p>(a) A student of ABCD School, Davis Mathews wanted to make an application to find Even or Odd out of a given number. He had written the following code snippet and he is unable to correct some of the errors in the code. You are required to help him in correcting the code segment. Find the Errors and rewrite the corrected code underlining the correction made</p> <pre> 'Program code to check Even or Odd out of a number in a text box txt Private Sub cmdFind_Click() if Val(txtNumber) Mod 2 =0 MsgBox "It is an Even Number" Else MsgBox "It is an Odd Number" End Sub </pre>	2
	<p>(b) Shankar Giri, a student of Informatics Practices, wanted to make an application to print a message up to some number of times as mentioned in a text box. The code is given to you for correction, do the required correction and rewrite the corrected code underlining the corrections done</p> <pre> 'Program code to display a message on Clicking of cmdClickMe command button Private Sub cmdClickMe_Click() For i = 1 To Val(txtNumber.Text) MsgBox "I will say Hello at least: " txtNumber.Text + " times" End Sub </pre>	2
	<p>(c) The following code segment is giving error "Overflow" on execution. Find and write the code statement giving this error and also give the reason for the same.</p> <pre> 'Program code to divide a number with another Private Sub cmdClickMe_Click() For i = 0 To 5 For j = i To 5 Print j / i Next Next End Sub </pre>	2
	<p>(d) Examine the code given in the following code snippet and find how many times the Message will be printed</p> <pre> 'Program Code to print a message in a Message Box using Loops Private Sub cmdClickMe_Click() For i = 1 To 3 For j = i To 3 Step -1 MsgBox "I am a message box " Next Next End Sub </pre>	2
	<p>(e) A visual basic project contains Project menu having the options Components and References. Differentiate between these two options</p>	2
Section C		
Q6	Read the questions given below and answer accordingly	

	(a)	Write the output produced by the following part of code in PL/SQL <pre> DECLARE Y NUMBER; X NUMBER; BEGIN Y:= 5; FOR X IN 1..4 LOOP Y:=X+Y; DBMS_OUTPUT.PUT_LINE (Y); END LOOP; END;</pre>	2												
	(b)	Write the output produced by the following part of code in PL/SQL <pre> DECLARE Y NUMBER; X NUMBER; BEGIN Y:= 5; FOR X IN 1..5 LOOP IF X>Y THEN DBMS_OUTPUT.PUT_LINE (Y); ELSE DBMS_OUTPUT.PUT_LINE (X); END IF; Y:=Y-1; END LOOP; END;</pre>	2												
	(c)	What does a Variable mean and what is meant by its scope? State using suitable example	2												
	(d)	Write a PL/SQL Function OddEven to return value True if the number passed to it is Even else will return False.	4												
Q7		Answer the following questions based on the following Employee table <table border="1"> <thead> <tr> <th>Name of Column</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>ID</td> <td>NUMBER (4)</td> </tr> <tr> <td>First_Name</td> <td>VARCHAR2 (30)</td> </tr> <tr> <td>Last_Name</td> <td>VARCHAR2 (30)</td> </tr> <tr> <td>EMail_ID</td> <td>VARCHAR2 (10)</td> </tr> <tr> <td>Salary</td> <td>NUMBER (9,2)</td> </tr> </tbody> </table>	Name of Column	Type	ID	NUMBER (4)	First_Name	VARCHAR2 (30)	Last_Name	VARCHAR2 (30)	EMail_ID	VARCHAR2 (10)	Salary	NUMBER (9,2)	
Name of Column	Type														
ID	NUMBER (4)														
First_Name	VARCHAR2 (30)														
Last_Name	VARCHAR2 (30)														
EMail_ID	VARCHAR2 (10)														
Salary	NUMBER (9,2)														
	(a)	Write the difference between a Cursor and a Trigger.	2												
	(b)	Write a PL/SQL procedure EDSAL to find out whether the salary of an Employee with ID = 1234 is less than 5000 or not. If it is less than 5000, modify the Salary of employee by increasing it by 15%.	4												
	(c)	Write a PL/SQL block to create a trigger to display a Hello message before each insert operation on the table.	4												

**Informatics Practices (065)
Sample Question Paper –2**

Note

5. This question paper is divided into sections
6. Section – A: 30 marks.
7. Section – B and Section – C: 20 marks each
8. Answer the questions after carefully reading the text.

Section – A

Q 1. Answer the following questions

- (a) Explain the following terms:
- iii. UNICODE
 - iv. GNU

2

Ans:

i. Unicode is an industry standard allowing computers to consistently represent and manipulate text expressed in most of the world's writing systems. Unicode's success at unifying character sets has led to its widespread and predominant use in the internationalization and localization of computer software.

ii. GNU is a computer operating system composed entirely of free software. It stands for GNU's Not Unix; it was chosen because its design is Unix-like, but differs from Unix by being free software and containing no Unix code.

(1 mark for each explanation)

- (b) Explain the term Client Server Computing using suitable example.

2

Ans :

There are two key elements in Client / Server computing. The CLIENT and the SERVER. The CLIENT is one who requests the services and the SERVER is the one who is able to provide the requested services. It is not always necessary that the Client and the server are two separate machines. The same machine could be a server as well as a client. Such a computing model in which one process requests another process to do a task for it is called client - server computing.

For example, a web browser is a client program at the user computer that may access information at any web server in the world.

Another example, in a network within a computer lab, the printer may be attached to a single computer and all other computers will be using that printer. In that case the computer to which the printer is attached becomes the printer server and all other machines using the printer become clients.

(2 marks for explanation with example)

OR

(1 mark for only example without explanation)

- (c) What does Object Oriented Modeling Technique mean? Why do we use UML?

2

Ans:

The object oriented modeling technique is an object modeling language for software modeling and designing. The OOM technique means that the problem is viewed in terms of objects having both data and methods as opposed to traditional modeling in which data and procedures are considered as separate entities.

UML is a Unified Modeling Language. It uses mostly graphical notations to express the design of software projects. Using UML helps project teams communicate, explore potential designs, and validate the architectural design of the software.

(1 mark for explanation of Object Oriented Modeling Technique

1 mark for reason to use UML)

- (d) Explain the term Data Dictionary, Data Warehousing, Data Mining and Meta Data using suitable Examples. 4

Ans: A data dictionary contains a list of all files in the database, the number of records in each file, and the names and types of each field.

For Ex: the data dictionary of a bank would describe each of the data items in its data model for consumer banking (for example, "Account holder" and "Available credit").

A data warehouse is a repository of an organization's electronically stored data. Data could be retrieved from one central point or data could be distributed. For Ex: The data about the records of an departmental stores sales and purchase.

Data mining is the process of sorting through very large amounts of data and picking out relevant information. For Ex: If a clothing store records the purchases of customers, a data-mining system could identify those customers who favour silk shirts over cotton ones

Metadata is data about data. For Ex: Metadata about an individual data item would typically include the name of the field and its length.

(½ mark each for explanation)

(½ mark each for example)

Q2 Answer the following questions

- (a) How do we restrict duplicate rows in SQL SELECT Query? Give example 2

Ans: The DISTINCT keyword is used to restrict duplicate rows. It can easily remove multiple occurrences of an item so that it occurs only once.

The DISTINCT clause removes the duplicate rows.

SELECT DISTINCT Activity FROM Student

(1 mark for stating the usage of DISTINCT keyword)

1 mark for example)

Or

(2 marks for explanation of usage of DISTINCT keyword with the help of example)

- (b) Define SQL Functions. Explain Single Row Functions and its subcategories giving examples in each category. 4

SQL functions are predefined stored software that manipulates submitted elements within SQL statements to carry out certain tasks and returns some value.

Single-row functions return a single result row for every row of a queried table or view. The subcategories of single row functions are as follows

1. Numeric functions - They accept numeric input and return numeric values. COS, POWER, EXP
2. Character functions – These are functions that work on character data types. They may either return character values or any other data type. The character functions that return character values are: CHR, CONCAT, INITCAP. The character functions that return number values are: ASCII, INSTR, LENGTH
3. Datetime functions These are functions that are designed to accept any of the three types of data (date, timestamp, and interval) and to return a value of one of these types. The datetime functions are: ADD_MONTHS, CURRENT_DATE, SYSDATE
4. Conversion functions These functions convert a value from one datatype to another. For Ex: ASCIISTR, TO DATE, TO NUMBER

5. Miscellaneous function : These are functions which are used to perform general tasks. For Ex: NVL, DECODE

(1 mark for definition of a function)

(1 mark for Single row function)

(1 mark for naming 5 categories)

(1 mark for writing one example in each category)

(c) Differentiate between Row Level Triggers and Statement Level Triggers using suitable example 4

Ans: A row-level trigger fires once for each row that is affected by a triggering event. For example, if deletion is defined as a triggering event on a table and a single DELETE command is issued that deletes five rows from the table, then the trigger will fire five times, once for each row.

A statement-level trigger fires once per triggering statement regardless of the number of rows affected by the triggering event. In the prior example of a single DELETE command deleting five rows, a statement-level trigger would fire only once.

The following example is a before row-level trigger that calculates the commission of every new employee belonging to department 30 that is inserted into the emp table.

```
CREATE OR REPLACE TRIGGER emp_comm_trig
  BEFORE INSERT ON emp
  FOR EACH ROW
BEGIN
  IF :NEW.deptno = 30 THEN
    DBMS_OUTPUT.PUT_LINE(:NEW.sal * .4);
  END IF;
END;
```

The following is an example of a simple before statement-level trigger that displays a message prior to an insert operation on the emp table.

```
CREATE OR REPLACE TRIGGER emp_alert_trig
  BEFORE INSERT ON emp
BEGIN
  DBMS_OUTPUT.PUT_LINE('New employees are about to be added');
END;
```

(2 marks for correct difference)
(1 mark each for example of both)

Q3 Answer the following questions

(a) Define the term Errors. Give any two general types of Errors with respect to visual basic error 2 object.

Ans: The term error refers to an incorrect action or calculation performed by software or incorrect actions on the part of a programmer.

A syntax error is an ungrammatical or nonsensical statement in a program. A logic error is a mistake in the problem solving method. Runtime errors indicate errors that occur during the execution of the program. These could be due to problems that the designers had not anticipated, or had anticipated but could do nothing about. For example, running out of memory will often cause a runtime error.

In Visual Basic when a run-time error occurs, the properties of the Err object are filled with information that uniquely identifies the error

Examples of run time errors

```
Dim x As Integer = 32
Dim y As Integer = 0
Dim z As Integer
z = x / y ' Creates a divide by zero error
```

(1 mark for defining error)
(½ mark each for any 2 error types)

(b) Differentiate between System Defined and User Defined functions in Visual Basic. Define a function 4 funCheckNumeric() to check for validity of a numeric value passed as argument to the function. The

function will return **True** if the value is numeric else will return **False**.

Ans: System Defined Functions

System defined functions are the pre-defined or in-built or library functions in the VB interpreter which can be used directly in any program to perform common tasks.

There are 3 types of system defined functions : String function (left(), space() etc.), arithmetic function (val(), mid(), etc.) and calendar function (day(), month(), date(), etc..

User Defined Functions

User defined functions are the functions created by the programmer to perform specialized tasks.

Public Function funCheckNumeric(num as Variant) As String

```
    If IsNumeric(num) then
        funCheckNumeric = 'true'
    else
        funCheckNumeric = 'false'
```

```
    EndIf
```

```
End Function
```

OR

Public Function funCheckNumeric(num as Variant) As Boolean

```
    If IsNumeric(num) then
        funCheckNumeric = True
    else
        funCheckNumeric = False
```

```
    EndIf
```

```
End Function
```

(2 marks for difference between System Defined and User Defined functions)

(2 marks for defining a function)

- (c) Define the term Common Dialog Box. Explain the process to include and a Common Dialog Box in a visual Basic form and write the code fragment to show File Open Dialog when mnuFileNew is clicked? 4

Ans: Common Dialog Box is used to perform common application tasks, such as opening files, choosing color values, and printing documents. The common dialog boxes allow the user to implement a consistent approach to the application's user interface. This reduces the amount of effort that users spend in learning user interface behavior for the application.

Although the Common Dialog Box control is known as a standard control, the control doesn't appear on toolbox. These steps have to be done to add the Common Dialog Box control to toolbox:

1. Select Project -> Components from the Visual Basic Menu to display the Components dialog box.
2. Scroll to the control named Microsoft Common Dialog Control 6.0 and select it.
3. Click OK. The Common Dialog Box control will now appear at the end of the Toolbox window.
4. Double-click the Common Dialog Box control to add the control to Form window.

To display a File Open dialog box

```
cdbDialog.DialogTitle = "File Open"  
cdbDialog.ShowDialog           'Trigger the dialog box
```

(1 mark for definition of Common Dialog Box)

(1 mark for explanation of the process to include Common Dialog Box)

(2 marks for code fragment)

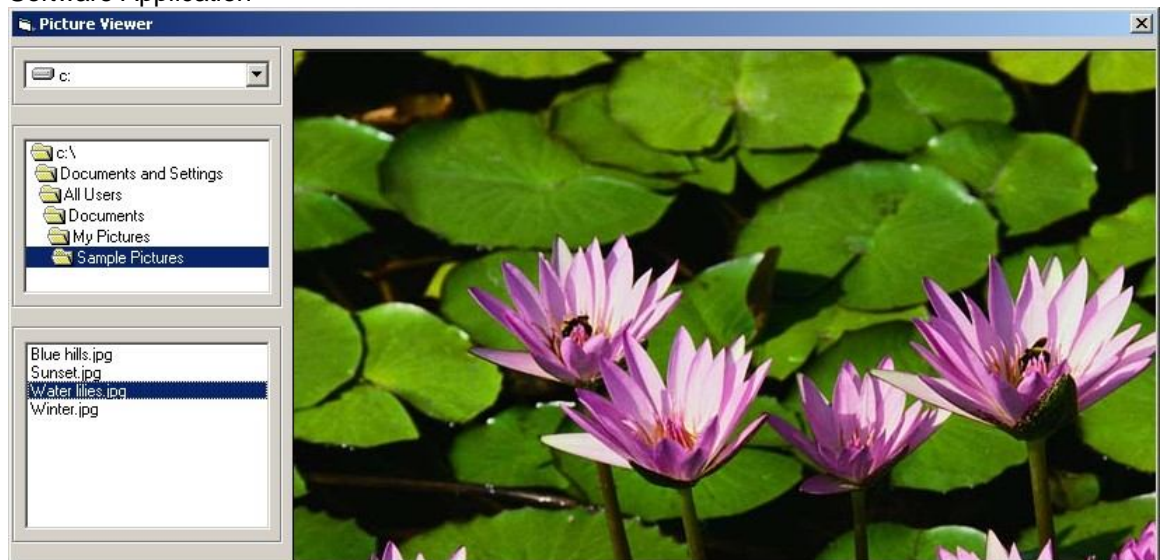
Section – B

Q4 Read the following case study and answer the questions that follows

A Class XII student studying Informatics Practices Course made a Picture Viewer using Visual Basic as programming tool. He had used a Form with Drive List Box, Directory List Box, File List Box and a Image control as described in the following table.

Object or Control Type	Object Name	Description
Form	frmPictureViewer	The Main Form Object
DriveListBox	drvMyDrive	To Select Drive
DirectoryListBox	dirMyDirectory	To select directory in the specified drive
FileListBox	filMyFile	To select file in the specified directory
Image	imgMyImage	To hold the image specified in the file box

Software Application



Answer the following questions based on the above program

- (a) What is the function Name used to assign picture to an Image Control 1

Ans:

The function Name is LoadPicture()

(1 mark for function name)

- (b) Give the value for the Pattern Property of File List Box to show only JPEG images. 1

Ans: *.jpg

(1 mark for correct answer)

- (c) Write the code statement for dirMyDirectory_Change() event such that whenever there is a change in directory list box the file list box (filMyFile)should point towards the file in that directory 2

Ans: filMyFile.Path = dirMyDirectory.Path

(2 marks for correct answer)

- (d) Write a code statement for drvMyDrive_Change() event such that whenever there is a change in drive list box the directory list box should get modified 2

Ans: dirMyDirectory.Path = drvMyDrive.Drive

(2 marks for correct answer)

- (e) Write a code snippet to trap the error and report it, when user selects a: in the drive list box and there is no floppy disk present in a: (a drive). The drive list box should revert back to c: drive 4

Ans:

```
On Error GoTo ErrorProc
dirMyDirectory.Path = drvMyDrive.Drive
Exit Sub
ErrorProc:
MsgBox Err.Description
drvMyDrive.Drive = "C:"
```

(4 marks for correct answer)

Q5 Read the following text and answer the questions that follows:

- (a) A student of ABCD School, Davis Mathews wanted to make an application to find Even or Odd out of a given number. He had written the following code snippet and he is unable to correct some of the errors in the code. You are required to help him in correcting the code segment. Find the Errors and rewrite the corrected code underlining the correction made 2

'Program code to check Even or Odd out of a number in a text box txt

```
Private Sub cmdFind_Click()
if Val(txtNumber) Mod 2 =0
MsgBox "It is an Even Number"
Else
MsgBox "It is an Odd Number"

End Sub
```

Ans: **Correct Code:**

'Program code to check Even or Odd out of a number in a text box txt

```
Private Sub cmdFind_Click()
if Val(txtNumber) Mod 2 =0 THEN
MsgBox "It is an Even Number"
Else
MsgBox "It is an Odd Number"
END IF

End Sub
```

End Sub

(1 mark for rectifying each error)

- (b) Shankar Giri, a student of Informatics Practices, wanted to make an application to print a message up to some number of times as mentioned in a text box. The code is given to you for correction, do the required correction and rewrite the corrected code underlining the corrections done 2

'Program code to display a message on Clicking of cmdClickMe command button

```
Private Sub cmdClickMe_Click()
For i = 1 To Val(txtNumber.Text)

MsgBox "I will say Hello at least: " txtNumber.Text + " times"
```

End Sub

Ans: **Correct Code:**
'Program code to display a message on Clicking of cmdClickMe command button
Private Sub cmdClickMe_Click()
 For i = 1 To Val(txtNumber.Text)

 MsgBox "I will say Hello at least: " txtNumber.Text + " times"
 NEXT i

End Sub

(1 for identifying the error)
(1 mark for writing the correct code)

- (c) The following code segment is giving error "Overflow" on execution. Find and write the code 2 statement giving this error and also give the reason for the same.

```
'Program code to divide a number with another
Private Sub cmdClickMe_Click()
    For i = 0 To 5
        For j = i To 5
            Print j / i
        Next
    Next
End Sub
```

Ans: The error "Division by zero" occurs here as division by zero is not defined ;Here the initial value of i is zero and j when divided by i would give the error.

To debug the overflow error, we can change the data type from Integer to Long.

(2 marks for correct answer)

- (d) Examine the code given in the following code snippet and find how many times the Message will be 2 printed

```
'Program Code to print a message in a Message Box using Loops
Private Sub cmdClickMe_Click()
    For i = 1 To 3
        For j = i To 3 Step -1
            MsgBox "I am a message box "
        Next
    Next
End Sub
```

Ans: The Message will be printed **one** time.

(2 marks for the correct answer)

- (e) A visual basic project contains Project menu having the options Components and References. 2 Differentiate between these two options

Ans: The option Components of Project menu displays the Components dialog box from which we can add controls, designs, insertable objects. The option References refers to Visual ActiveX controls that can be added to the project. It allows us to select another application's objects that we want in our code by setting a reference to the application's object library.

(2 marks for the correct difference)

Section C

Q6 Read the questions given below and answer accordingly

- (a) Write the output produced by the following part of code in PL/SQL

2

```
DECLARE
    Y NUMBER;
    X NUMBER;
BEGIN
    Y:= 5;
    FOR X IN 1..4
    LOOP
        Y:=X+Y;
        DBMS_OUTPUT.PUT_LINE (Y);
    END LOOP;
END;
```

Ans: **Output:**

6
8
11
15

(½ mark for each line of correct output)

- (b) Write the output produced by the following part of code in PL/SQL

2

```
DECLARE
    Y NUMBER;
    X NUMBER;
BEGIN
    Y:= 5;
    FOR X IN 1..5
    LOOP
        IF X>Y THEN
            DBMS_OUTPUT.PUT_LINE (Y);
        ELSE
            DBMS_OUTPUT.PUT_LINE (X);
        END IF;
        Y:=Y-1;
    END LOOP;
END;
```

Ans: **Output:**

1
2
3
2
1

(1 mark for first 3 lines of correct output)

(1 mark for last 2 lines of correct output)

- (c) What does a Variable mean and what is meant by its scope? State using suitable example

2

Ans: A variable is a symbol or a name that stands for a value that can change .Variable scope means the part of the program where the variable is accessible or can be manipulated.

<<OUTER>>

```
DECLARE
A NUMBER(2);
BEGIN
A:=2;
DBMS_OUTPUT.PUT_LINE (A);
```

A and B are both variables here

<<INNER>>

```
DECLARE
B VARCHAR2(10);
BEGIN
B := 'Class';
DBMS_OUTPUT.PUT_LINE (A);
DBMS_OUTPUT.PUT_LINE (B);
END;
```

A and B are both accessible here

```
DBMS_OUTPUT.PUT_LINE (A);
DBMS_OUTPUT.PUT_LINE (B);
END;
```

A is accessible but B is not accessible here as the scope of B has ended

(½ mark for definition of variable)
(½ mark for definition of Scope of variable)
(1 mark for example illustrating both)

(d) Write a PL/SQL Function OddEven to return value True if the number passed to it is Even else will return False. 4

```
CREATE OR REPLACE Function ODDEVEN (X IN NUMBER) RETURN BOOLEAN
IS
BEGIN
IF MOD (X,2)=0 THEN
RETURN TRUE;
ELSE
RETURN FALSE;
END IF;
END;
```

(2 marks for correct Function header)
1 mark for IF statement
1 mark for Return statement)

Q7 Answer the following questions based on the following Employee table

Name of Column	Type
ID	NUMBER (4)
First_Name	VARCHAR2 (30)
Last_Name	VARCHAR2 (30)
EMail_ID	VARCHAR2 (10)
Salary	NUMBER (9,2)

(a) Write the difference between a Cursor and a Trigger.

Ans: Cursors are the work areas for SQL SELECT statements to fetch records from a database table and work with each record on record-by-record basis.
Triggers supports event based execution of code statements in database. A trigger gets initiated on the events such as Updating of records, Deletion of records etc. and can be triggered on Statement Level or Row Level.

(2 marks for the correct difference)

- (b) Write a PL/SQL procedure EDSAL to find out whether the salary of an Employee with ID = 1234 is less than 5000 or not. If it is less than 5000, modify the Salary of employee by increasing it by 15%. 4

Ans: CREATE OR REPLACE PROCEDURE EDSAL

AS

msalary Employee.Salary%TYPE;

BEGIN

SELECT Salary into mSalary

FROM Employee

WHERE ID = 1234;

IF mSalary < 5000 THEN

DBMS_OUTPUT.PUT_LINE ('Salary less than 5000-granting Increment');

UPDATE Employee

SET Salary = Salary + salary * 0.15

WHERE ID = 1234;

ELSE

DBMS_OUTPUT.PUT_LINE ('Salary more than 5000-NO Increment');

END IF;

END;

(1 mark for procedure header)

(1 mark for SELECT)

(1 mark for UPDATE- SET command)

(1 mark for IF statement)

- (c) Write a PL/SQL block to create a trigger to display a Hello message before each insert operation on the table. 4

CREATE OR REPLACE TRIGGER BefInsert

BEFORE INSERT ON Employee

FOR EACH ROW

BEGIN

DBMS_OUTPUT.PUT_LINE('Hello');

END;

(1 mark for create Trigger)

(1 mark for BEFORE)

(1 mark for FOR EACH ROW)

(½ mark for DBMS_OUTPUT.PUT_LINE)

(½ mark for BEGIN.. END)