

SECTION A (10 Marks)

1. For each of the items (i) – (x) choose the correct answer from among the given alternatives and write its letter beside the item number.
- (i) The device that can eliminate the manual step of keying in the data is called a
- A key-to-disk machine
 - B optical scanner
 - C keypunch machine
 - D electronic register
 - E mouse.
- (ii) An impact printer gets its name by
- A having the same print quality as an electric typewriter
 - B transferring a pattern of dots on paper
 - C transferring a whole or partial character by striking the ribbon
 - D using heat to transfer an image onto the paper
 - E creating continuous character images using light.
- (iii) The following is **not** the function of the control unit:
- A To coordinate transfer of data to and from primary storage
 - B To change the sequence in which instructions are executed when directed to do so.
 - C To recognize data and to execute instructions
 - D To perform arithmetic operations
 - E To direct and to control input and output devices.
- (iv) An optical recognizer can read
- A magnetically encoded numbers
 - B any combination of numbers and letters
 - C bar codes in supermarkets
 - D electronically encoded patterns
 - E specially coded characters or patterns.
- (v) The following is a direct access storage device:
- A A tape
 - B A card
 - C A disk
 - D A printer
 - E A joystick.
- (vi) A programming language that uses normal sentences in English is called a
- A machine language
 - B first generation language
 - C procedure-oriented language
 - D natural language
 - E high level language.

(vii) Fundamental steps in developing computer programs and application software include all of the following except

- A maintenance
- B language selection
- C analysis and design
- D supervisor approval
- E implementation.

(viii) The REM statement is used to

- A document a program
- B reserve room in the computer's memory for subscripted variables
- C remember values that are assigned to LET statements
- D permit the use of matrix operations
- E skip one line before executing the next command.

(ix) When used in a PRINT statement, the colon (:) will

- A cause an error message
- B result in printing expressions, numbers and messages closer together
- C result in printing expressions, numbers, characters and messages in the next field.
- D cause the computer to skip one line before printing
- E result in printing null characters on the screen.

(x) Data can be entered directly into the computer system from a terminal when using the

- A TERM statement
- B ENTER statement
- C READ statement
- D LET statement
- E INPUT statement.

SECTION B (10 Marks)

2. Match the items in list A with the responses in list B by writing the letter of the corresponding response beside the item number.

List A

- (i) TAB
- (ii) LET
- (iii) Scripted variables
- (iv) Modem
- (v) Logical
- (vi) Structured design
- (vii) Problem definition
- (viii) Coding
- (ix) Coder
- (x) Technical design.

LIST B

- A Allows companies to electronically, store, rearrange and print key paragraphs
- B Example of first generation computer
- C Possible carrier with computer manufacturer
- D The use of a device to encode a transform data into digital codes
- E Used in BASIC program to represent lists or table numbers
- F Another name for a computer programmer
- G An error that will not result in an error message
- H A type of number that is only evenly divisible by itself
- I A hardware device that is used in data communication
- J A file organization method that involves storing logical records in a given sequence, usually based on key control field in the record
- K Will cause the values of the variable to be stored in computer memory
- L The activity of producing software in a formal project environment
- M Used to produce attractive output in a computer program
- N A program that combines separate modules into a one executable program
- O The overall purpose is to find the best possible way to develop software
- P Procedures and rules used to develop data communications software
- Q The step of application development where input requirements are determined
- R Rules that are used with a particular programming language
- S The process of writing the necessary instructions in a computer programming language
- T A type of implementation procedure.

SECTION C (40 Marks)

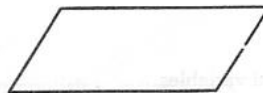
Answer **ALL** questions in this section.

3. What does each of the following flowchart symbols represent?

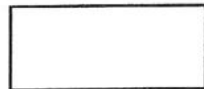
(a)



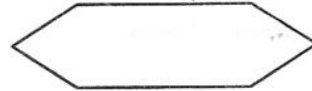
(b)



(c)



(d)



4. (a) What is the difference between an algorithm and a pseudocode?
- (b) When numbers are used in a BASIC program, commas should not be included (e.g. 1000 should not be written as 1,000). Why?
5. (a) Distinguish between an assembler and an interpreter as used in programming languages.
- (b) Explain two circumstances under which you would format a floppy diskette.
6. (a) (i) What is a Binary Coded Decimal (BCD)?
- (ii) Represent the decimal number 2003 as a BCD code.
- (b) (i) What is a hexadecimal number system?
- (ii) Convert the hexadecimal number EC to a decimal (base ten) number.
7. (a) Why can't we use zero (0) as a step value in the FOR and NEXT loops?
- (b) Correct errors in the following nested FOR/NEXT loop:

```

FOR I = 1 TO 5
    FOR J = Q TO R
        .
        .
        .
    NEXT I
NEXT J

```

- (c) What rules should be remembered when using nested FOR/NEXT loops?
8. What are the qualities of a good algorithm?
9. (a) Write a BASIC statement that will join A\$ and B\$ and produce C\$. If A\$ = JOSEPH and B\$ = MILENZO what will C\$ be equal to after this statement is executed?
- (b) What is the general format of the LET statement? Give one example.
10. (a) List down three program structures.
- (b) What is data?
11. Write down the output of the following program:

```

COUNT = 0
LIMIT = 3
ANAME$ = "ABDALLAH HAMIS"
DO UNTIL COUNT = LIMIT

    COUNT = COUNT + 1
    PRINT ANAME$
    PRINT

```

```
LOOP
PRINT "THE END"
END
```

12. (a) What are the functions of the main memory?
(b) Line numbers in a BASIC program serve two purposes. What are they?

SECTION D (40 Marks)

Answer **FOUR (4)** questions from this section.

13. (a) Write down the order in which arithmetic operators are evaluated. How are the operators at the same level operated? (4 marks)
- (b) Evaluate the expression $(4 * A / (22/7))^{1/2}$ where $A = 154$. (3 marks)
- (c) List down the three types of information processing systems. (3 marks)
14. (a) Dry run the following nested FOR/NEXT loop and write down the output:
- ```
10 FOR i = 1 To (3 * 4) STEP -4
20 FOR j = 1 To 2 STEP -1
30 PRINT i, j
40 NEXT j
50 NEXT i
```
- (6 marks)
- (b) (i) What is a variable? (1 mark)  
(ii) Differentiate a numeric variable from a string variable. (3 marks)
15. (a) What steps are followed in setting up a counter for loop control? (3 marks)
- (b) What input statements are available in BASIC? Explain the use of each statement. (4 marks)
- (c) What is the need of using RESTORE statement? (3 marks)
16. (a) What is the advantage of using arrays? (4 marks)
- (b) Write a BASIC program which prints the largest number in an array of 10 numbers. (6 marks)
17. (a) Development of a program can be broken down into six phases. State them. (6 marks)
- (b) Differentiate library functions from user-defined functions. (4 marks)
18. (a) Explain three types of errors which a programmer may encounter when preparing a BASIC program. (6 marks)
- (b) (i) What is an email? (1 mark)  
(ii) List two advantages and two disadvantages of the email. (3 marks)