INTI International University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session	:	**APRIL 2018**
Programme	:	Diploma In Information And Communication Technology (DICTN) Diploma In Information Technology (DITN) Diploma In Mechanical Engineering (DMEN)
Course	:	**ICT1101: Program Logic Formulation**
Date of Examination	:	July 30, 2018 (Monday)
Time	:	8:00am – 10:00am Reading Time : Nil
Duration	:	2 Hours

Special Instructions :

SECTION A: Answer **ALL** multiple choice questions.

SECTION B: Answer any **THREE (3)** essay questions.

IMPORTANT NOTE : **THIS PAPER SHOULD NOT BE TAKEN OUT OF THE EXAMINATION HALL**

Materials permitted : Nil

Materials provided : OMR Sheets

Examiner(s) : **Koo Lee Chun**, Yogeswari Suppiah and Teng Wei Jian

Moderator : Pawani T Rasaratnam

*This paper consists of **9** printed pages, including the cover page*

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY PROGRAMME (DICTN)
DIPLOMA IN INFORMATION TECHNOLOGY PROGRAMME (DITN)
DIPLOMA IN ELECTRONIC AND ELECTRICAL (DEEI)
DIPLOMA IN MECHANICAL ENGINEERING PROGRAMME (DMEN)

ICT1101: PROGRAM LOGIC FORMULATION
FINAL EXAMINATION: APRIL 2018 SESSION

SECTION A: 40 marks

Instruction: This section consists of **TWENTY (20)** questions. Answer **ALL** questions in the OMR sheet provided. All questions carry equal marks.

1. Which of the following is **False** about programming languages?

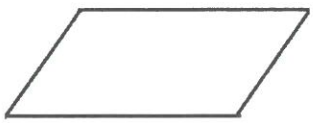
   A. High-level language must be translated into machine language before execution.
   B. Assembly language is the native tongue of computers.
   C. Machine language represents data and operations in binary strings.
   D. None of the above

2. Which of the following statement is **valid**?

   I. With logic error, the program can be executed but produced incorrect result
   II. An interpreter scans the whole program and translate into machine language at once.
   III. A variable is a memory location that is given a name.
   IV. A variable may only change its value when the code is changed.

   A. I and III Only
   B. II and IV Only
   C. I, II, III Only
   D. I, II, III and IV

3. In a flowchart, what is the function of the following symbol?



   A. To indicate the start or end of a module
   B. To indicate a processing block
   C. To indicate input to and output from the computer memory
   D. To indicate a decision point

9. A _____ is a variable that is used to keep track of the number of items, people, cars and so on as part of a solution.

   A. Accumulator
   B. Indicator
   C. Counter
   D. Code

10. Which of the following statements about Global Variable is ***Invalid***.

   A. Global variables and local variables are not allowed to have the same name.
   B. A global variable can be accessed by all modules.
   C. The use of return values and parameters are not necessary since the global variable is accessible by all.
   D. Global variables are defined outside of any individual module.

11. A _____ is a document/table that is used to keep track of the variables used in a program. It lists all the variable names, data types and module in which they are found in among other useful information.

   A. Variable Dictionary
   B. Data Dictionary
   C. Data Table
   D. Variable Table

12. Which of the following has Invalid logic ?

   A. Display payment
      payment = price * quantity

   B. Read salary
      newSalary = salary * 1.05
      display newSalary

   C. Total = Total + 1
      Display Total

   D. Read base
      Area = 1/2 * base * height
      Display Area

13. The diagram below illustrates which type of logic structure?

```
If x < 55 Then
   Charge = 7
End-if
If member = 'y' Then
   Charge = charge * 0.8
End-if
```

   A. Positive logic
   B. Negative logic
   C. Case logic
   D. Straight-through logic

17. Determine the output for the following algorithm :

```
Loop : counter = 0 to 4 step 2
   num = counter ^ 2
Loop-end : counter
Display num
```

A. 16
B. 0 4 8
C. 0 4 16
D. 0 1 4 9 16

18. Given the below algorithm:

```
X = 10
WHILE X >= 5
   DISPLAY "A"
   X = X - 1
WHILE-END
```

Which of the following statements are True?

A. This is an example of automatic counter logic structure
B. X value is increasing throughout the program
C. Total of 5 times repetition for the while body.
D. The final value of x is 4

19. A (n) _____ provides a graphical representation of an algorithm.

A. IPO Chart
B. Problem Analysis Chart
C. Structure Chart
D. Flowchart

20. Which of the following is(are) **INVALID** Computer expression ?

I. 2A + D
II. A * B ^ C
III. (A+B)(C+D)
IV. 5 MOD C

A. I and III only
B. II and IV only
C. I, II and IV only
D. I, II, III and IV

Question 3

a) Discuss **TWO (2)** differences between a call-by-value parameter and a call-by-reference parameter.

(6 marks)

b) Draw a coupling diagram for the following problem:

Write the ***readData*** module to read loan amount, down payment, period and monthly salary.

Write the ***calcInstallment*** module to calculate the monthly installment based on loan amount, down payment and period.

Write the ***getLoanStatus*** module to determine the loan approval status by comparing monthly installment and monthly salary.

Write the ***getReport*** module to display the loan approval status and monthly installment (if loan is approved) .

(9 marks)

c) The following is an algorithm of a Automatic-Counter Loop to calculate the average test score of a class of 30 students. Convert the algorithm into a While/WhileEnd Loop. (In algorithm)

```
SumScore = 0
Loop: Counter = 1 TO 30
        Read Score
        SumScore = SumScore + Score
Loop-End: Counter
AverageScore = SumScore / (Counter-1)
Print AverageScore
```

(5 marks)

Question 4

a) Discuss **THREE (3)** differences between while/while-end loop and repeat/until loop. Provide an example for each.

(8 marks)

b) Provide an example that you will only able to use decision logic structure rather than case logic structure to solve the problem.

(2 marks)