



SLC Brush-Up Exam – 2011

Answer Key

Round: #3 Set: B

Group 'A' - [Fundamentals - 22 marks]

1. Answer the following question:

(5×2=10)

- a) Explain the different modes of data transmission.
- There are three modes for transmitting data from one device to another. They are:
- Simplex Mode:- In this mode, transmission can take place in only one direction. The television broadcast is an example of simplex mode transmission.
 - Half-duplex Mode:- In this mode, data can be transmitted in both directions, but only in one direction at a time. Handset and walky-talky are the examples of half-duplex mode transmission.
 - Full-duplex Mode:- In this mode, data can be transmitted in both directions simultaneously. Telephone system is an example of full-duplex mode transmission.
- b) What is meant by e-commerce? Name any two e-commerce sites.
- E-commerce is one of the important services provided by Internet. It is doing business online through the Internet. In another word, buying and selling goods through Internet is called e-commerce. E-commerce sites allow the user to search for specific products; look for certain features and compares prices.
The two e-commerce sites are www.muncha.com.np and www.amazon.com.
- c) What is a password? What should be done to protect the system from unauthorized access?
- A password is a secret word or phrase that gives a user access to a particular program or system. A password helps to protect the files and programs from being used by an unauthorized person. So, the unauthorized person does not able to change content of a file or use a file or a program if the password is set for the file or program is strong. In this way, data and software can be secured. To protect the system from unauthorized access password should be kept in the system which provides security to the system.
- d) What is computer virus? Name any two examples of antiviral software.
- Computer virus is a program, which replicates itself by making copies of itself without the user's knowledge. It is written by the programmer with the intent of destroying or damaging the data and programs residing in the computer system. It interferes the normal functioning of the computer.
The two examples of antiviral software are: i) Kaspersky ii) McAfee
- e) Write any two advantages and two disadvantages of multimedia technology.
- Advantages:
- It makes teaching learning easier in the classroom.
 - It makes easy to share views, ideas and thoughts among various people around the world.
- Disadvantages:
- It needs a multimedia computer set and techno man to prepare the multimedia presentation.
 - Very difficult to share through the Internet as the multimedia files takes very large space.

2. a) Perform the following Binary calculation:

(2×1=2)

- $(101) + (11) \times (11)$
➤ (11000)
- $(11010110) \div (1110)$
➤ (Quotient = 1111 Remainder = 100)

[Note: Students have to show the whole process to get full marks.]

b) Perform as indicated:

(2×1=2)

- $(10111011)_2$ into Octal
➤ $(273)_8$
- $(789)_{10}$ into Hexadecimal
➤ $(315)_{16}$

3. Select the correct answer:

(4×0.5=2)

- Internet connection is done using a PSTN telephone line, is called ----- connection.
i) ISDN ii) **Dial Up** iii) Satellite iv) Cable
- Which is the main source of multimedia system?
i) CD-ROM ii) Sound Card iii) Hard disk iv) **Computer**
- Device used to connect same type of network protocol.
i) NIC ii) **Bridge** iii) Gateway iv) Modem
- Connection of computer between two different countries.
i) LAN ii) MAN iii) **WAN** iv) CAN

4. Write the full form of the following: (4×0.5=2)
- CVT = Constant Voltage Transformer
 - SIM = Subscriber Identity Module
 - EMI = Electro Magnetic Interference
 - MBPS = Mega Byte Per Second
5. State True or False: (4×0.5=2)
- Bus topology requires more media than others topology. [False]
 - Cyber crime can be done by guessing the password too. [True]
 - Multimedia helps to develop creative ideas. [True]
 - A macro virus infects application programs usually with extension .BIN, .EXE, .COM etc. [False]
6. Give the appropriate technical terms of the following: (4×0.5=2)
- Another name of loop topology **Ring Topology**
 - The process of transferring data/file from Internet to the user's computer. **Downloading**
 - Software that protects computer system from computer viruses. **Anti-Virus Software**
 - The artificial environment created by computer technology to entertain user. **Virtual Reality**

Group 'B' - [Database Management - 10 Marks]

7. Answer the following question: (3×2=6)
- Define Data, information and database with example.
 - Data are the raw facts or figures which are processed and the processed data is information. A collection of data stored in a standardized format, designed to be processed, shared by different users is called database. Phonebook is an example of database.
 - Differentiate between sorting and filtering.
 - Sorting is the process of arranging the data either in ascending (A to Z) or descending order (Z to A) alphabetically or numerically whereas filtering is the process of narrowing the number of records according to the condition or the criteria we specified.
 - What is primary key? Why it is important to specify?
 - Primary key is one or more fields (columns) whose value or values uniquely identify each record in a table. A primary key does not allow Null values and must always have a unique value. A primary key is used to relate a table to foreign keys in other tables.
8. Give the appropriate technical terms of the following: (4×0.5=2)
- An alternative name for the field in data sheet. **Caption**
 - A piece of information about an object or individual. **Field**
 - The value automatically enters for the new record. **Auto Number**
 - Graphical interface for data entry. **Form**

9. Match the following: (4×0.5=2)
- | Group A | Group B |
|---------------------|-----------------------|
| a) Data Redundancy | (i) Error Message |
| b) Validation Text | (ii) Input Mask |
| c) Field Properties | (iii) Lookup Wizard |
| d) Table | (iv) Validation Rule |
| | (v) Limits the values |

Group 'C' - [Programming - 18 Marks]

10. a) What are relational operators? (1)
- Relational operators are used to compare any two values of similar types. For e.g. >, <, >=, <=, >, <, <> are relational operators used in QBASIC.
- b) Give brief description of C language. (1)
- C is a general-purpose computer programming language developed between 1969 and 1973 by Dennis Ritchie at the Bell Telephone Laboratories. C is structured programming language with powerful set of operators and has ability to extend itself by adding more functions to its library.
11. Write down the function of the following statements: (2×0.5=1)
- STATIC** - This statement is used to declare a static variable in which the value is preserved between the procedure calls. For e.g. **STATIC a,b**
 - RMDIR** - This statement is used to remove an empty directory. For e.g. **RMDIR "SLC"**

12. Write the output of the following program.

(2)

```
CLS
A = 50: B = 70
FOR X = A TO B STEP 5
  FOR Y = B TO X STEP -5
    PRINT Y;
  NEXT Y
  PRINT
NEXT X
END
```

➤ The output of the above program is:

```
70 65 60 55 50
70 65 60 55
70 65 60
70 65
70
```

[Note: The memory table should be shown to obtain full marks.]

13. Re-write the given program after correcting the bugs.

(2)

```
REM to display the binary equivalent of decimal number
DECLARE FUNCTION bin (x)
CLS
INPUT "Decimal Number "; n
PRINT "Binary Equivalent "; bin(n)
END
```

```
=====
FUNCTION bin (x)
WHILE x <> 0
  r = x MOD 2
  s$ = VAL(r) + s$
  x = x \ 10
LOOP
d = STR$ (s$)
bin = d
END FUNCTION
```

➤ REM to display the binary equivalent of decimal number

```
DECLARE FUNCTION bin (x)
CLS
INPUT "Decimal Number "; n
PRINT "Binary Equivalent "; bin(n)
END
```

```
=====
FUNCTION bin (x)
WHILE x <> 0
  r = x MOD 2
  s$ = STR$(r) + s$
  x = x \ 2
WEND
d = VAL(s$)
bin = d
END FUNCTION
```

14. Study the following program and answer the given questions.

(2×1=2)

```
REM To print the smallest number
CLS
READ H
FOR X = 1 TO 5
  READ N
  IF N >= H THEN
    H = N
  END IF
NEXT X
DATA 14,75,32,12,19,37
PRINT H
END
```

- a) Will the program display the smallest number? What will be the output?
 ➤ No, the program will not display the smallest number.
 The output will be 75.
- b) What will be the output of the above program, if the statement **H=N** is written as **N=H**?
 ➤ 14
15. a) Write a program to check whether the supplied number is divisible by 5 or not using a **SUB** procedure. (3)
- ```

➤ DECLARE SUB check (n)
CLS
INPUT "Type any number "; n
CALL check(n)
END
=====
SUB check (n)
r = n MOD 5
IF r = 0 THEN
 PRINT n; " is divisilbe by 5. "
ELSE
 PRINT n; " is not divisible by 5."
END IF
END SUB

```
- b) Write a program that asks any number and calculates its factorial using a **FUNCTION** procedure. (3)
- ```

➤ DECLARE SUB factor (n)
CLS
INPUT "Type any number "; n
CALL factor(n)
END
=====
SUB factor (x)
FOR i = 1 TO x
    IF x MOD i = 0 THEN PRINT i;
NEXT i
END SUB
  
```
- c) Write a program to display all the records from a sequential data file "records.dat". (3)
- ```

➤ DECLARE FUNCTION rev$(x$)
OPEN "records.dat" FOR INPUT AS #1
CLS
WHILE NOT EOF(1)
 LINE INPUT #1, n$
 PRINT n$
WEND
CLOSE #1
END

```

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