SLIATE
SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION
(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Information Technology
First Year, First Semester Examination – 2018
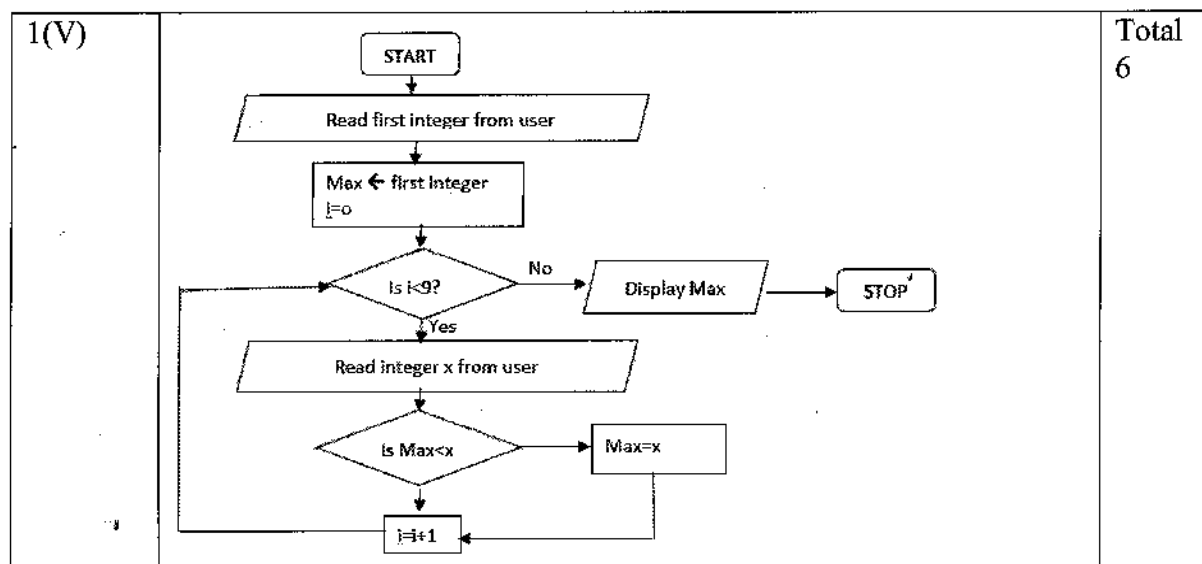## HNDIT 1103 - Structured Programming

Instructions for Candidates:	No. of questions : 06
Answer five (05) questions only	No. of pages : 05
	Time : 03 Hours

Marking Scheme

Question 1

Question No	Expected Answer	Marks
1(I)	must be precise (unambiguous) must be effective must have a finite number of instructions execution must always terminate **Any of two above (1 mark each)**	Total 2
1(II)	Sequence　　　Selection　　　Repetition 	Total 3
1(III)	All the source programs should be converted into their machine language before the execution process. Language translators are used to translate source program to their machine language. Types of translators are: **compiler, interpreter and assembler.**	Total 4
1(IV)	a) True b) False c) False d) False e) True	Total 5

1(V)		Total 6

Flowchart:
- START
- Read first integer from user
- Max ← first integer / i=0
- Is i<9? — No → Display Max → STOP
- Yes → Read integer x from user
- Is Max<x → Max=x
- i=i+1

Question 2

Question No	Expected Answer	Marks
2(I)	Header that defines input /output streams	Total 2
2(II)	10 It's going to compute Value of b is 11	Total 3
2(III)	Main →main 1$value → 1, can't be used as the first character of an identifier >> should use with cin /t should change to \t	Total 4
2(IV)	a) 20 b) 27 c) 1 d) 9 e) False/0	Total 5

2(V)	```cpp
	#include <iostream>
	 using namespace std;
	int main() {
	float basic_salary,net_Salary;
	const float EPF_RATE=0.1;
	const float ETF_RATE=0.03;
	cout<<"Enter basic salary: ";
	cin>>basic_salary;
	net_Salary=basic_salary- (basic_salary*EPF_RATE+basic_salary*ETF_RATE);
	cout<<net_Salary;
	return 0;
	}
	``
		Total 6

Question 3

Question No	Expected Answer	Marks

3(I)	**If-else**
	If(condition){
	  //statement/s;
	}
	Switch
	switch(variable){
	  case 1: statement ;break;
	  case 2: statement; break;
	  default: statement;
	}
		Total 2

3(II)	It can be used instead of multiple if statements	Total 3

3(III)	int main ( ){
	int value;
	cout<<"Insert an Integer ";
	cin>>value;
	if(value%2==1)
	     cout<<"Odd Number";
	else
	     cout<<"Even Number";
	return 0;
	}
		Total 4

3(IV)	int main ( ){
	int total_Marks;
	cout<<"Insert Total marks : ";
	cin>>total_Marks;
	if(total_Marks>250)
	     cout<<"EXCELLENT";
	else if(total_Marks>200)
	     cout<<"Good";
	else if(total_Marks>150)
	     cout<<"AVERAGE";
	else
	     cout<<"BAD";
	return 0;
	}
		Total 5

3(V)	a) 30
	b) Wednesday
	   Thursday
	   Friday
		Total 6

Question 4

Question No	Expected Answer	Marks
4(I)	Yes, In Post Test loop, the condition is at the bottom of the loop.	Total 2
4(II)	For (initialization Statement; condition; increment/decrement) { // codes }	Total 3

4(III)	In while loop, if the condition is true then only statements in that loop will be executed. In do while loop statements within the do block are always.executed at least once. In while loop, condition is tested at the beginning of the loop. In do while loop, condition is tested at the end of the loop	Total 4

4(IV)	```cpp
	int main(){
	int sum=0;
	for (int i=1;i<=50;i++){
	        sum=sum+i;
	}
	cout<<sum;
	return 0;
	}
	``
		Total 5

4(V)	**a)**
	``cpp
	int main ( ){
	for(int i = 1; i <= 5; ++i)
	    {
	        for(int j = 1; j <= i; ++j)
	        {
	            cout << "* ";
	        }
	        cout << "\n";
	    }
	return 0;
	}
	``
	b)
	``cpp
	int main(){
	int value=1;
	for (int i=1;i<=12;i++){
	        cout<<"5"<<"X"<<i<<"="<<5*i<<endl;
	}
	return 0;
	}
	``
		Total 6

Question 5

Question No	Expected Answer	Marks
5(I)	a) An array is a data structure which allows a collective name to be given to a group of elements which all have the same type b) double values[][]; c) double values[3][2]={{6.5,7.5},{3.5,8.5},{2.5,9.5}};	Total 1 Total 2 Total 2

5(II)	a) Ordinary variables are used to store data and pointer variables are used to store the location/address of other data
	b) int x=120;
	c) int* y;
	   y=&x;
		Total 2
		
		Total 1

		Total 2

5(III)	a) Structure is a set of variables of different data types under a single name
	b) struct Books
	  {
	    char title[50];
	    char author[50];
	    float price;
	  };
		Total 2
		
		Total 2

5(IV)	a) 5
	   10
	   15
	   20
	   25
	
	b) 100
	   80
	   150
	   90
		Total 6

Question 6

Question No	Expected Answer	Marks
6(I)	Functions are used to define a specific task	Total 2
6(II)	passed by value, which means that the function makes a copy of each parameter which is passed to it, and the original data is unaffected. pass by reference syntax, which allows the actual variable rather than a copy to be passed to a function	Total 3
6(III)	Variable type of v2 is missing. Function return type is void therefore return statement should be removed.	Total 4
6(IV)	50 50	Total 5

6(V)	```float calInterest(float loan_Amount) {```
	``` float interest_Rate=0.1;```
	``` float loan_Interest=loan_Amount*interest_Rate;```
	``` return loan_Interest;```
	``` }```
	```int main ( ){```
	``` float amount;```
	``` cout<<"Input loan amount: ";```
	``` cin>>amount;```
	``` float value=calInterest(amount);```
	``` cout<<"Loan amount is : "<<amount<< endl<<"Loan interest is: "<<value;```
	``` }```
		Total 6