KENDRIYA VIDYALAYA SANGATHAN

केन्द्रीय विद्यालय संगठन

CLASS: XII

I.P.

HIGHER ORDER THINKING SKILLS

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KENDRIYA VIDYALAYA SANGATHAN

B A N G A L O R E R E G I O N

QUESTION BANK
HIGHER ORDER THINKING SKILLS
CLASS XII – INFORMATICS PRACTICES

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Note: Do not copy and paste the code to execute. Some formatting has been done to improve readability

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Higher Order Thinking Skill Questions

Informatics Practices

Class XII

Unit I – Business Computing

1 ABC university has many Departments. Each department has a department code (dcode) and a department name (dname). There are many Professors in the University and a Professor can be a member of many departments. Each Professor has a professor code (pcode) and a name. Each member has a memid and a memstatus. Draw the E-R diagram of the given scenario. 2

2 Consider the case of banking system of India. Each Bank has many branches and each branch has many employees. Each bank has a name and a bank_code. Each branch has a branch_code, branch_name and location. Employees have empcode, designation and salary. Depict this scenario using an ER model. 2

3 A school has many students. Each school has its school_code and school_name. Every student has a scholar_no, class and name. Each student has his performance recorded. Performance has pid, subject, marks. Depict the scenario as E-R diagram. 2

4 Consider two E-R models. Model A consists of two entities and one relationship joining them. The entities are *lecturer* and *course* and the relationship is *teaches.* Model B consists of three entities; the first and the third are the same as above but the second entity is called *lecture.* The first and second entities are joined by a relationship called *gives* while the second and the third entities are joined by a relationship called *of*. 2
Which <u>two</u> of the following are correct? Briefly justify your answers.

(A) Both models allow a course to have more than one lecture from the same lecturer
(B) Model B is more appropriate if information about all lectures, past and present, is to be stored
(C) Model A does not allow lecture date and time to be stored
(D) Model B leads to more tables than Model A does when translated to the relational model

5 A factory has many employees in shifts. Factory has an id, name and type. Each employee has an employee id (empid), name, gender. An employee may have marital relationship with another employee. Each shift has a shift id (sid) and shift name (sname). 2
Draw E-R diagram for the above scenario.

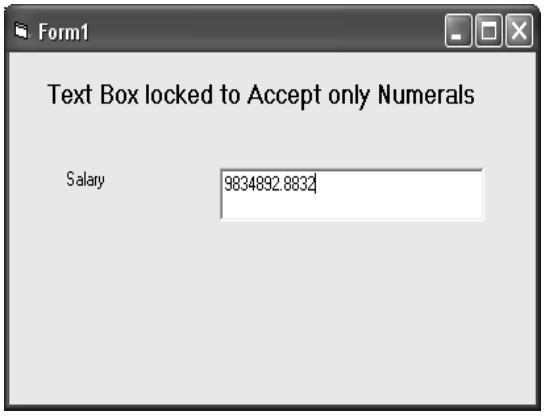
6 A Research Laboratory has many researchers. All the researchers are categorized in to fellows and associates. Laboratory has a labid and labname. Researchers have researcher id (resid) and name. Fellows are paid salary where as associates are paid stipends. 2
Draw E-R diagram for the above scenario.

7 Bio-Informatics Information: 2
Each *Patient* has a unique number, a Patient name (Pname), a Date of Birth (DoB), a Tissue Type (Ttype) and an Indicator(ind) denoting whether the tissue is cancerous or normal.
Each *Patient Library* associates a patient with multiple *Tags*. Each *Tag* has a unique tag number (tno) and a nucleotide sequence (nuc_seq). For each *Tag* in the patient library, a *count* is given to record the number of times the tag occurs in the library. In general, the same tag can be associated with any number of patients. A *Tag* may be mapped to a *Gene*. Each gene has a unique gene name (gname) and a type. In general, multiple tags may be mapped to the same gene. However, two genes cannot be mapped to the same tag.
Draw E-R diagram for the above scenario.

Unit II – Programming: Visual Basic

8 

The given application only accepts alphabets in the text box (txtName). More over it automatically converts each small letter in to a corresponding capital letter. The text box also allows space and back spaces. Write a suitable event and code to achieve this feature.
(ASCII values: Space-32, Backspace-8.) 2

9 

The given application only accepts numerals in the text box (txtSal). It also has a feature of accepting only one decimal point and back spaces are allowed. If the user tries to enter two decimal points the application gives a warning message. Write a suitable event and code to achieve this feature.
(ASCII values: Decimal point-46, Backspace-8.) 2

10 

In the given application two circles starts to move from the left and right extremities. When they collide they stop moving further. A proximity alert is generated in a label. Use suitable controls and events and write the code under each to achieve this feature.
Hint: (Use timers and Forms Paint event) 4

11 

The given application uses a Picture box and three labels to simulate a Mini Paint application. The brush colour can be selected by clicking the corresponding label controls. Write codes under suitable events to achieve this feature.

Hint: (Use mouse events associated with Picture Box) 4

12 Create an appliction in VB to display a Popup menu on a form that can be used to change the back colour of the form from the choice of three colours viz, Red, Blue and Green. 2

13 

The given application is used to add items in a combo list with the data fed in the Combo box (cmbName). Write the VB code to add data in the combo box whenever the user presses the Enter key. 2

14 Amit wants to create a VB application with a facility to keep track of the number of times the program was run by the users. The application should display this number on a form and the number should increment by 1 each time any user opens the application. Write the suitable code in VB to achieve this feature. 4

15 

FRX Consultancy is registering job seekers for placement Their basic entry form has following features:

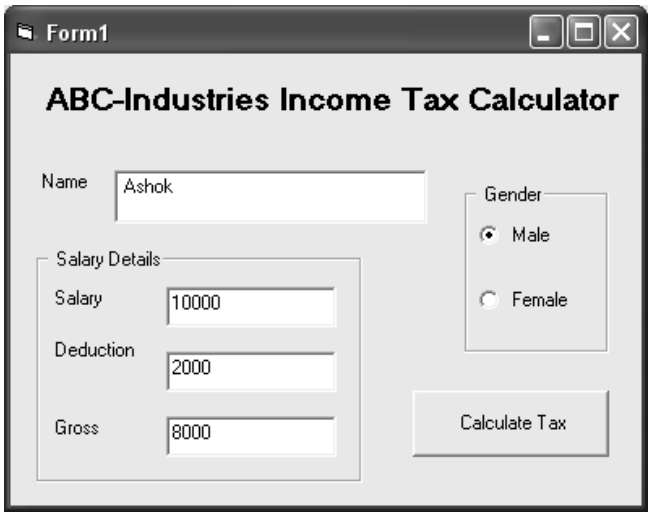
a) The textbox **txtname** should accept only alphabets, backspace and space. All the characters entered should be converted into uppercase characters. (Ascii for backspace=8, space=32, A-Z=65-90, a-z=97-122) 3

b) When submit button **cmdSubmit** is clicked the following things should happen: 3
   1. If checkbox **chkPgt** is selected checkboxes **chkGrad** and **chkInter** should also get selected.
   2. If **chkGrad** is selected **chkInter** should also be selected.
   3. A message box should display "Hello Mr …….. you are registered" for male and "Hello Miss ……. You are selected.

c) When clear button **cmdClear** is clicked the textbox, checkboxes and the option buttons should be cleared. 2

Write the codes under specific events for the above requirements.

16

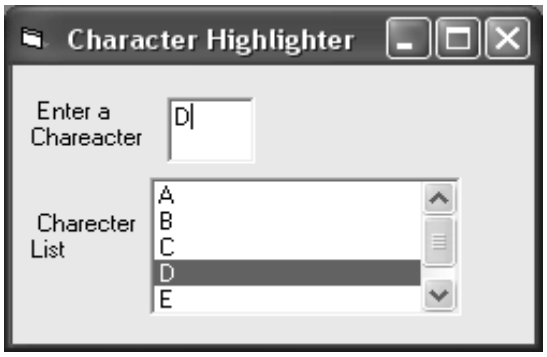


ABC Industries computes yearly Income Tax of their Employees using the above interface. The general features of the interface are as follows : 2

1. The net salary is computed as soon as any amount is entered in the text box for deduction (**txtDeduction**). The net salary is the difference between Gross Salary (**txtGross**) and the deduction. The same is visible in the text box **txtNetSal**. 4
2. The income tax is calculated by a VB function **IncomeTax()** that accepts the parameters **netsal** (long) and **gender** (integer) of the employee and returns the income tax which is displayed in a message box when ever the Calculate Income Tax Button (**cmdTax**) is clicked.
   (eg: Mr/Ms <**txtname**> Your Income tax is Rs 2500). The limits and range for Income tax calculation is as follows:
   Below 1,50,000 – Nil
   1,50,000 to below 2,50,000 – 10% of Net Salary
   2,50,000 and above – 20% of Net Salary
   Special rebate for Ladies: Rs 5000 on Net Tax.

Write the codes under specific events for the above requirements.

17



In the given application when ever a character is typed in the text box (txtSrch), the corresponding character is highlighted if it is present in the list box. Write the code for the given application. 2

18 A VB application requires recording the number of times a command button was hit. The same has to be displayed in the caption property of the Command button itself. Write the VB code to achieve this. 2

19 Write a VB application that has a blinking label on a Form that displays ‘Hello’.

20 Write a VB application that accepts entries for college registration number in a text box. The text box must accept first 2 characters as alphabets and the rest 4 characters as integers.

Control Structures

21 The following code finds the factorial of a number. Rewrite the following program without using variable i. 2

```
Dim fact As Integer
Dim num As Integer
Dim i As Integer
fact=1
 num=5
For i=1 to 5
  Fact=fact*i
Next
Print fact
```

What will be the outcome of the following VB code fragments: 12

22 to 29

a)
```
Dim n As Integer
  Dim a, b As Integer
  a = 0
  b = 1
  n = 1
  Do While n < 9
    Print a;
    Print b;
    a = a + b
    b = b + a
    n = n + 2
    Loop
    Print
```

b)
```
Dim a, n, sum as Integer
    a = 1
  Do While (a <= 3)
    n = 5
      While (n >= 1)
        sum = sum+n Mod 2
        n = n - 1
       Wend
    a = a + 1
  Loop
 Print sum
```

c)
```
Dim x As Integer
    x = 25
  I = 0
  Sum = 0
  While (x <> 0)
       digit = x Mod 2
        Sum=Sum+(digit * 10^I)
        x = x \ 2
        I = I + 1
  Wend
  Print Sum
```

d)
```
sum=0
   i=1
    Do
       sum=sum+2^i
       i=i+1
       if sum> 32 Then
             Exit Do
       End if
     Loop while i<10
    Print sum
```

e)
```
sum = 0
 num = 10
 Do
 sum = sum + num
 num = num - 2
 Loop Until num < 2
 Print sum
```

f)
```
sum = 0
  For i = 10 To 1 Step -1
   If i Mod 2 <> 0 Then
     sum = sum + i
    Else
      sum = sum + 2
    End If
   Next
  Print sum
```

g)
```
Dim sum As Integer
  Const a As Integer = 10
     sum = 0
       For i = 5 To 1 Step -1
          sum = sum + i
            Do Until sum > 50
               sum = sum + a
            Loop
       Next
    Print sum
```

i)
```
Dim sum As Integer
 i = 5, sum = 1
 Do
    sum = sum * i
    While (sum < 20)
      sum = sum + sum
    Wend
    i = i - 1
 Loop Until i < 1
 Print sum
```

Re-write the following using Select Case Construct

30 Private Sub Command1_Click( ) 2
```
n = InputBox("enter", "Number", 0)
If n = 1 Or n = 3 Or n = 5 Or n = 7 Or n = 8 Or n = 10 Or n = 12 Then
Print "31 days"
ElseIf n = 4 Or n = 6 Or n = 9 Or n = 11 Then
Print "30 days"
ElseIf n = 2 Then
Print "28 or 29 days"
Else
Print "Not a valid month no"
End If
End Sub
```

31 Private Sub Command1_Click( ) 2
```
If num=2 Or num=3 Or num=5 or num=7 Then
    Print   “Prime number”
Elseif num=4 Or num=6 Then
    Print    “Even Number”
Elseif num>=8 and num<=10 then
    Print     “Composite Number”
Else
    Print    “ Not in range”
End If
End Sub
```

32 Re-write the following using If Else Structure:
```
Private Sub Command2_Click( )
n = InputBox("enter", "Number", 0)
Select Case n
  Case 90 To 100
    grade = "A"
  Case 75 To 89
     grade = "B"
  Case 60 To 74
     grade = "C"
  Case 45 To 59
     grade = "D"
  Case 33 To 44
      grade = "E"
  Case 0 To 32
      grade = "F"
  Case Else
      MsgBox "Out of Range"
  End Select
  Print grade
End  Sub
```

Predict the output of the following code segment:

33 to 34 a)
```
Private Sub Command3_Click( )
    If "Ashok" > "ASHOK" Then
      Print "TRUE"
    Else
      Print "FALSE"
    End If
```

b)
```
Private Sub Command3_Click( )
    If "15" > "Fifteen" Then
      Print "TRUE"
    Else
      Print "FALSE"
    End If
```

35 An integer array arr(5) contains 6 elements (3, 5, 6, 2, 8, 9). Write a VB program to find the largest element in the array. 4

36 Write a VB program to search the first occurrence of an element in an integer array arr(n). The program accepts the search element through an input box. 4

37 A program accepts 5 strings in an array name(4). Further the program finds the longest string in the array and prints it. Write the VB program to achieve this. 4

38 Write a VB program to create an integer array of 5 elements. Enter the five elements. In the end write the code to obtain the minimum value among the array elements. 4

39 A array of integers arr(4) stores 5 elements. Write a VB program to accept the 5 elements from the user. Further write the code to print the elements of the array in reverse order. 4

40 Write a VB program to accept 5 elements in an integer array arr(5). Further extend the program to print the average of all the elements of the array. 4

41 Write a VB program to achieve the following: 4
   a) Accept 5 names in an array.
   b) Incerease the size of the array to 7
   c) Enter the remaining elements without deleting the earlier elements.
   d) Print the array elements on the form.

42 to 51 Write a VB program to obtain the following pattern:

a)
```
1
1  2
1  2  3
1  2  3  4
```

b)
```
1 2 3
4 5 6
7 8 9
```

c)
```
A
B B
C C C
D D D D
```

d)
```
A
B  C
C  D  E
D  E  F G
```

e)
```
1
2  2
3  3  3
4  4  4  4
```

f)
```
A
C  E
G  I  K
M  O Q  S
```

g)
```
  Z  Y X
  W V U
   T  S R
```

h)
```
1 1 1 1
2 2 2 2
3 3 3 3
4 4 4 4
```

i)
```
9  7  5  3  1
 9  7  5  3
 9  7  5
 9 7
 9
```

j)
```
      A
     AAA
    AAAAA
   AAAAAAA
```

52 to 57 Find out the error(s) in the following VB statements. Give reasons to justify your answer. Provide suitable remedy to the errors. 12

a)
```
Option Explicit
Private Sub Change( )
 Dim Num As Integer
For I = 1 to 10
  Num=Num+I
Next
```

b)
```
Private Sub Calculate( )
n=10
m=0
sum=0
For i=1 to 10
 If n Mod m = 0 Then
```

```
    Print Num
    End Sub
```

```
      sum= sum+m-n
    End if
  m=m+1
  n=n-1
  Next
 Print sum
 End Sub
```

c)
```
Static Num as Integer
 Private Sub Fact( )
    Sum =1
    Num=InputBox(“Enter a Number”)
    While(Num<>0)
       Sum=Sum*Num
        Num=Num-1
     Wend
      Print Sum
 End Sub
```

d)
```
Const a As Integer = 20
  Private Sub Command1_Click( )
    For i = 1 To 5
       Sum = Sum + a
        a = a + 5
     Next
    Print Sum
   End Sub
```

e)
```
 Option Base 1
  Dim num(5) As Integer
  Private Sub Command1_Click( )
    For i = 0 To 5
       num(i) = 10 * i
    Next
  End Sub
```

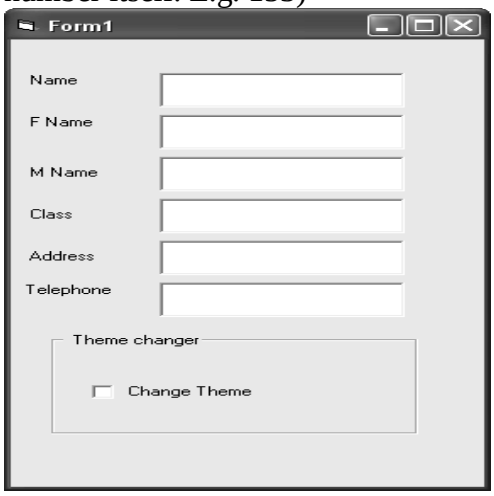
f)
```
 Private Sub Command1_Click( )
  Dim num As Integer
  Dim sum As Double
   num = 4
   For i = 1 To 5 step -1
      sum = sum + Log(num)
      num = num - 1
   Next i
  Print sum
  End Sub
```

58 Write a VB program to accept a three digit number and print the number in words. (Eg. 123 must produce One Hundred twenty three)

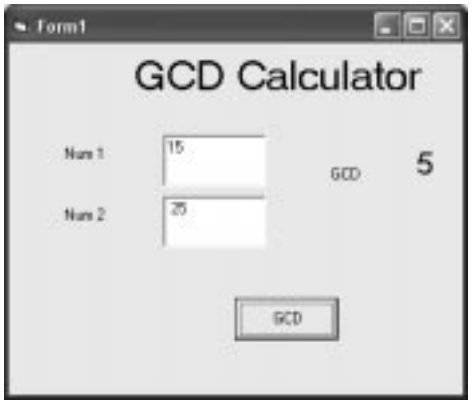
59 The following program was intended to be written to print n even numbers. But the output sugests that the program prints even numbers up to n. Do the necessary modification in the program so that n even numbers are printed.

```
Private Sub Command1_Click()
Dim i As Integer
Dim n As Integer
  n = InputBox("Enter a Number", "Limit", 0)
   For i = 2 To n Step 2
     Print i;
   Next
End Sub
```

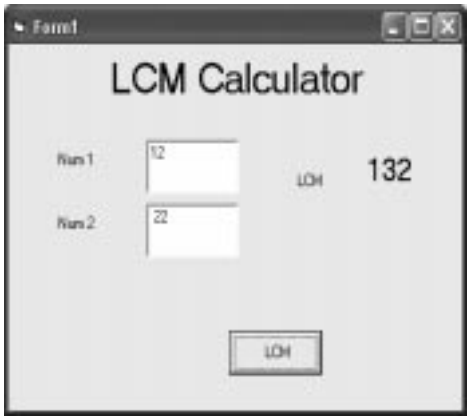
60. Write a program to check whether the given number is an Armstrong Number or not. (Hint: An Armstrong number is a number whose sum of cube of each digit is equal to the number itself. E.g. 153) 2

61 

Let there be a form with a large number of independent text boxes and corresponding labels. Whenever the Check box (chkTheme) is clicked the back ground colour of all the labels as well as that of the text boxes changes to blue. Also the colour of the text changes to white in Labels. Write the corresponding VB Code to achieve this theme change. 4

62 

The given form calculates the GCD(HCF) of two numbers.
Write code for the command button (cmdGcd) to print the GCD in the label (lblGcd). 4

63 

The given form calculates the LCM of two numbers.
Write code for the command button (cmdLcm) to print the LCM in the label (lblLcm). 4

64 Write a VB program to convert a binary number in to its decimal form. 4

65 Write a VB program to convert a decimal number in to its binary form. 4

66 Write a VB program to find the average of individual digits of a number. (Eg: The average of the individual digits of the number 234 is 3.) 4

67 Write a VB program to find the product of individual digits of a number (Eg. The product of individual digits of 234 is 24) 4

68 Re-write the following program using Do-loop-Until 2

```
Private Sub Command1_Click( )
   Dim n As Integer
   Dim Res As Integer
   For i=1 to 10
        Res=Res + (i * 2)
        If Res > 100 then
           Exit For
        End If
   Next
    Print Res
  End Sub
```

69 Re-write the following program using For Next loop:

```
Private Sub Command3_Click()
   Dim Res As Integer
   Dim i As Integer
   Res = 0
   i = 20
    Do While (i > 10)
      Res = Res + i Mod 2
      i = i - 1
      Loop
     Print Res
End Sub
```

70 Re-Write the following using Do..While loop:

```
Private Sub Command3_Click()
   Dim Res(5) As Integer
   Dim i As Integer
   Do Until i > 5
     Res(i)= i^2
     i=i+1
    Loop
End Sub
```

71 Write a VB program to find the sum of the series 1+2-3+4-5+……up to n terms. 2

72 Write a VB program to find the sum of the series 2+4+8+16+32+64+…up to n terms 2

73 Write a VB program to find the sum of the series -n/1! + n/2! - n/3! + … + n/n! 4

74 Write a VB program to find the sum of the series -1+3-5+7-9+11-…….+n 2

75 Write a VB program to find the sum of the series whose nth term is n*n mod 2 2

Procedures and Functions

76 A VB function chkPrime( ) accepts an integer parameter and returns TRUE if the number is prime. Write a VB application that prints the sum of first n prime numbers using this chkPrime( ) function. Also write the code for the function. 4

77 A number is said to be an Armstong Number if the sum of the cubes of its invividual digits is equal to the number itself. A function chkArmstrong() accepts an integer and returns true if the number is Armstrong. Write a VB application to print all the Armstrong numbers between 1 and 1000. Also write the code for the function. 4

What will be the output of the following procedures

78 to 79 4

a)
```
Private Sub Command1_Click( )
Print Test(5)
End Sub

Private Function Test(ByVal n As Integer) As Integer
Test = 1
If n >= 1 Then
  Test = n * Test(n - 1)
End If
End Function
```

b)
```
Private Sub CmdOne_Click( )
    Dim a As Integer
    Dim  sum As Integer
    sum=0
    for a=5 to 1 step-1
      sum=sum+Compute(a)
     next
    print sum
  End Sub
 Private Function Compute( num as Integer) as Integer
      Compute=num^2
 End Function
```

80 Write a VB program to find the sum of the series 1/1! + 2/2! + 3/3!+..... + n/n!. Use a VB function to obtain the factorial of the numbers in use. 4

81 Write a VB procedure that accepts n as a parameter and prints the Fibonacci Series containing n terms. 4

82 Write a VB procedure that accepts two parameters intNum and intDen and finds the remainder and quotient of the two numbers without using Mod and division operators. 4

83 Write a VB procedure that accepts two parameters a and b and swaps the two numbers without using a third variable. 2

84 Write a VB procedure that reduces the value of the integer parameter by 2 each time the procedure is invoked. Use this procedure to decrease the value of a number to its half. A suitable message should be displayed at the completion of the procedure. 2

85 Write a VB Procedure that accepts an integer as a parameter and checks whether input year is a leap year and display a suitable message. 2

86 Write a VB function that accepts two integers' m and n and returns the value of m^n without using any library function. The result is displayed in the form through the click event of a command button. 2

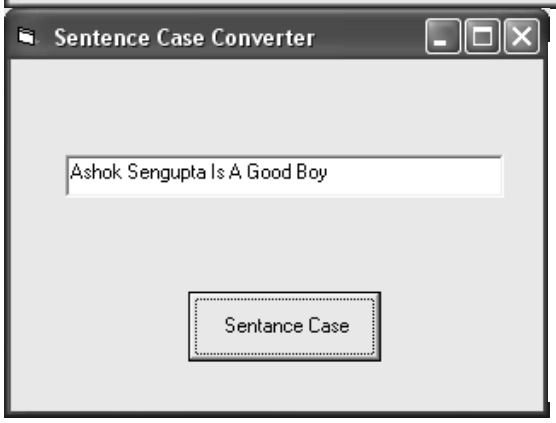
87 Write a VB procedure to accept an amount (e.g. 123.50) as a parameter and prints the amount separately in Rupees and paisa (Rs 123-Paisa 50) in two labels. 2

88 Write a VB function that accepts a number as a parameter and returns a Boolean value if the number is a perfect square. 2

Library Functions

89 

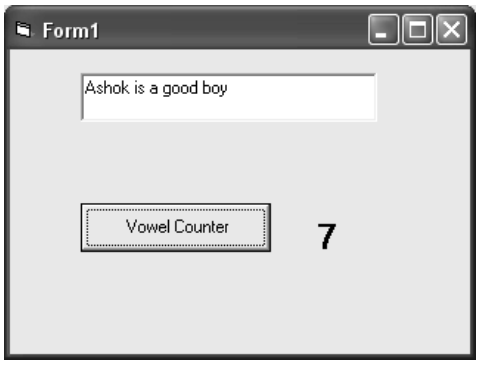
A VB application calculated the age of a person as on 31st march of a given year. Write the code under command button cmd Cal to generate the age in the text boxes txtY, txtM and txtD. 4

90 

A VB application changes first letter of each word in a text box to upper case and displays the modified sentence in the same text box. Write the suitable code under the command button cmdSent to achieve this goal. 4

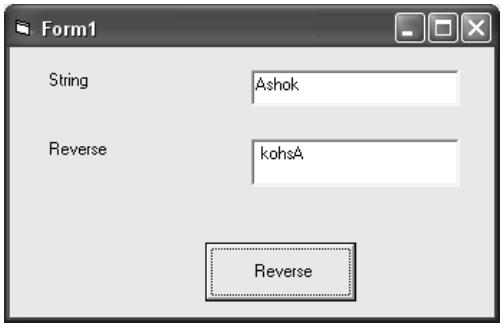
91 

A VB application counts the occurance of a particular character in a string. Write the suitable code under the command button cmdCount to achieve this goal. 4

93 

A VB application counts the number of vowels in a string. Write the suitable code under the command button cmdCount to achieve this goal. 4

74 Write a VB program to test whether an input string is a Palindrome with out using StrReverse( ) function. 4

94 

Write the suitable VB code under the command button cmdRev to reverse the input string in text box txtIn and display it in text box txtRev. The code should not include the StrReverse ( ) library function. 4

What will be the output of the following statements: var1= “COOPERATON COLLEGE” 7

95 to 101
a) Print Left(Mid(var1, Len(var1) \ 2, 5), 3)
b) Print Mid(LTrim(Mid(StrReverse(var1), 6, 9)), 5, 2)
c) Print LCase(Chr((Asc(Mid(var1, Len(var1) \ 2, 3)))))
d) Print Instr(3, var1, “col”, 1) \ 4
e) Print Instr(3, var1, “col”, 0) \ 4
f) Print UCASE(left(right(var1,3)))
g) Mid(var1, Len("COOPERATION") + 1, 8) = "-.-.-.-.-."
Print var1

102 Write a VB application that accepts a name in a text box and prints the name on the form Vertically. 2
Example: ABC should be printed as
A
B
C

ADO Programming

103 A connection object adoCon connects to Oracle database using *user id* as scott and *password* as tiger. 4
A suitable message is displayed when the connection is established successfully. This connection object is further used to create a table *student* in the database with following columns:
Id Numeric and primary key, sName string and required and class string and required.
Write a suitable proceduce under command button cmdCreate to achieve the above goals.

104 A recordset RS is required to view data from EMP table with details of every employee who are drawing salary more than 3000. The ADODB connection object adoCon is already available for creating the recordset. Write the VB code to create the recordset under a public procedure CreateRS( ). 4

105 In the given program module insert the appropriate missing parameters: 4

```
Dim adoCon As New ADODB.Connection
Dim adoCmd As New ADODB.Command
Dim strSQL As String
Dim adoRs As New ADODB.Recordset
Private Sub Form_Load( )
adoCon.Open "Provider=_________; user id=scott; password=tiger;"
strSQL = "Select * from EMP where sal<1000"
adoCmd.ActiveConnection = _________
adoCmd.CommandType = ___________
adoCmd.CommandText = _________
adoCmd.Execute
adoRs.ActiveConnection = adoCon
‘ Set the cursor to enable other users view the changes
adoRs.CursorType = _____________
‘Locks the table when DML is executed
adoRs.LockType = _____________
‘ Create through Command Object only
adoRs.Open _______, , , , adCmdText
Set txtName.DataSource = ___________
txtName.DataField = "ENAME"
End Sub
```

106 A DSN has been created with the name MyDsn that connects to oracle database. Write a VB connection to connect to this DSN using ADODB. 2

107 Create a connection object that connects to oracle database using user name and password obtained from a login form with two text boxes txtUname and txtPw. 2

108 Create the following table in Oracle database using Command object adoCmd which connects to oracle using a connection object adoCon. 4
Student(Uid, name, class)

UNIT III – Relational Database Management System

Oracle SQL Revision Tour

109 Convert the given relation in to 2 NF: 2
R(A,B,C,D,E) AB→C, AB→D, AB→E, B→C, A→D

110 Convert the following relation in to 3 NF: 2
R(A,B,C,D,E) A→B, A→C,A→D,A→E, B→C, D→E

111 Assume that the following relation has possible two sets of candidate keys (Prof_code, Dept) and (Prof_code, Hod). The functional dependency is shown as: 4
(Prof_code, Dept) →Hod, (Prof_code, Dept)→Ptime, (Prof_code, Hod)→Dept,
(Prof_code, Hod)→Ptime and Dept→Hod

Prof_code	Dept	Hod	Ptime
P1	PHYSICS	GHOSH	50
P1	MATHS	KRISHNAN	50
P2	CHEMISTRY	RAO	25
P2	PHYSICS	GHOSH	75
P3	MATHS	KRISHNAN	100

Answer the following questions based on above scenario:
a) What is the amount of normalization already achieved.
b) Give a situation for deletion anamoly in the above relation.
c) Normalize the above relation in the next higher normal form.

112 It is required to create the following tables in Oracle database:
Chicken: (CID INTEGER PRIMARY KEY, EID INTEGER FOREIGN KEY)
Egg: (EID INTEGER PRIMARY KEY, CID INTEGER FOREIGN KEY)
The structure of the table states that the primary key of Chicken is a foreign key in Egg and vise versa.
Give a possible solution to create the two tables in oracle database.

113 Write the result of the follwoting queries: 4
a) SELECT ROUND(150.79, -2) from DUAL
b) SELECT LTRIM('NATASHA', 'NAT') from DUAL
c) SELECT ADD_MONTHS('30-DEC-2007', 2) FROM DUAL
d) SELECT NEXT_DAY(SYSDATE, 'MONDAY') FROM DUAL

114 Create the table from the given structure: 4

Column Name	Data Type	Constraints
Emp_id	Numeric	Integrity Rule no 1
Name	Text with maximum 25 characters	Required
Date_of_birth	Date time	Not after 31 Dec 1990
Salary	Numeric with scale of 4	Not beyond 9999
Deptno	Numeric	Integrity Rule no 2 relates dept table's Deptno
Panno	Text with maximum 12 characters	Non repeated

Carefully study the table and the functional dependencies show below and then answer the questions that follow:

115

MovieID	Movie	DirectorID	Director	Year
12	FIRE	1001	TOM	2004
15	EARTH	1002	JIM	2005
17	OCEAN	1003	MAC	2008
19	WATER	1002	JIM	2003
21	COSMOS	1001	TOM	2004

MovieID→Movie, MovieID→DirectorID, MovieID→Year, DirectorID→Director

a) What level of normalization does the above table achieved?
b) Write the situation when an insertion anamoly arises in the above table.
c) Normailze the above table in to next higher normal form.

116

TrainNo	StationFr	WeekDay	Train	Superfast	StationTo
7004	CHEN	MON	GT Exp	YES	DEL
7005	DEL	TUE	GYAN Exp	NO	KOL
7004	BAN	WED	GT Exp	YES	MUM
8002	JAI	MON	RAJ Exp	NO	KOL
7005	CHE	THU	GYAN Exp	NO	KOL

TrainNo,StationFr→Train, TrainNo,StationFr→StationFr, TrainNo,StationFr→SationTo, TrainNo,StationFr→WeekDay, TrainNo,StationFr→Superfast
TrainNo→Train, TrainNo→Superfast

a) What level of normalization the above table achieved?
b) Write the situation when an updation anamoly arises in the above table.
c) Normailze the above table in to next higher normal form.

117 Create a sequence studseq in Oracle to generate an autonumber field for the ID attribute of student. The sequence starts from 100 with no upper limit and there is no repetition. The student table has the structure STUDENT(ID,NAME, DOB, CLASS). Insert a row in the student table using the sequence. 4

118 The EMPLOYEE table with structure EMPLOYEE(ID, NAME, DOB, DEPTNO, SAL, PANNO) has the PANNO field with NOT NULL constraint. Change the structure of EMPLOYEE table so that NULL values may be accepted in the PANNO field. 2

Write the SQL queries asked below referring the following tables:

TABLE: **GUIDE**

SUBJECT	ADVISOR
PHYSICS	VINOD
COMP SC	ALOK
CHEMISTRY	RAJAN
MATHS	MANJU
HISTORY	SMITA

TABLE: **STUDENT**

ID	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	1
2	DIVAKAR	450	COMP SC	68	1
3	DIVYA	300	CHEMISTRY	62	2
4	ARUN	350	PHYSICS	63	1
5	SABINA	500	MATHS	70	1
6	JOHN	400	CHEMISTRY	55	2
7	ROBERT	250	PHYSICS	64	1
8	RUBINA	450	MATHS	68	1
9	VIKAS	500	COMP SC	62	1
10	MOHAN	300	MATHS	57	2

119 To count the number of students in each subject with an average stipend more than 350.

120 To display the name and stipend of all the students who are receiving highest stipend in each subject.

121 To display the name, subject and average of every student whose average is less than the maximum average in each subject.

122 To display the names of all the students who are having the same average.

123 To display the name subject and advisor for each student whose average is greater than the average of JOHN.

124 To display the subject and advisor that are not referenced in Student table.

125 To display the student name and advisor all the students who are offering either Physics or Chemistry.

Write the following SQL queries from the EMP and DEPT tables:

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-Dec-80	800		20
7499	ALLEN	SALESMAN	7698	20-Feb-81	1600	300	30
7521	WARD	SALESMAN	7698	22-Feb-81	1250	500	30
7566	JONES	MANAGER	7839	02-Apr-81	2975		20
7654	MARTIN	SALESMAN	7698	28-Sep-81	1250	1400	30
7698	BLAKE	MANAGER	7839	01-May-81	2850		30
7782	CLARK	MANAGER	7839	09-Jun-81	2450		10
7788	SCOTT	ANALYST	7566	19-Apr-87	3000		20
7839	MACK	MANAGER	7902	12-May-82	4300	200	10
7844	TURNER	SALESMAN	7698	08-Sep-81	1500	0	30
7876	ADAMS	CLERK	7788	23-May-87	1100		20
7900	JAMES	CLERK	7698	03-Dec-81	950		30
7902	FORD	ANALYST	7566	03-Dec-81	3000		20
7934	MILLER	CLERK	7782	23-Jan-82	1300		10

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	RESEARCH	MIAMI

126 Display the department name of employee KING.
127 Display the department name of highest paid employee.
128 Display the department name of second highest paid employee.
129 Display the details of all the employees who work in the same department in which SCOTT works.
130 Display the details of highest paid employee in each department.
131 Display department names in DEPT table that are not referenced in EMP table.
132 Display the name and the job of all the employees who has same job but works for different departments.
133 Display the details of the employees who are drawing more than the average salary in each department.
134 Display the employee names and hire date of those employee who were hired during the same month.
135 Display the emp no and ename of all the employees who are also acting as managers.
136 Display the employee name and location for all the employees who are managers in same department.
137 Display the employee details who is drawing the second highest salary in the emp table.
138 Display the employee names and their manager names in the employee tables.
139 Display the employee names and their hire dates who have joined prior to the joining date of their managers.

Given the following tables, write the queries for questions 140 to 150 :

TABLE: **PRODUCT**

PN	PNAME	PCITY
P1	BREAD	DELHI
P2	CAKE	DELHI
P3	COFFEE	KOLKATA
P4	SAUCE	JAIPUR

TABLE: **SUPPLIER**

SN	PNAME	SNAME	QTY	PRICE	CITY
S1	BREAD	BRITANIA	150	8	DELHI
S2	CAKE	BRITANIA	250	20	MUMBAI
S3	COFFEE	NESACAFE	170	45	MUMBAI
S4	CHOCOLATE	AMUL	380	10	DELHI
S5	SAUCE	KISSAN	470	36	JAIPUR
S6	MAGGI	NESTLE	340	10	KOLKATA
S7	BISCUIT	MARIE	560	21	CHENNAI
S8	JAM	KISSAN	220	40	DELHI
S9	PIKNIK		345	5	KOLKATA

140 To display the Cities from Supplier table those are not available in Product table. 2

141 To display the product names from Supplier table those are not available in the Product table. 2

142 To display the product names from product table whose quantity is more than their average quantity. 2

143 To display the product names those are supplied by the same supplier. 2

144 To display the products whose total price (price*Qty) is the highest in the supplier table. 2

145 To display the product names those are supplied in minimum quantities for each group. 2

146 Create a table SUPPLIER_AUDIT with the details of all the suppliers who have registered supplies more than the average supplies. (Supply= qty*price)

146 What is the difference between the two operations stated below: 2
DELETE FROM SUPPLIER;
TRUNCATE TABLE SUPPLIER;

147 As it is seen from the Supplier table there is no supplier for S9. Write a query to make the SNAME for S9 to be HLL. 2

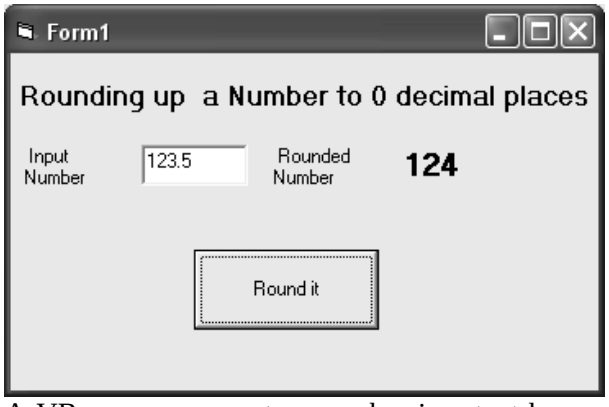
148 To display the product names and supplier names who are either operating in DELHI, MUMBAI or KOLKATA 2

149 To display the number of product names for each supplier with more than one supplier.

150 To display the details of all the suppliers who are not supplying at KOLKATA in the descending order of their quantity of supply. 2

Mixed bag of HOTS questions from VB

151

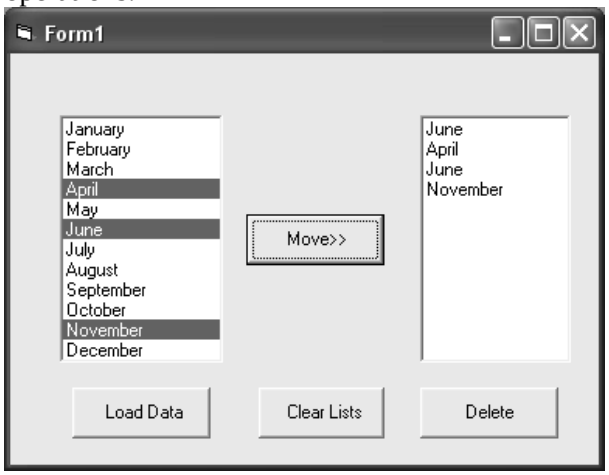


A VB program accepts a number in a text box and rounds the number to 0 decimal places. Write the VB code under the button cmdRound to achieve this feature. Do not use CInt() function.

152

A VB program simulates a Note pad using a Text box (txtNpad). There are four command buttons (cmdCopy, cmdCut, cmdPaste and cmdSel) specifically used for this purpose. Write the code under each command button to achieve the feature of Select All, Copy, Cut and Paste operations.

153

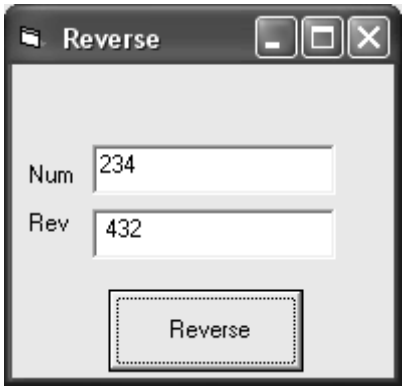


The above program transfers data from one list box (lstLeft) to another list box (lstRight). The specific tasks of the command buttons are:
cmdMove – Transfers multiple selected items from list 1 to list 2
cmdLoad – Load the list box lstLeft with month names.
cmdClear – Clears both the list boxes
cmdDel – Deletes the selected item from lstRight
Write the code under each command button to achieve this.

154

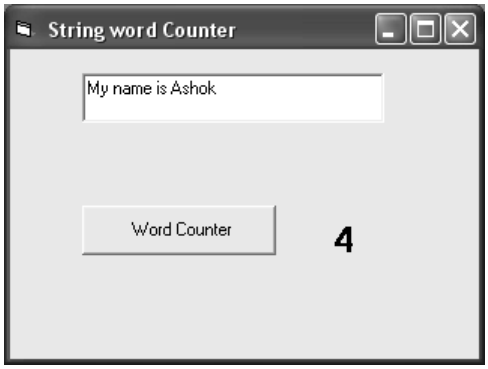
An application simulates the sports stopwatch with feature to display time elapsed in mili-seconds, seconds and minutes. The start button (cmdStart) starts the stopwatch; the stop button (cmdStop) stops the stopwatch and the reset button (cmdReset) resets the display to 00:00:00.
Write suitable codes under the command buttons to achieve this.

155

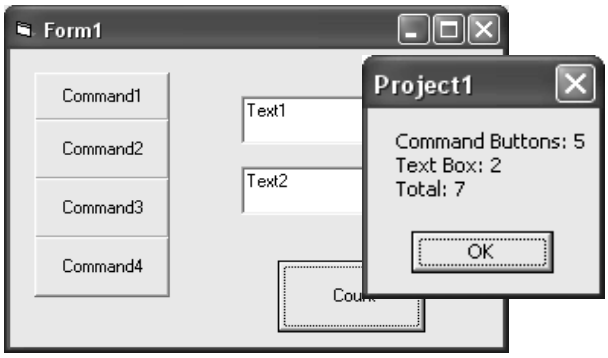


The given form reverses the input number from textbox txtNum and displays the reverse number in text box txtRev. Write the VB code under the Command button cmdRev to achieve this feature.

156



Write a VB application to count the number of words in a given String.



157 Write a VB program to count the number of independent controls on a form and print the same in a message box as shown in the figure.

158 While designing a ADODB with OLEDB based data project in a multiuser environment, the developer sets the following properties for his connection object and recordset object: 3

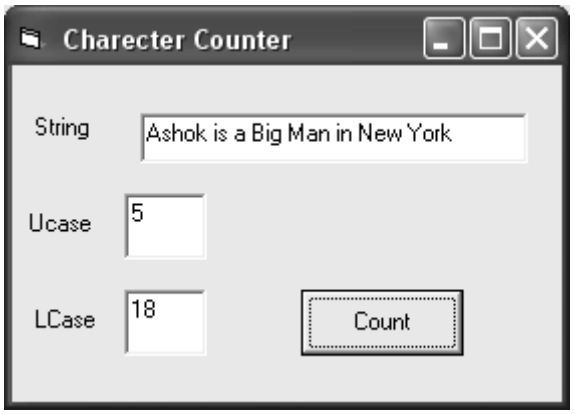
```
Dim Con As New ADODB.connection
Dim RS As New ADODB.Recordset
Con.Provider=”MSDASQL1”
Con.CursorLocation=adUseSever
Con.Properties(“user id”) = “Scott”
Con.Properties(“password”) = “tiger”
Con.open
RS.ActiveConnection= Con
RS.CursorType=adOpenStatic
RS.LockType=adLockPessimistic
RS.Open “EMP”,,,,adCmdTable
```

While executing the above code in his application, he finds the following difficulties:

a) The Connection established has limmitted functionality.
b) The Recordset cannot be updated.
c) The Recordset prohibits other users to work on the database while it is operational.

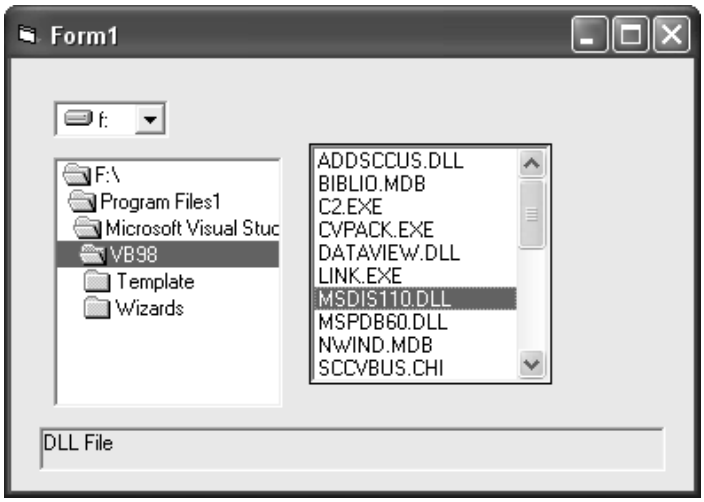
Make suitable changes in the codes to remove the above problems.

159



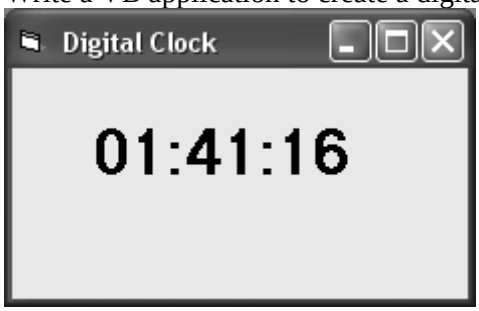
A VB application counts the number of uppercase and lowercase characters from text box txtName seperately and prints them on two text boxes txtUcase and txtLcase. Write the code under command button cmdCount to achieve this.

160



A VB application uses File System controls to make the above interface. The drive list box is linked to the Directory list box and the directory list box is linked to the file list box. Whenever a user clicks any file in the file list box, the file extension name is visible in a Picture box just below the file system controls. Create the above application in VB. 4

161 Write a VB application to create a digital Clock as shown below.



163 The following VB application is written to check whether a number is a Prime number or not. The program has some logical errors and is not performing the required task. Make necessary modification in the code so that it works correctly. 2

```
Private Sub Command1_Click()
n = InputBox("Ener a Number", , 0)
For i = 2 To n
If n Mod i = 0 Then
flag = True
Else
flag = False
End If
Next
If flag = False Then
Print "Prime Number"
Else
Print "Composite number"
End If
End Sub
```

164 Write the value of num at every stage of the following program: 2

```
Dim num As Integer

Private Sub Command1_Click()
Static num As Integer
num = num + 10
Print num
End Sub

Private Sub Command2_Click()
num = 20
Print num
Call Command1_Click
End Sub

Private Sub Command3_Click()
Call Command1_Click
num = num + 10
Print num
End Sub
```

165 Write a VB program to generate Pythagorean Triplet from a set of two consecutive numbers m and n where m>n. 2

Oracle SQL Revision

166 Re-write the following using a join query: 2

```
SELECT ename FROM emp WHERE deptno =
(SELECT deptno FROM emp WHERE ename = 'JONES');
```

167 Re-write the following using NOT EXISTS clause: 2

```
SELECT dept.dname FROM dept
    WHERE dept.deptno NOT IN
    (
    SELECT deptno
    FROM emp
    WHERE deptno IS NOT NULL
    );
```

168 What will be the output of the following query on EMP table: 2

```
SELECT *
FROM emp
WHERE (sal, mgr) =
(SELECT sal, mgr FROM emp
        WHERE sal = (SELECT MIN(sal) FROM EMP
                WHERE sal > (SELECT MIN(sal) FROM emp)));
```

169 What will be the output of the following query: 2

```
SELECT * FROM  emp
WHERE empno IN (SELECT empno FROM emp
    WHERE sal = (SELECT MAX(sal) FROM EMP
            WHERE sal < (SELECT MAX(sal) FROM emp)));
```

170 What will be the output of the following query: 2

```
SELECT
  (SELECT MAX(sal) FROM emp) AS highest,
  (SELECT MIN(sal) FROM emp) AS least,
  (SELECT COUNT(*) FROM emp) AS employees,
  (SELECT SUM(sal) FROM emp) AS total
FROM dual;
```

171 What will be the output of the following query: 2

```
SELECT EName
   FROM Emp
   WHERE sal >(SELECT min(sal) FROM Emp
                        WHERE deptno = (SELECT deptno
                                                FROM dept
                                                WHERE loc = 'NEW YORK'));
```

Perform the following queries from EMP and DEPT tables.

172 To find the departments that have employees with a salary higher than the average employee salary 2

173 To find the details of all the employees drawing salary between minimum and Average salary for all the employees. 2

174 To display the employee name and Annual Salary (sal*12) for all the employees who are drawing annual salary more than 30000. 2

175 To display the deptno and average salary for each department in the emp table with average salary less than the maximum salary for each department. 2

PL/SQL

1 Write a PL/SQL code to print the largest among four numbers 2

2 Write a PL/SQL Code to create an equivalent of 4 function calculator which performs the addition, subtraction, multiplication and division on the two number entered by the user and display the result. Operator is also entered by the user 2

3 Write a PL/SQL coding to find if the year is entered is leap or not 2
Note 1700, 1800, 1900 These year are divisible by 4. But these are not Leap Years

4 Write a PL/SQL coding to print the sum of the series 1,2,4,7,11,16 up to n terms 3

5 Write a PL/SQL Script to check whether the give No is single digit, two digit, three digit, four digit, five digit or more e.g. (7 is single digit, 48 is two digit etc) 3

6 Write a PL/SQL code which the accept the amount and show there are how many notes of 1000 Rs, 500 Rs, 100 Rs, 50 Rs, 20 Rs, 10 Rs, 5 Rs, 2 Rs, 1 Rs (e.g amount is 2315 there are 4

```
Amount  = No of  Notes
1000 Rs =  2
500 Rs   =  0
100 Rs   =  3
50 Rs     =  0
20 Rs     =  0
10 Rs     =  1
5 Rs       =  0
2 Rs       =  0
1 Rs      =   0 )
```

7 Write a PL/SQL code to Print the following by using any Loop 3

```
1
2  3
4  5   6
7  8   9  10
11 12 13 14 15
```

8 Write a PL/SQL code to Print the following by using any Loop 3

```
            1
          1  2  1
        1 2 3 2 1
      1 2 3 4  3 2 1
    1 2 3 4 5 4 3 2 1
```

9 Write a PL/SQL code to Print the following by using any Loop 3

```
0
0 1
0 1 2
01 2 3
0 1 2 3 4
0 1 2 3 4 5
```

10 Write a PL/SQL code to Print the following by using any Loop 3

```
0 1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
2 3 4 5 6 7 8 9
3 4 5 6 7 8 9
4 5 6 7 8 9
5 6 7 8 9
6 7 8 9
7 8 9
8 9
9
```

11 Given the following code fragment. 2

```
If (a=0) THEN
        DBMS_OUTPUT.PUT_LINE('Zero');
end if;
if a=1 THEN
        DBMS_OUTPUT.PUT_LINE('One');
end if;
if a=2 THEN
        DBMS_OUTPUT.PUT_LINE('Two');
end if;
if a=3 THEN
        DBMS_OUTPUT.PUT_LINE('Three');
end if;
```

Write an alternative code using IF that saves the number of comparisons

12 (i) An insurance company uses the following rules to calculate premium: 4

(ii) If a person's health is excellent and the person is between 26 and 35 years of age and lives in a city and is male then premium is Rs.2 per thousand and his policy may not be written for more than Rs. 2 Lakhs.

(iii) If a person satisfies all the above conditions except that the sex is female then the premium is Rs. 1.10 per thousand and her policy may not be written for more than Rs.1.8 Lakh.

(iv) If a person's health is poor and age is between 25 and 35 and the person lives in a village and is male then the premium is Rs.9 per thousand and his policy may not be written for more than Rs.2500

(v) In all other cases, the person is not insured. Write a program to give the eligibility of a person to be insured, his premium rate and maximum amount of insurance.

13 A company manufactures three products – engine, pumps and fans. It gives a discount of 12 % on orders for engines if the order is for Rs. 7000 or more. The same discount of 12% is given on pumps orders of value Rs.4000 or more and on fan orders for Rs.2000 or more. 3

14 A bank accepts fixed deposits for one year or more and the policy it adopts on interest is as follows: 4

(i) If a deposit is less than Rs.2000 and for 2 or more years, the interest rate is 5% compounded annually.

(ii) If a deposit is Rs.2000 or more but less than 6000 and for 2 or more years, the interest rate is 7% compounded annually.

(iii) If a deposit is more than Rs.6000 and is for 1 year or more, the interest is 8% compounded annually.

(iv) On all deposits for 5 years or more, interest is 10 % compounded annually.

(v) On all other deposits not covered by above conditions, the interest is 3% compounded annually.

Give the amount deposited and the number of years, write a program to calculate the money in the customer's account at the end of the specified time.

15 Write a PL/SQL code that lets you display employee numbers and names of employees with employee code more than 7800. You must not define a cursor for it in declare section. 2

16 Write PL/SQL to replace Empname by adding Mr it gender in M otherwise add Ms to the existing Empname. 2

17 Write a PL/SQL script to calculate commission for a salesman whose no is asked from emp table. Get sales made from the user and calculate the commission as per: 3

Sales made	**commission**
<10000	500 + 10% of salary
10000 – 20000	1000 + 15% of salary
>20000	1500 + 20% of salary

Write the commission back into the table .

18 Find out the output of following code fragment. Also find out error(s) if any: 2

```
DECLARE
        X NUMBER;
        Y char(10);
BEGIN
        X := 10;
        Y := 'ABC';
    DECLARE
        Z NUMBER;
    BEGIN
            Z := X+10;
            DBMS_OUTPUT.PUT_LINE('X :'||X);
            DBMS_OUTPUT.PUT_LINE('Y :'||Y);
            DBMS_OUTPUT.PUT_LINE('Z :'||Z);
    END;
    DBMS_OUTPUT.PUT_LINE('X :'||X);
    DBMS_OUTPUT.PUT_LINE('Y :'||Y);
    DBMS_OUTPUT.PUT_LINE('Z :'||Z);
END;
```

19 Find out the output of following code fragment. Also find out error(s) if any: 2

```
BEGIN
            FOR I IN 0..9
            LOOP
                FOR     J IN 9..I
                LOOP
              DBMS_OUTPUT.PUT_LINE('J||' ');
             END LOOP;
            DBMS_OUTPUT.NEW_LINE();
        END LOOP;
    END;
```

20 Write a PL/SQL script that incorporates exception handling to handle the following errors. When department no. and commission is obtained for an employee whose empno is given by the user at run time. 4

The errors to be handled are :

a. Department no. having NULL value.
b. Commission having NULL value.
c. No such employee found.

21 Write a PL/SQL script to obtain the name of a department whose no is asked. Display the department no and department name along from emp and dept tables 3

22 WAP to accept the age of n employees in a loop and count the number of persons n the following age groups: 3

(i) 26-35 (ii) 36-45 (iii) 45-55

23 Write a PL/SQL script to obtain the current date from the user and display the Month Name, How many days are present in that month and how many days are left in that month. 4

24 Write a PL/SQl Script which accept Rollno, Name, Marks in three subject then display the total mark, percentage, grade and result. Result is pass/ Fail/Supplementary. If student score more than equal to 40 in each subject then declare as Pass but if he score less than 40 in one subject then declare supplementary otherwise declare him fail 4

25 Write a PL/SQL Code to read a number, then reverse the no and check whether the reversed no and original number are same or not. (Palindrome) 2

26 Write a PL/SQL Code to print first n Armstrong numbers. Here n is accepted from the user 3

Cursor

27 Write a Pl/SQL Script that uses cursor to calculate bonus for employees as 5% of salary + 2.5% of comm. The calculated bonus along with the employee no, is stored in a table namely, bonuses — 2

28 Write a PL/SQL script to display the employee name, job, and department name. The search condition should allow for case insensitive name searches. — 4

29 Write a PL/SQL block that uses an explicit cursor named cur_student to retrieve the first and last names for all the records in the students table, and then displays each first and last name using DBMS_OUTPUT command. Use a LOOP. Exit when loop ends to process the cursor. — 2

30 Write PL/SQL code that displays the employee number, name and jobs of all those employees whose names start with a particular character or group of characters. Implement the code in such a way that if no information is passed then the information regarding all the employees is displayed. Sort the data by Names. — 3

31 Generate a report in PL/SQL that displays department wise information of all employees. The department names should appear in sorted order; also the information of the employees should be arranged in ascending order of their names. The report should display the data in following format — 4

```
====================================
Department Name _______ Department No ____  Location At_____
====================================
Employee No        Employee Name       Designation
  7839                 King                 President
```

32 Write a PL/SQL script to increment the salaries of employees as per following specifications: — 4

For Salesmen	if salary + Comm > 2500 then 10% of salary as increment Otherwise 12% of salary as increment
For Analysts	20% increment
For Clerks	12% increment
For Managers	25% increment

33 A table student is present in the database. The attributes of the table are Rno, name, Mark1,Mark2,Mark3, Totmark. Write a PL/SQL to do the following — 4
Update Totmark as Mark1 + Mark2 + Mark3
Also insert details into table studentresult which should contain rno,name,result where result is Pass if totmark is more than 32 otherwise result “Fail”.

34 A table videoLib has the following colums : cid, cname, actor, actress, language, issuedate, returndate. The datatype of issuedate and returndate is date. Write PL/SQL blocks to answer the following questions: — 3
Display the no of days elapsed between issuedate and returndate for all issue cassettes. If one day rent is 20 Rs/- calculate the amount to paid by the member and display the amount.

35 Write PL/SQL to replace Empname by adding Mr if gender is M otherwise add Ms to the existing Empname — 2

36 Write a PL/SQL script that allows you to pass a department no. Then it computes the total wages paid to employees in that department. It also determine how many employees have salaries higher than 2000 and/or commission larger then their salaries. — 4

37 Find error(s) if any : — 2

```
DECLARE
CURSOR c1 (Test Numeric) IS SELECT * FROM Emp WHERE Sal > Test ;
Test VARCHAR2(10) ;
Begin
Test := &TEST;
OPEN(c1);
END;
```

38 Find error(s) if any — 2

```
  DECLARE
        Test NUMERIC(10);
        Test VARCHAR2(10);
        BEGIN
        Test := 10;
        END;
```

39 Find error(s) if any : 2

```
        DECLARE
Cursor c1 (Test Numeric) IS SELECT * FROM Emp WHERE Sal > Test ;
    Test VARCHAR2(10) ;
    Begin
        Test := &TEST;
        OPEN(c1);
    END;
```

40 Write Pl/SQL script to acquire name,salary of employees who earn in between Rs 3500.00 to Rs 5500.00. Give them an increment of 0.7% and display all the records. 2

41 User a cursor to retrieve the department number and department name from the DEPTM Table. Pass the department number to another cursor to retrieve from the employee table details of employee name, job, hire date and salary of all the employee who work in that department. 2

42 Create a cursor to display the data from emp table in the following format 4

==========

Report

S.No	Name	Salary
1		
2		
3		

43 Using cursor display the details of all those employees from EMP table whose sum of salary and commission is more then 2500 using Cursor For Loop. 2

44 Write a cursor to display the empno, ename, sal, deptno, dname and display the details of persons getting salary more than N RS, where N is passed as parameter (e.g 2000) 4

45 Write a PL/SQL script that uses cursor for loop to calculate bonus for employee as 5% of salary + 2.5% of commission. The calculated bonus should be stored in table bonus. 3

46 EMP(Ename,Sal,Comm) table give the output produced by the following PL/SQL code on execution 2

```
DECLARE
 Vename emp.ename%type;
Vsal emp.sal%type:=1500;
Vcounter number(2):=1;
Begin
  Loop
   Select ename into vename from emp where Sal<vsal;
    Dbms_output.put_line(vename);
   Vsal:=1800;
  Vcounter:= vcounter +1;
  Exit when Vcounter > 2;
 End Loop;
End;
```

Procedure and Functions

47 Create a Stored procedure that displays the first name and last name of the student whose student id is passed as parameter and display the message “Student Does not exist” when student id is not present. Invoke the above procedure 2

48 Answer the following questions based on the following Employee table 4

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

Write a PL/SQL procedure EDSAL to find out whether the salary of an Employee with ID = 1234 is less than 180 or not. If it is less then 5000, modify the Salary of employee by increasing it by 15%.

49 Write a PL/SQL Function CheckDiv that takes two numbers as arguments and returns the 4

value 1 if the first argument passed to it is divisible by the second argument, else will return the value 0 if the second no is zero than raise the user define error 'No. CAN NOT BE DIVIDED BY ZERO'.

50 Write a PL/SQL Procedure that takes a parameter , and return the reversed digits of the number through Parameter 4

51 Create a stored procedure named raise_pay that will increase an employee's salary. The parameters should be the employee's id number and the percent increase to his salary. 4

52 Write a PL/SQL procedure that calculates and displays the volume of a cuboid. The procedure takes three parameters for length, width and height of the cuboid respectively. The last two parameters are optional having a default value of –1. If the last two parameters are not passed then the volume of a cube having sides equal to the first parameter is to be calculated. 4

53 Write a PL/SQL procedure to return a value for finding the sum of first 10 natural number using OUT parameter. 4

54 Write a Pl/SQL Stored Procedure that takes "maxrows" and "maxcols" as argument to generate a multiplication table using <<labeled>> nested simple loop. 4

The output will be like this:

1	2	3	4	5
2	4	6	8	10
3	6	9	12	15
4	8	12	16	20
5	10	15	20	25

55 Write a PL/SQL PROCEDURE which accepts a no as parameter and prints all the prime number upto that no. 4

56 Write a PL/SQL PROCEDURE which accepts two numbers and returns the sum, product, difference by using parameters only? 2

57 Write a PL/SQL function that takes two numbers as argument and returns the sum of all the numbers between them. If both the numbers are zero then it raises a user define exception 'Second Parameter cannot be Zero' 4

58 Write a PL /SQL Procedure which reads two parameters and shows their division and remainder without using the Mod and / Operator? 2

59 Write PL/SQL Procedure which reads two numbers as parameters and returns their product without using * operator? 2

60 Write a PL/SQL Procedure which accepts two parameters of number type and interchanges their value without using any other variable? 2

61 Write a PL/SQL Procedure that takes employee code of an employee as a parameter. In the table "Employee" if the commission field is empty then set it to 100. (Fields: employee code empno, commission, Comm) 4

62 Write a PL/SQL procedure called MULTTABLE that takes two numbers as parameters and displays the multiplication table of the second parameter to the first parameter. 2

63 Write a user defined Power function that takes two numbers as parameters and returns the value of the first no raised to the power of the second. If second parameter is missing then assume it as 1. (Without using inbuilt function). 4

64 Create a procedure that adds the details (empno, ename, job, sal) of newest employee from table emp into NewPer having structure as (eno, first name, lastname, designation, salary). The lastname of the person is to be passed to the procedure as read only value 4

65 Create a stored procedure that displays the no of employees from the table emp who joined after a given date or joined within a specified period whose start and end dates are provided. The count of employee should also be made available to the caller program. 4

66 Create a stored procedure named Increase_Pay that will increase an employee's pay amount. The parameter should be the employee's id number and the percentage increase to his salary. If the employee id does not exist then exception "This Employee does not belong to this company" 4

67 Write a procedure that adds first name and last name as parameters in person table along with a unique id. The id should be calculated as existing last id (Generally maximum id + 1) 4

68 Write a PL/SQL Procedure to select employee from emp who get a salary of Rs 14000. Give them an increment of 7%. But if more than one employees, it should not display an error message. If no employee is selected then also display a message " No Such Employee Exist" 4

69 Write a stored procedure that gives the total_no of orders as per the dates passed to it. Two dates namely start date and end date are to be passed to it 4

- Default values of start date and end date should be 01/01/2005 and NULL
- If both the dates are passed, the procedure should give total number of orders placed during the period between start date and end date.

If only start date is passed, then it should give the count of orders placed after that date.

70 Create a procedure and function for the following: A Bank allows withdrawal in an account if only the balance after withdrawing amount remains minimum 1000/- 4

Write a withdraw procedure that performs the withdrawal. This procedure first invokes a function Balancecheck by passing the amount to be withdrawn and the account no.

Write function Balancecheck with following functionality: the function Balance check scans through the accounts table and determines whether this withdrawal is possible or not. That is whether after withdrawing this amount, there would be minimum Rs 1000/- or not. If the withdrawal is possible, the function returns True otherwise False.

Depending upon the return value of the Balancecheck function, the procedure withdraw either performs the withdraw or raise an exception "Transaction not allowed!! Illegal Withdrawal!"

71 Give a SQL statement to define the table GradePoints with following structure 4

Column Name	*Data Type*	Size	Constraint
Grade	CHAR	1	Primary Key
MinMarks	NUMBER	5,2	>0
MaxMarks	NUMBER	5,2	>0,<100,>MinMarks

Write a PL/SQL procedure that accepts one parameter of each column of the GradePoints table and adds a record to the table if the data for MinMarks and MaxMarks is valid, otherwise the procedure should display appropriate message

72 Write a PL/SQL procedure to find out whether the salary of an employee whose ID pass as parameter is less than 7000 or not. If it is less than 7000, modify the salary of employee by increasing it by 10%. 4

73 Write a PL/SQL function ISPRIME to return value True if the number passed to it is Prime else return False 4

74 Write a Procedure in PL/SQL which returns the sum of all even numbers less than given number N which is passed as Read Only Parameter 4

75 Write a PL/SQL procedure which reads the date of Birth of any candidate as parameter and shows the age of person up to current date how many years, Months and Days old the candidate is. 4

TRIGGER

76 Find the errors from the following PL/SQL code and rewrite the corrected code underline the correction made 2

```
CREATE ASW REPLACE TRIGGER DEPT_UP
AFTER UPDATE ON DEPT FOR EVERY ROW
DECLARE
        Vno NUMBER(3);
BEGIN
        SELECT COUNT(*) INTO VNO FROM EMP WHERE DEPT='101;
IF Vno > 5
        Raise_application_error(-20001,'Cannot exceed 5');
End;
```

77 Why does the following trigger fail when it is executed? Write correct code. 2

```
        CREATE OR REPLACE TRIGGER inempsum
        AFTER INSERT
        On Emp
        Begin
INERT INTO emp_Sum(empno,period,sal) values (:new.empno,SYSDATE,:new.sal);
End;
```

78 Examine the following trigger: 2

```
CREATE OR REPLACE TRIGGER upd_emp_comm
FOR EACH ROW
Begin
<<Trigger Body>>
End;
```

Which of the following statements must you add to the trigger definition to make sure this trigger executes only updating the comm. column of the emp table?

a) AFTER UPDATE(Comm) On emp
b) AFTER UPDATE on emp
c) AFTER UPDATE of comm. On EMP
d) AFTER comm UPDATE on EMP

79 If we have row level triggers and statement level triggers and before and after triggers then in which order triggers are fired if multiple triggers exist for the same table? 2

80 An HR System has an employee table that holds a row for each employee within the company. Each record in the table has a manager field, (mgr), that holds the id for the employees manager. Write a trigger so that when a manager record is deleted, the mgr field of that manager's employees is set to NULL. 4

81 Write a trigger that allows changes to employee table only during the business hours(i.e. from 8 a.m. to 5.00 p.m.) from Monday to Saturday. There is no restriction on viewing data from the table 4

82 Create a trigger to fill the BillNo field of Bill table with a value generated from the Bill_sequence every time insertion or updation takes place in the Bill table 4

83 Create a trigger that displays the no of employees before every delete in emp table. 4

84 Change the course cost to a default value (3000) if the course cost entered by user exceeds 5000 in course table. 4

85 Create an instead of trigger for Emp_Info view for inserting row in it. The Emp_Info view has been created as 4

```
Create View Emp_Info AS
Select e.ename,e.empno,d.dept_type,d.deptno,p.level,p.projno
From emp e, dept d, project p
Where e.empno=d.mgr_no and d.deptno=p.resp_dept;
```

86 Create a trigger for emp table which makes the entry in ename column in the upper case only 4

87 Write a trigger TOTAL_SALARY to maintain a derived column TOTSAL that stores total salary of all members in a department 4

88 Create a trigger for updation of Column SAL in EMP table, which ensures that SAL cannot be reduced. 4

89 Create a trigger to change the commission amount to 2500 every time the commission amount entered by user exceeds 2500. An appropriate message should also be displayed 4

90 Write PL/SQL code to create two statement level triggers before_delete and after_delete before and after delete respectively on the table of your choice which display the message 'Ready for Deletion' and 'Record Deleted' respectively 4

91 Create a trigger that prints the change in salary every time salary of an employee is changed 4

92 Give the SQL statement required to create the following table : 4

Table : Transactions

Column Name	Data Type	Size	Constraint
Invoicenumber	Number	10	Primary Key
Itemcode	Number	10	Referenced from item Table
Transactiondate	Date	--	System date
Transactionmode	Varchar2	10	Allowed Values : SALE, PURCHASE
Transactionunits	Number	5	>0

Write a PL/SQL trigger that give a message :
<n> units of <itemcode> sold/purchased after each sale or purchase is recorded in the above table Transactions.

93 Create a trigger to implement referential integrity policy – "On delete set Null" in the customer_order tables. That is when a customer record is deleted set Null for deleted customer no(cid) in orders table 4

94 Consider the tables 4

Courses(Course_code, Name, Startdate, Duration, Fee, Total_Seats, Available_Seats)
Enrolments (Enrolno, Course, Enr_Date)
Create a single trigger that is fired each time when

a) An Enrolment is requested
b) Cancellation of an enrolment is requested
c) A Migration is requested

An Enrolment or migration can be possible by within a month of start date of the course. The trigger should also check for the availability of seats in the course to which migration/admission is sought. If the admission/migration is possible then

1. In case of fresh enrolment reduce the no of available seats in the requested course by one
2. In case of migration increase the no of available seats in the old course and reduce the no of available seats in the new course by one.

95 Consider a view that reads department number, name, location, employee no, name, job, manager id, hire date and salary from the Dept and Emp tables. Create a trigger that is fired each time user attempts to carry out an insert operation on the view. The trigger should add records to the underlying tables if the records are not there already. 4