



NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
JUNE/JULY EXAMINATION

COURSE CODE: CIT732

COURSE TITLE: Programming in PASCAL (3 units)

TIME ALLOWED: 2½ hrs

INSTRUCTION: Answer any five (5) questions. Each question carries 14 marks

QUESTION 1

- a. Write a program that takes value of the sides a triangle, and then tells the type of triangle it is.
(10 marks)
- b. Briefly define the following terms:
- | | | | | |
|--------------|-----------------|-----------------------------|-----------|---------------|
| i. Variables | ii. Linked list | iii. User defined variables | iv. Array | (1 mark each) |
|--------------|-----------------|-----------------------------|-----------|---------------|

QUESTION 2

- a. Write a program to input a list of m integers and output the largest. (10 marks)
- b. What is the output of the following programs?
- i. Program Nice;
- ```
uses wincrt;
var i: integer;
Procedure (1(var i : integer));
Begin
 i:=3;
 write (i:3)
End;
BEGIN
i:=1;
write (i:3)
C1(i);
Write (i:3);
END
```
- (2 marks)
- ii. Program Nice2;
- ```
uses wincrt;
var i:integer;
procedure (2(i:integer);
Begin
    i:=i+2;
    write (i:3);
End;
Procedure (3(i:integer);
Begin
    i:=i+3;
    C2(i);
    Write (i:3);
End;
```

BEGIN

i:=1;

C2(i);

C3(i);

Write (i:3)

END.

(2 marks)

QUESTION 3

- a. Write a program to output addition of all prime numbers between arbitrary integers X and Y input by the program users.
(Note: Program should reject negatives and Y must be greater than X.) (10 marks)
- b. What is recursion? (2marks)
- c. Write the syntax for a case structure in Pascal. (2marks)

QUESTION 4

- a. Write a program to input a line of text and output it in reverse order. (10marks)
- b. List and explain two properties of Pascal as a High Level language. (4 marks)

QUESTION 5

- a. State and write the syntaxes of any five control structure in PASCAL. (10 marks)
- b. Write the syntaxes for declaring the following
- i Enumerated type data (1mark)
 - ii Arrays (1mark)
 - iii Records (2mark)

QUESTION 6

- a. Write the Pascal representation of the expression below
- $$y = \left\{ \frac{V^{(1/2)} - N^2}{(V^2 + N^2)^2} \right\}^2$$
- (2 marks)
- b. Write a program to re-arrange a number of input numbers in ascending order. (9 marks)
- c. Distinguish between local variables and global variables

QUESTION 7

- a. Write a program to compute factorials using the principle of recursion. (8marks)
- b. Write the Pascal representation of the expression:
If $Y = \frac{1}{2} \text{Abs}(\sqrt{a \log b - x^2/2})$ (2 marks)
- c. Assuming arbitrary values for x, a and b in question (7b) above, is Y positive or negative? Why? (2 marks)