Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BIT 10303
PROGRAMME	:	1 BIT / 2 BIT
EXAMINATION DATE	:	DECEMBER 2015 / JANUARY 2016
DURATION	:	3 HOURS
INSTRUCTION	:	A) ANSWER **ALL** QUESTIONS. B) PLEASE WRITE YOUR ANSWERS IN THIS QUESTION BOOKLET.

THIS QUESTION PAPER CONSISTS OF **ELEVEN (11)** PAGES

Q1 (a) State the difference between `for` loop and `while` loop.

(5 marks)

Answer:

(b) Draw a flowchart to display all integers from `-11` to `-20` using `for` loop.

(5 marks)

Answer:

(c) Write the program code for answer in **Q1(b)**.

(5 marks)

Answer:

(d) Answer **Q1(d)(i) – Q1(d)(iv)** based on Figure **Q1(d)**.

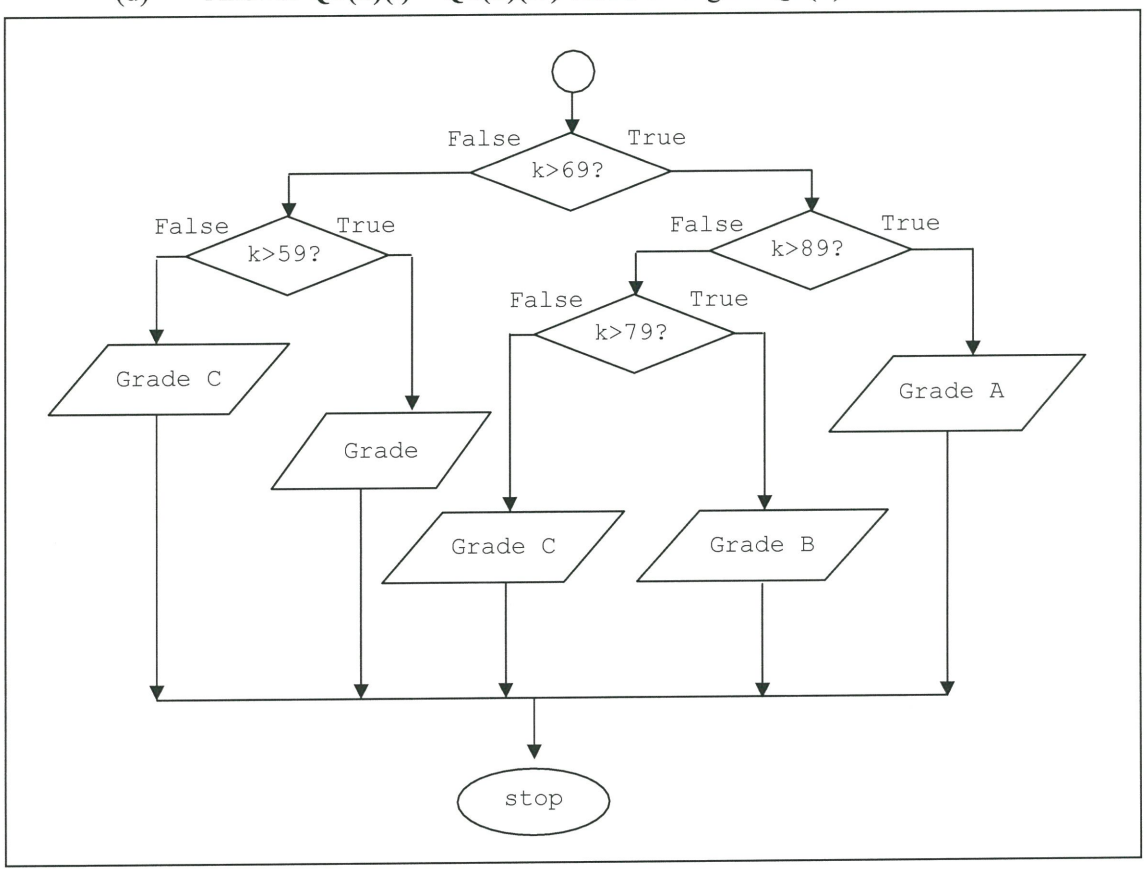

FIGURE Q1(d)

(i) How many conditions involved to obtain grade `C`?

(2 marks)

Answer:

(ii) What are the changes to be made in the flowchart if `'k > 79?'` were changed to `'k <= 80?'`?.

(3 marks)

Answer:

(iii) When a grade is input for variable `k`, how many possible different paths.

(2 marks)

Answer:

(iv) How many paths required at any one time for the control of execution?

(3 marks)

Answer:

Q2 (a) Determine the output for Figure **Q2(a)**. (5 marks)

```
int a[5] = {3, 7, 4, 9, 6};
      for(i = 0; i <= 4; i = i + 1}
      printf("%d\t", a[4 - i]);
```

FIGURE Q2(a)

Answer:

(b) Explain the difference between `float` and `double` data type. (5 marks)

Answer:

(c) Initialize an array with elements of `3, 7, 4, 9,` and `6`. Write a program to display the elements which are greater than 5. The program should also display the number of elements greater than 5.

(10 marks)

Answer:

(d) Identify errors in Figure **Q2(d)**. For each error suggest a solution.
(10 marks)

```
#include<stdio.h>
#include<string.h>
void modify(struct emp*);
struct emp
{
    char name[20];
    int age;
};
int main()
{
    struct emp e = {"Sanjay", 35};
    modify(&e);
    printf("%s %d", e.name, e.age);
    return 0;
}
void modify(struct emp *p)
{
     p ->age=p->age+2;
}
```

FIGURE Q2(d)

Answer:

Q3 Answer **Q3(a) - Q3(c)** based on Figure **Q3**.

```
The manager of a land surveyor company decides to develop a
payroll system for his staff. The system should contain
information about all staffs, departments and their salary.
```

FIGURE Q3

(a) Create a structure for employee and department. A department structure should store department manager, department staff, and profit. An employee structure should store employee's name, his salary, hiring date and department.

(5 marks)

Answer:

(b) Write two functions namely `GetData()` and `FindAvg()`. Function `GetData()` is designed to collect employee's information as such in **Q3(a)**. `FindAvg()` function will receive one array of type struct `Employee` and the size of the array. `FindAvg()` will then return those employees' average salary.

(10 marks)

Answer:

(c) Create a `main` function to calculate employee's average salaries. Use looping control structure to read a series of employee's salary. Call the functions created in **Q3(b)**.

(10 marks)

Answer:

Q4 (a) Determine whether each statement in Table **1** is valid or invalid based on the declarations in Figure **Q4(a)**.

(5 marks)

```
int i, j[5] = {4, 5, 6, 7, 8}, *ptr1 = &j[0], *ptr3;
float x[5] = {4.0, 5.0, 6.0, 7.0, 8.0}, *ptr2;
```

FIGURE Q4(a)

Table 1: Pointer Statement

No	Statement	Answer
(i)	`ptr1 = j + 1;`	
(ii)	`ptr2 = ptr1;`	
(iii)	`ptr1 = j[1];`	
(iv)	`ptr1 = 2;`	
(v)	`i = ptr1;`	

(b) Answer **Q4(b)(i) - Q4(b)(ii)** based on the scenario in Figure **Q4(b)** and Table **2**.

A florist desires to develop a simple flower bouquet delivery system. The system should contain information about all the flowers in the shop. The system reads from a file containing information about the flowers (such as flower's name, price, quantity, delivery date, and receiver for order).

FIGURE Q4(b)

Table 2 : Data for Flower Information

Flower name	Price	Quantity	Ocassion	Quality
Lily	RM150.90	2	Convocation	Top Rated
Lavender	RM120.00	3	Birthday	Limited Edition

(i) Construct a program segment to write the data in Table **2** into a file called `flower.dat`.

(10 marks)

Answer:

(ii) Construct a program segment to read data from the file `flower.dat`.

(5 marks)

Answer:

- END OF QUESTION -