Inter (Part-II) 2018

Computer Science		PAPER: II
Time: 2.10 Hours	(SUBJECTIVE TYPE)	Marks: 60

SECTION-I

(MS-ACCESS)

2. Write short answers to any SIX (6) questions: (12)

(i) Define data redundancy.

Ans Redundancy means duplication of data in multiple files. It wastes the storage media of computer.

(ii) Differentiate between master file and transaction file.

Ans Master file is the latest updated file. It maintains data that remains constant for longer period of time or contains relatively permanent data. On the other hand, the transaction file stores data that frequently changes. Data prior to the stage of processing is recorded.

(iii) Describe foreign key.

Ans A foreign key is an attribute in a table whose values must match a primary key in another table. The table in which the foreign key is found is called as dependent table and to which it refers is called as parent table.

(iv) Define synonym.

Ans A synonym is created when two different names are used for the same information (attribute).

(v) What are the database anomalies?

Ans The database anomalies are the problems that occur in poorly planned, un-normalized databases. There are three types of anomalies:

1. Insertion Anomaly.
2. Deletion Anomaly.
3. Modification Anomaly.

(vi) List two advantages of report.

Ans Following are the two advantages of report:

1. To display information obtained from a database.
2. To display result of a query.

(vii) Define sorting.

Ans The process of arranging items in a sequence ordered by some criterion is called sorting.

(viii) State the purpose of subform.

Ans A subform is a form that is placed in a parent form. Subforms are particularly useful to display data from tables and queries that have one-to-many relationships.

(ix) Identify name of entity and primary key in the following:

STUDENT (Student ID, St name, Group)

Ans **Entity:**

"STUDENT"

Primary Key:

"Student ID"

C-LANGUAGE

3. Write short answers to any SIX (6) questions: (12)

(i) What is the use of main ( ) function in C?

Ans The two uses of 'main' function ( ) in C are:

1. To know the place of execution of C program begins.
2. To realize the entry point of the C program.

(ii) Distinguish between source code and object code.

Ans Program written in any high-level programming language is source code while object code is what a compiler produces.

(iii) Define header files.

Ans Many actions necessary for a computer program, such as input and output, are not defined directly in a C program. Instead, these actions are defined in the form of functions in different C libraries. Each library has a standard header file, which is referred to with .h extension. In a simple C program,

the stdio.h refers to the header file containing the definition of standard input/output functions.

(iv) What is the use of assignment statement?

Ans The assignment statement takes the general form:

variable = expression.

The expression can be a variable, a constant or arithmetic, relational or logical expression.

(v) Differentiate between unary and binary operator.

Ans Unary operator has just one operand *e.g.*, + +, – – . On the other hand, binary operator ahs two operands *e.g.*, +, –, *, /.

(vi) Compare "getch ( )" and "getche ( )" function.

Ans The "getch ( )" function does not echo or print the character typed while "getche ( )" function echo or print the character typed.

(vii) Trace output of the following code:

```
int x = 0, y = 5, z = 4;
x = y + z * 5;
printf ("Result = % d", x);
```

Ans Output = 25.

(viii) Find errors in following code:

```
void main ( ) ;
{
  print ("Pakistan");
}
```

Ans The errors of the above code is:

1. semicolon (;) after statement void main ( );
2. f is missing in printf ( ) function.

(ix) Trace output of following code:

```
int a = 5, b = 10;
int c = a + b * 2;
printf ("The output is % d" , c);
```

Ans The output is 25.

OR

(VISUAL BASIC)

3. Write short answers to any SIX (6) questions: (12)

(i) Define source code.

Ans Source code is a computer program written in a high-level programming language like Visual Basic or Java.

(ii) List any two disadvantages of machine language.

Ans Two disadvantages of machine language are as follows:

Machine Dependent:

Machine language is machine-dependent. Each type of hardware requires its own machine language.

Difficult and Time consuming:

Machine language is difficult to understand. Writing programs in machine language takes a lot of time.

(iii) List any two properties of form object.

Ans Two properties of form object are as follows:

1. BackColor:

This property is used to set the background color of the form. You can enter hexadecimal Windows color value or select from the color palette.

2. BorderStyle:

This property is used to specify the border style of the form. There are five predefined values of this property. You can select any one from the property window.

(iv) Differentiate between text box & label control.

Ans A text box should be used when input is required from the user or the user is allowed to change the text in text box. On the other hand, a label should be used a message is displayed to the user. The user will not be able to change the text in a label.

(v) Differ between constant and variable.

Ans Basically, variables and constants are temporary memory locations with a name and data type. The value stored in a variable can be changed during the execution of the project. The values stored in constants cannot change.

(vi) **What is the purpose of language processor?**

Ans A program written in high-level or assembly language cannot run on a computer directly. It must be converted into machine language before execution. Language processor or translator is a software that converts these programs into machine language.

(vii) **Find output of the following code:**

```
DIM res As integer
Res = (20 + 10) / 3
Print res
```

Ans The output is 10.

(viii) **Trace errors in following code:**

```
DIM x Integer
x = 10 + 5
print "x
```

Ans

1. In the first line, the word "As" is missed which must be written before Integer.
2. The inverted comas do not use after print.

(ix) **Find output of the following code:**

```
DIM z As Integer
z = 50
print z MOD 6
```

Ans The output is 30.

(C-LANGUAGE)

4. Write short answers to any SIX (6) questions: (12)

(i) **Write the syntax of if-else statement.**

Ans

```
if (condition)
{block of if (true case)}
Else
{block of else (false case)}
```

(ii) **State the use of goto statement.**

Ans The uses of goto statement are:

(a) Perform an unconditional transfer of control to named label.

(b) Performs a one-way transfer of control to another line of code.

(iii) Determine the output of the following code:

```
If (1 ! = 2)
printf ("OK");
else
printf ("Correct it");
```

Ans The output is: OK.

(iv) Trace the errors in the following code:

```
if (7 ! = 10
printf ("Hello")
else
print ("Welcome");
```

Ans The errors of the above code are:

1. Bracket is missing *i.e.,* if (71 = 10).
2. ; statement terminator missing *i.e.,* printf ("Hello");
3. f is missing in print *i.e.,* printf ("Welcome");

(v) Write the output of the following code:

```
int i, j = 3;
for (i = 1 ; i < = 5; i + +)
printf ("\n % d % d" , i , j);
```

Ans The output of the above code is:

13
23
33
43
53

(vi) Convert the following code in do-while loop:

```
for (i = 1; i < = 5; i + +)
printf ("\n%d", i);
```

Ans i = 1;

```
do
{
printf ("\n %d", i);
i + + ;
} while (i < = 5);
```

(vii) Define local variable.

Ans A local variable can only be used in the function where it is declared.

(viii) Define function header.

Ans The first line of function definition is called the function header, *i.e.*, return_type FunctionName (Parameter_List).

(ix) What is text file?

Ans Text file is a named collection of characters saved in secondary storage *e.g.*, on a disk. It has not fixed size. EOF (End of File) is used to end a text file.

OR

(VISUAL BASIC)

4. Write short answers to any SIX (6) questions: (12)

(i) Differentiate between List and List Index property.

Ans List Index property is used to access individual elements in the list box. The list index starts with O for the first item in the list box and takes on consecutive numbers for the remaining elements. The List property is used to return or set the items contained in the list box.

(ii) Describe three styles of Combo boxes.

Ans The dropdown combo box (Style O) has a dropdown list with a text box. The list collapses when the user makes a selection from the list. The simple combo box (Style 1) has a text box and the list displays below with scroll bars. The dropdown list (style 2) is used to select from an existing list. It has no text box.

(iii) What does MDI mean?

Ans MDI stands for multiple document interface. An example of MDI is an application such as Microsoft Word. Word has a

parent form (the main window) and child forms (each document window).

(iv) How Tool Tip is used in VB?

Ans Tool Tip is a small label that appears on the screen when the user pauses mouse pointer over a toolbar button or control. A Tool Tip can appear for the controls by setting the control's ToolTipText property to any next value.

(v) Define standard code module.

Ans A standard code module holds sub-procedures and function procedures to be used in multiple forms. It is also used to declare global variables and constants. It is a visual basic file with .BAS extension. Standard code modules contain no form but only code.

(vi) Define function argument.

Ans An argument is a value that is passed to a function inside the function's parentheses.

(vii) Write output of following code:

AList = UCase ("AbCdEfG")

Ans The output is "ABCDEFG".

(viii) Which error is difficult to find and why?

Ans Logic errors are most difficult to find than other types of errors. It is difficult because Visual Basic does not find these errors. The programmer has to read the code carefully to find these errors.

(ix) Define project file.

Ans A project file is a small text file that contains the names of other files in project. It also contains some information about VB environment. It is saved with .vbp extension.

SECTION-II

(MS ACCESS)

Note: Attempt any ONE (1) question.

5. What is data distribution? Explain three data distribution strategies. (2,2,2,2)

Ans **Data Distribution Strategy**

Many organizations are using distributed computer networks nowadays. These organizations face a lot of problems in physical database design. The problem is that they have to decide and select nodes or sites in network at which data will be located physically.

The basic data distribution strategies are as follows:

1. Centralized:

In this strategy, all data is located at a single site. It is very easy to implement but data is not readily accessible from distant locations. Its cost becomes usually high. Central system fail causes the failure of whole database system.

2. Partitioned:

In this strategy, the database is divided into partitions or fragments. Each partition is stored near the concerned user.

3. Replicated:

In this strategy, the full copy of the database is assigned to more than one site in the network. In replicated strategy update problem occurs.

4. Hybrid:

In this strategy, database is divided into critical and non-critical fragments. Non – critical part is stored only at one site, while critical one is stored at multiple locations.

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6. Explain eight different data types available in MS Access. (1,1,1,1,1,1,1,1)

Ans **Types of Data types in MS Access:**

Microsoft Access provides several data types for different type of data. Some commonly used data types in MS access are described below:

Text:

The text data type is used to store alphabets, digits and special characters. The maximum length of this text field can be up to 255 characters. If size is not specified, the default setting is 50 characters.

Memo:

Memo data type is used to store large amount of text data. It can store up to 64000 characters. The memo field cannot be set as a key field.

Number:

Number data type is used to store numeric data. Arithmetic calculations can be performed on this type of data. Different type of numeric data types are as follow:

Data Type	Data Range	Size in Bytes
Byte	0 to 255	1
Integer	-32768 to 32767	2
Long Integer	-2147463648 to 2147463647	4
Single	-3.4×10^{38} to 3.4×10^{38}	4
Double	-1797×10^{308} to 1797×10^{308}	8

The Byte, Integer and Long Integer data types cannot store decimal values. If you need to store values with up to four decimal places only, use the Currency data type in preference to Single or Double number fields.

Date/Time:

This data type is used for the field to store date and time values. The field can store date in specific format.

Currency:

Currency data type is used to store numbers representing currency. The value in Currency field is rounded to two decimal places and the negative currency values are displayed in brackets. The values automatically include a dollar sign ($).

AutoNumber:

AutoNumber data type is used to generate the next number automatically when a new record is added. It creates a unique number for each record. The value starts from 1 and is incremented by 1 in each record.

Yes/No:

This data type is used to store Boolean values. This field can contain one of the two values *i.e.*, Yes/No or True/False.

OLE Object:

OLE stands for **Object Linking** and **Embedding**. This data type is used to enter objects from other applications such as spreadsheet created in Excel or a picture file.

Hyperlink:

The hyperlink data type is used to store links to other files, documents or web pages in a field. A hyperlink address has up to four parts:

- The text that appear in the field.
- The path to a file or URL.
- A sub-address that is a location in the file or page in the website.
- The text that appears as the tool tip.

SECTION-III

Note: Attempt any TWO (2) descriptive answers (either from "C-Language" or from "Visual Basic") of the following questions.

(C-LANGUAGE)

7. What do you know about identifiers? Explain two types of identifiers. (8)

Ans **Identifiers:**

Identifiers are the names used to represent variables, constants, types, functions, and labels in the program. Identifiers in C can contain any number of characters, but only the first 31 are significant to C compiler. There are two types of identifiers in C: standard identifiers and user-defined identifiers.

Standard Identifiers:

Like reserved words, standard identifiers have special meanings in C, but these can be redefined to use in the program for other purposes, however, this practice is not recommended. If a standard identifier is redefined, C no longer remains able to use it for its original purpose. Examples of standard identifiers include printf and scanf, which are names of input/output functions defined in standard input/output library *i.e.*, stdio.h.

User-defined Identifiers:

In a C program, the programmer may need to access memory locations for storing data and program results. For this purpose, memory cells are named that are called user-defined identifiers.

C is a case sensitive language. This means that C compiler considers uppercase and lowercase letters to be distinct characters. For example, the compiler considers SQUARE_AREA and Square_Area as two different identifiers referring to different memory locations.

8. Write a program in C, which input year and print either it is leap year or not. (8)

Ans

```
#include <stdio.h>
#include <conio.h>
void main ( )
{  int year;
   printf ("Enter a year:");
   scanf (" % d ", & year);
if (((year % = = 0) && (year % 100 ! = 0)) || (year % 400 = = 0))
   printf (" % d is a leap year" , year);
else
   printf ("% d is not a leap year", year);
getch ( ) ;
}
```

9. Define while loop in C, write its syntax and explain its working. (2,2,4)

Ans **"While" Loop:**

While loop is the simplest loop of C language. This loop executes one or more statements while the given condition remains **True**. It is useful where the number of iterations is not known in advance.

Syntax:

The syntax of while loop is as follow:

```
while (condition)
```

{
    statement;
}

Condition:

The condition is given as a relational expression. It controls the iteration of loop. The statement is executed only if the given condition is **true**. If the condition is **false**, the statement is never executed.

Statement:

Statement is the instruction that is executed when the condition is **true**. Two or more statements are specified in braces { }. It is called the **body** of the loop.

The syntax for compound statements is as follow:

```
While (condition)
{
    Statement 1;
    Statement 2;
    .
    .
    Statement N;
}
```


Working of While loop:

First of all, the condition is evaluated. If it is **true**, the control enters the body of the loop and executes all statements in the body. After executing the statements, it again moves to the start of the loop and evaluates the condition again. This process continues as long as the condition remains **true**. When the condition becomes **false**, the loop is terminated. **While** loop terminates only when the condition becomes **false**. If the condition remains **true**, the loop never ends. A loop that has no end point is known as **infinite loop**.

For Example:

Write a program that displays "Pakistan" for five times using **while** loop.

```
#include <stdio.h>
```

```
#include <conio.h>
Void main ( )
{
Int n;
n = 1;
clrscr ( );
while (n <= 5)
{
Printf ("Pakistan\n");
n++;
}
getch ( );
}
```

Output:

Pakistan
Pakistan
Pakistan
Pakistan
Pakistan

OR

(Visual Basic)

7. Define errors. Explain types of programming errors. (2,2,2,2)

Ans Errors may occur during execution even if the program is designed very carefully. Visual Basic provides facilities to handle such errors. Each error in Visual Basic has a unique number and description attached to it.

Visual Basic includes a default Error Handler that handles the situation when an error occurs. The error handler performs the following steps in case of an error:

- It displays the error number and a short description of the error.
- It terminates the application.

Type of Errors:

The following types of errors can occur in VB programs:

- Syntax Errors
- Logical Errors

- Run-Time Errors

Syntax Errors:

The set of rules and regulations for writing programs in a programming language is known as syntax. Syntax error is a type of error that occurs when the user writes an invalid statement in code window. For example, writing wrong spelling of a keyword is a syntax error. Visual Basic displays a message when a syntax error occurs.

Logical Errors:

Logical errors occur when the programmer writes such statements that are correct by syntax but wrong by logic. Such statements may produce unexpected results in the program. For example, the programmer may have written a wrong formula to compute an answer. The formula will be executed without any error but will produce wrong results.

Run-Time Errors:

Run-Time errors occur during execution of the program. Such errors occur mostly due to invalid input by the user. For example, the programmer has written a statement to divide two numbers given by the user. If the number is zero, the statement will become invalid. So Visual Basic will displays an error message and terminate the application.

8. Write a program in VB, which input year and print either it is leap year or not. (8)

Ans

```
Dim A as Integer
A = Val (Text1. Text)
If A Mod 4 = 0 then
Text2. Text = 'LEAP YEAR"
Else
Text2. Text = "NON LEAP YEAR"
END If
```

9. Define while loop in Visual Basic, write its syntax and explain its working. (2,2,4)

Ans **While...Wend Loop:**

While loop is the simplest iterative structure of Visual Basic. This loop executes one or more statement while the given condition remains **True**.

Syntax:

The syntax of while…wend loop is as follow:

```
While condition
    Statement(s)
Wend
```

Working of While…Wend Loop:

First of all, the condition is evaluated. If it is true, the control enters the body of the loop and executes all statements in it. After executing the body, it again moves to the start of the loop and evaluates the condition again. This process continues as long as the condition remains true. The keyword **Wend** indicates the end of loop body.

For Example:

Write a program that prints "IT Series" five times on form using while…wend loop.

Program:

1. Start a new standard EXE project.
2. Place a command button on the form.
3. Double click the button and add the program code in its Click event.
4. Run the project and click the button.

How it Works:

The above example is a counter-controlled loop. It uses a counter variable n to control the iterations of the loop. The variable n is initialized to 1. When the condition is evaluated first time, the value of n is 1. The condition is true, so the control enters the body of the loop that contains two statements. The first statement prints "IT Series" on the form and the second statement increments the value of n by 1, making it 2. Then the control moves back to the condition. This process continues for five times. When the value of n becomes 6, the condition becomes false and the loop terminates.