



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

COURSE CODE: CIT341

COURSE TITLE: DATA STRUCTURES

COURSE CREDIT: 3 UNITS

TIME ALLOWED: 2½ HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER FOUR (4) QUESTIONS

- 1(a) Describe the broad classes of Data Structures [5 marks]
1(b) i What is a digraph? (2 marks)
1(b) ii. Mention the main primitive operations of a list data structure. [4 marks]
1c. Analyse any 3 components of class declarations (3 marks)
1d. Discuss the greedy algorithm approach (4 marks)
1e. Give the four (4) classifications of simple data types with examples (4 marks)
- 2(a) Evaluate two (2) primary categories of data structures [9 marks]
2(b) Briefly describe the term Data Structure [3 marks]
- 3(a) What is garbage collection? Illustrate how and when garbage collection can be implemented (6 marks)
3(b) Examine the components of class declarations (6 marks)
- 4(a) Explain the following i) Queue ii) Arrays [5 marks]
4(b) Explain two (2) applications of the following in computer operation [5 marks]
4c. When is sorting algorithm said to be stable? (2marks)
- 5(a) Examine the benefits of binding code into individual software objects? (8 marks)
5b. Describe the uses of a Stack? (4 marks)
- 6(a) What are the components of field declarations ? (3 marks)
6(b) Enumerate the three (3) main kinds of variables (3 marks)
6(c) Discuss the applications of stack data structure? (6 marks)