



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS**  
**SCHOOL OF SCIENCE AND TECHNOLOGY**  
**MAY/JUNE 2012 EXAMINATION**

CIT 632          Programming in PASCAL

*Time Allowed:*          2½ hrs

*Marks:* 70

*Instruction:* Answer any five (5) questions

1a) Differentiate between the following: (6 marks)

- i. A Text File and a Data File.
- ii. An Array and a Record.
- iii. A Pointer and a Variable

b) Let "graduateFile" be a Text File. Describe how to perform the following operations on the graduateFile. (8 marks)

- i. Open a text file
- ii. Read from a text file
- iii. Detecting the end of line
- iv. Detecting the end of file

2)

FILE 1

Adams	Math	123
Davies	Computing	345
Evans	Geography	876

FILE 2

Bates	Science	438
Holmes	Computing	111

FILE 3

Adams	Math	123
Bates	Science	438
Davies	Computing	345
Evans	Geography	876
Holmes	Computing	111

File 1, 2, 3 are sorted files with the same format. File 3 is the result of merging File 1 and File 2. Write a Pascal program that will read in 2 file (say file A and file B) of similar format and produce a third sequential file

containing contents of file A and file B in an ordered pattern. The file format is Name, Department and Extension. (14 marks)

3a) Draw the flowchart symbols corresponding to the following operations: (5 marks)

- i. Terminal symbol
- ii. Action symbol
- iii. Decision symbol
- iv. Input/output symbol
- v. Connector symbol

b) Draw a Flowchart and Pseudocode program to calculate the average of any three numbers. (6 marks)

c) List the three levels of programming language. (3 marks)

4a) Using WHILE...DO, write a Pascal program that takes 10 students grades as input and processes the total and average of the grades. Output your results to the console. (6 marks)

b) Differentiate between variables and constants. (3 marks)

c) Name 5 data types in Pascal (5 marks)

5a) Describe the output that will be generated by the Pascal program below:

```
Program giveOutput;
uses wincrt;
VAR i, X: INTEGER;
BEGIN
  i := 0;
  X := 0;
  WHILE i < 20 DO
  BEGIN
    IF i MOD 5 = 0 THEN
    BEGIN
      X := X + i * i;
      WRITELN( ' X = ', X );
    END;
    i := i + 1;
  END;
  WRITELN( ' X = ', X);
END.
```

(5 marks)

b) A college offers a course that prepares students for the state licensing exam for real estate

brokers. Last year, 10 of the students who completed this course took the exam. The college wants to know how well its students did in the exam. You have been asked to write a pascal program to summarize the results. You have been given a list of these 10 students. Next to each name is written a 1 if the student passed the exam or a 2 if the student failed.

Your program should analyze the results of the exam as follows:

- i. Input each test results (i.e. a 1 or a 2).
- ii. Count the number of test results of each type
- iii. Display a summary of the test results indicating the number of students who passed and the number who failed.
- iv. If more than 8 students passed the exam, print the message "Raise tuition". (9 marks)

- 6a) Differentiate between Function and Procedure. (3 marks)
  - b) Differentiate between Formal parameters and actual parameters. (3 marks)
  - c) Write a Pascal program that receives a Temperature value as input and converts it to Fahrenheit or Celcius scale base on user request. {use CASE structure}. (8 marks)
- 7) Write a Program that reads 2 Dimensional matrices (say A & B) of M x N. Your program will compute the result matrix C[M,N] to the console {use procedures explicitly} (14 marks)