



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
OCTOBER, 2019 EXAMINATIONS

COURSE CODE: CIT736
COURSE TITLE: COMPUTER PROGRAMMING
CREDIT UNIT: 2
TIME ALLOWED: 2 HOURS
INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER THREE QUESTIONS

- 1a (i) Expound on the concept of a computer program? **(3 marks)**
(ii) Interpret the description of a computer language being machine dependent? **(3 marks)**
b) Differentiate between caching and buffering programming techniques **(4 marks)**
c (i) Give five (5) major features of FORTRAN 90/95 **(5 marks)**
(ii) Declare and assign 3.142 and 7.8 to constant variables C and D in FORTRAN 90/95 **(2 marks)**
d (i) Declare PASCAL subrange type for the letters of the English alphabet **(2 marks)**
(ii) Declare PASCAL enumerated type for the days of a week **(2 marks)**
e) Distinguish between a function and a subroutine **(4 marks)**
[25 marks]
- 2a) Distinguish between the following terms
(i) Symbolic/ High-level languages (ii) Compilers/Interpreters **(6 marks)**
b) The value ***B*** of a savings account of an amount ***A*** that is deposited for ***n*** years with a yearly interest rate of ***r*** is given as: $B = A \left(1 + \frac{r}{100}\right)^n$. Represent this information in a flowchart **(4 marks)**
- c(i) Write a FORTRAN program to evaluate the expression $d = \frac{abc}{a+b+c}$ **(4 marks)**
(ii) Hence, what is the value of ***d*** when ***a***=13, ***b***= 4.2, and ***c*** = ***(4b)/a*** **(1 mark)**
[15 marks]
- 3a) Differentiate between user-defined and pointer data types in PASCAL **(5 marks)**
b) (i) Propose how a PASCAL “FOR LOOP” statement should work **(3 marks)**
(ii) Write a PASCAL program using FOR LOOP to compute the total sales of a company for 5 days, given sales are aggregated daily. **(5 marks)**
c) Write a FORTRAN command to open a temporary file and make it automatically deleted when it is closed or on program termination **(2 marks)**
[15 marks]
- 4a) Describe two (2) OOP features supported by FORTRAN 90/95 **(3 marks)**
b) (i) Itemize three (3) roles of FORTRAN debugger to a program **(3 marks)**

- (ii) Write a FORTRAN program that prints the sum of 7 elements of an array using DO LOOP construct **(6 marks)**
- c) What is the difference between PASCAL Read and ReadLn statements **(3 marks)**
[15 marks]
- 5a) Deduce the concept of a recursive procedure? **(2 marks)**
- b) (i) Write a FORTRAN statement that defines an integer array, SAMPLE with 7 elements **(2 marks)**
- (ii) Write a PASCAL program to output the square of even integers in the range 2 to 40 **(6 marks)**
- c) Write a subroutine that swaps the values of two REAL numbers X and Y **(5 marks)**
[15 marks]