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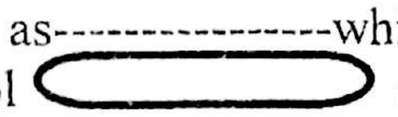
UNIVERSITY OF ABUJA
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
2017/2018 SECOND SEMESTER EXAMINATION
CSC102: PROGRAMMING IN BASIC

INSTRUCTION: ANSWER ALL QUESTIONS IN SECTION A AND TWO (2) FROM SECTION B

TIME: 2 HOURS **2 CREDIT UNITS**

SECTION A

1. A computer program can be defined as ----------while an algorithm is ----------
2. Two advantages of using a flowchart are---------- and ----------
3. BASIC programming language is a typical example of an interpreted language. [True / False] and Assembly language is an example of high level language [True / False]
4. BASIC is an acronym for---------- and the BASIC expressions for $Z = \frac{2XY^3+4AD}{16NG}$ is -----
5. ------- and ---- can be found in Visual Basic Development Environment
6. PRINT "Afrikom Computer School" will produce ----------While an example of a language translator is ----------
7. Two types of data types in Visual BASIC are -----and ----- Their examples of -----and --
8. Array can be defined as----------while A Function is ----------
9. The flowchart symbol  is used to ---------- while the BASIC expression for $K = xy\sqrt{r^2 - \theta^2}$ is ----------
10. Name$ is an example of -------- Variable. While Sum is an example of ---------- Variable
11. The two types of Algorithm are ----------and ----------
12. Two controls found in Visual BASIC toolbox are ---------and ----------
13. PRINT LCASE$("LEARNING IS FANTASTIC ") Will produce------. And PRINT LEFT$("The land is green", 8) will produce --------
14. In flowcharting an input/output symbol is represented by------While a decision symbol is represen ed by ----------
15. The two types of errors in programming are ---------- and ----------
16. Evaluating B= 5*(4-2)+15/3 gives ----------
17. The LET statement in BASIC is used for ---------- while the CLS statement is for ------
18. The command button in Visual Basic is used for --------- and a Label is used for ---------
19. Types of constant in BASIC are ----------and ----------
20. Four (4) BASIC library functions are--------,----------,----------.and---------
21. A subroutine is a ----------while Looping is ----------
22. Two selection/decision statements are---------- and two Looping statements are----------
23. ----------will be the output of the following code? 10 REM EXAMPLE OF HOW A COMMA 20 REM AFFECTS THE OUTPUT 30 REM PRINT STATEMENT 40 PRINT "4 + 7 = ", 50 PRINT 4 +760 PRINT END
24. The BASIC expression for $(a+b)^3$ is ---------- and $S = \frac{ab^2 - 3xy^{1/2}}{4df + g}$ is ----------
25. Evaluating A=7^(4-1)*8-12 gives----------

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SECTION B ATTEMPT ANY TWO (2) QUESTIONS

1a. The economic order quantity for a part is given by the formula $EOQ = \sqrt{\frac{2dc}{us}}$. Write an algorithn and construct a flowchart to calculate the EOQ.

b. **W**rite a program in BASIC that access five data value from within the program into an Array of ize equal to the number of the of the data value.

2a. Categorize the following variable names as either valid or invalid variable
i. zest ii. PRINT iii.3av iv. Total v. Name$ vi. READ vii. Sui 3
viii. %sum

b. Identify errors or discrepancies in the following set of statements

i.
```
10 PRINT "Type in 3 Numbers"
20 INPUT A,B
30 LET Sum =A+B$+C
```

ii.
```
100 PRINT " What is your Name"
110 INPUT N
120 OUTPUT N$
```

iii.
```
190 PRINT " Get Account  Balance
200 INPUT A,B$
300 LET Balance=A-B
400 PRINT Bal
```

3.a Give Five (5) BASIC statements and their uses

b. A salesman receives a basic salary plus a commission of 10% on his total sales, he also pays an i come tax of 5% of basic salary. Write a program in BASIC that accept the salesman's name, total sale and the basic salary and compute the commission, income tax, gross pay and net pay. [Hint: gross pa is basic salary + commission and net pay is gross pay --Income tax]

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CSC 102 EXAM P&Q

SECTION A (SOLUTIONS) BY TJ

(1) A compute program can be defined as set of instructions given to computer to perform a specific task usually written in programming language

An algorithm is the series of steps to solve a problem.

(2) Two advantages of using a flowchart are:

(a) Effective Analysis

(b) proper documentation

(3) BASIC programming language is a typical example of an interpreted language [True]

and

Assembly language is an example of high level language [false]

(4) BASIC = Beginners All-Purpose Symbolic Instruction Code.

Z = (2 * X * Y ∧ 3 + 4 * A * D) / 16 * N * G

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(5) Text box and Picture box can be found In Visual Basic Development Environment.

(6) PRINT " Afrikom Computer School " will produce Afrikom Computer School.

An example of a language translator is Interpreter.

(7) Two types of data types in Visual BASIC are primitive types and non-primitive types

Example of primitive data type;

(a) Integer (int)

Example of non-primitive data type;

(a) string

(8) Array can be defined as a data structure consisting of a collection of elements of the same data type.

A function is a group of statements that perform a specific task.

(9) The flowchart symbol  is used to indicate the beginning and the end of a flowchart.

BASIC expression for $k = xy\sqrt{r^2 - \theta^2}$ is:

```
K = X * Y (SQRT(R ^ 2 - T ^ 2)
```

(10) Name $ is an example of String Variable
Sum is an example of Numeric Variable.

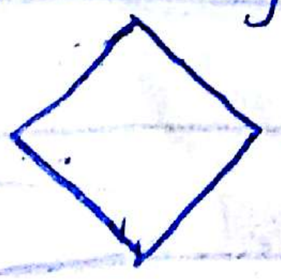
(11) Two types of Algorithm are flowchart and pseudocode

(12) Two controls found in Visual BASIC toolbox are textBox and Picture Box

(13) PRINT LCASE $("LEARNING IS FANTASTIC")
will produce learning is fantastic.
PRINT LEFT $("The land is green", 8) will produce The land i.

(14) In flowcharting, an input/output symbol is  .

Decision symbol is represented by;



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(15) Two types of errors in programming are Logical errors and Syntax errors.

(16) Evaluating B = 5 * (4-2) + 15/3 gives;

B = (4-2) * 5 + 15/3

B = 2 * 5 + 15/3

B = 10 + 15/3

B = 10 + 5

B = 15

(17) The LET statement in ~~Visual~~ BASIC is used to assign the value of an expression to a variable.

CLS statement is used to clear the screen

(18) Command Button is used to perform a task when the user clicks the button

a label is used for displaying text

(19) Types of constant in BASIC are Numeric constant and string constant.

(20) ~~FOUR~~ BASIC library function are; ABS, COS, ~~TAN~~ SIN, TAN.

(21) A subroutine is a sequence of program instructions that ~~performs a spec~~ does not produce a return value assigned to a variable

Looping is the execution of a statement or group of statements multiple times -

(22) Two selection / decision statements are; IF statement and IF-ELSE statement

(~~23~~) Two looping statements are; ~~for~~ Loop statement and while statement

(23) BASIC CODE OUTPUT IS:

4 + 7 = 11

(24) $(a+b)^3 = (a+b) \wedge 3$

$S = \frac{9b^2 - 3xy^{1/2}}{4df + g}$ will gives;

S = (9 * b ∧ 2 - 3 ** x * y ∧ 1/2) / 4 * d * F + g

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(25) Evaluating $A = 7\wedge(4-1) * 8 - 12$ gives;

~~A = (4-1)~~

A = 7∧(3) * 8 − 12

A = 343 * 8 − 12

A = 2744 − 12

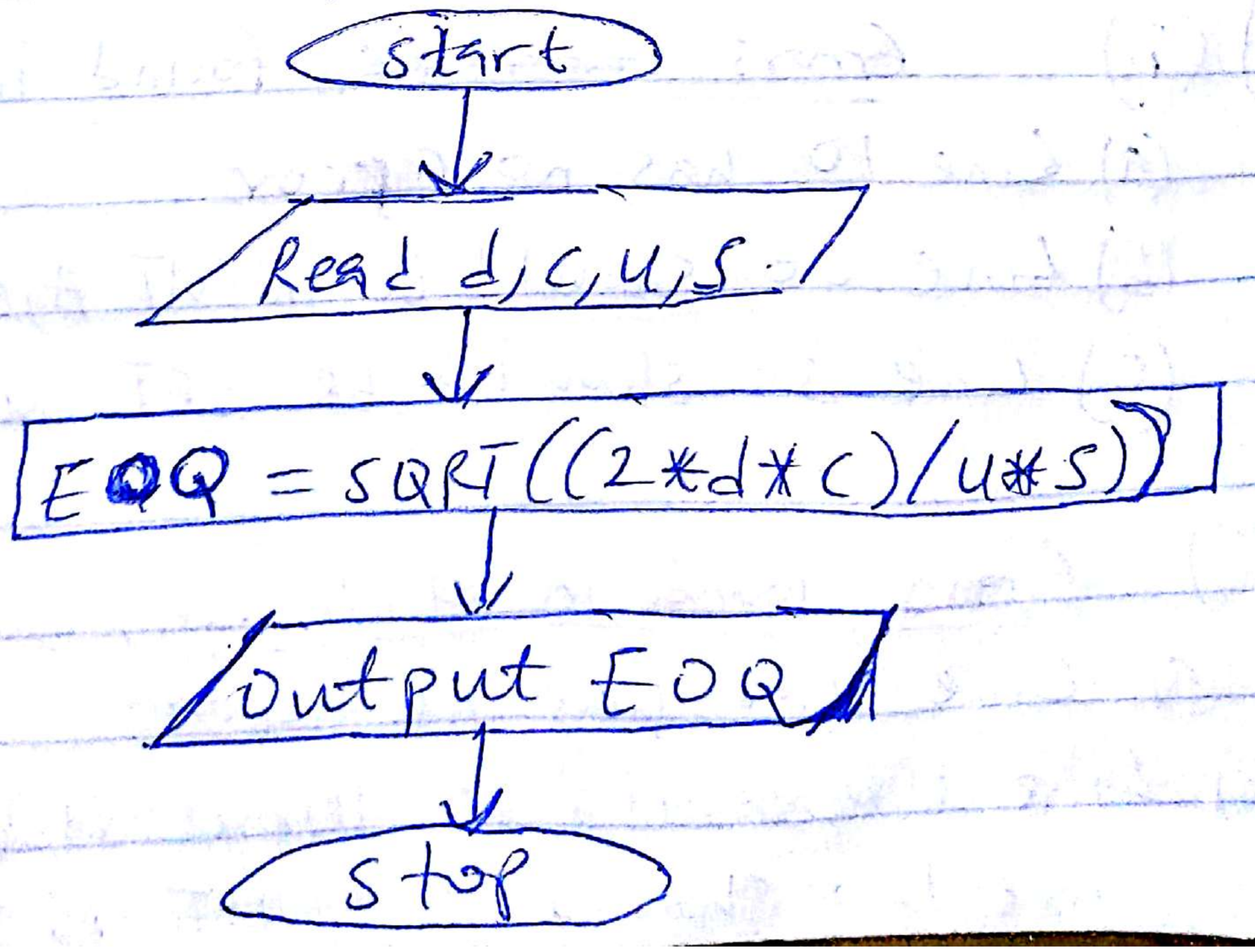
A = 2732

SECTION B (SOLUTIONS) OF CSC 102.

(19) Algorithm code;

10. Start.
20. Read d, c, u, s
30. EOQ = SQRT((2*d*c)/u*s))
40. Output EOQ
50. Stop.

flowchart code;



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(1b) BASIC code;

```
10. start
20. DIM array[5]
30. Data 1,2,3,4,5
40. LET array[5] = 1,2,3,4,5
50. END
```

(2a)

Valid Variable	Invalid Variable
(i) zest	(ii) PRINT
iv) Total	(iii) 3av
(v-) Name $	(vi-) READ
(vii-) Sum3	(viii-) %sum

(2b) (i-) Errors ~~identified~~ found in (2bi) code;

(a) Line 10 has no error
(b) Line 20 should be INPUT A,B, C
(c) Line 30 should be LET Sum = A+B+C

(2b) (ii-) Errors found in (2bii) code;

(a) Line 100 has no error
(b) Line 110 should be INPUT N$
(c) Line 120 should be PRINT N$

(2b)(iii.) Errors found in 2b(iii) code;

(a) Line 190 should be PRINT "~~G~~et Account Balance"

(b) Line 200 should be INPUT A, B

(c) Line 300 has no error

(d) Line 400 should be PRINT Balance

(3a) BASIC statement And their Uses;

(1) PRINT — It provides output on the screen

(2) REM — Uses for adding comment in the program

(3) LET — uses ~~to~~ assign value to a variable.

(4) CLS — uses for clearing the screen.

(5) END — uses for stopping the program.

(3b) BASIC code;

```
10. CLS
~~20 INPUT SALESMAN~~
20. INPUT NAME$
30. INPUT TOTALSALES
40. INPUT BASICSALARY
50. LET COMMISSION = (10/100) * TOTALSALES
```

```
60. LET INCOMETAX = (5/100) * BASICSALARY
70. LET GROSSPAY = BASICSALARY + COMMISSION
80. LET NETPAY = GROSSPAY - INCOMETAX
90. PRINT "COMMISSION = "; COMMISSION
100 - PRINT "INCOMETAX = "; INCOMETAX
110 - PRINT " GROSSPAY = "; GROSSPAY
120. PRINT " NETPAY = "; NETPAY
130. END
```

Thats all the solutions to the exam past question of CSC 102

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