National Open University of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikwe Express Way, Jabi – Abuja

Faculty of Sciences
October/November Examination 2016

Course Code: CIT 341
Course Title: Data Structure
Credit Unit: 3
Time Allowed: 3 Hours

Instruction: Answer Any 4 Questions

1. (a) Briefly explain the following
    (i)   Data type   (5 ½ marks)

    (ii)   Abstract data type   (5 marks)

    (iii)   Data structure   (5 marks)

    (b) Mention the two classification of data structure   (2 marks)

2. (a) Explain the following terms

    (i) Array   (5 marks)

    (ii) Two dimensional arrays   (5 marks)

    (iii) Multi-dimensional arrays   (5 ½ marks)

   (b) State the two classification of arrays   (2 marks)

3.(a) Distinguish between public and private modifiers   (4 marks)

   (b) State the four main steps involved in Dynamic programming design   (8 marks)

   (c) Explain the List Data Structure   (5 ½ marks)

4 (a) State 4 properties of the following Lists

	(i)	Array List	**(8 marks)**
	(ii)	Link Lists	**(8 marks)**

(b) State the outcome of the primitive operations

	(i)	**IsEmpty**	**(½ mark)**
	(ii)	**IsFull**	**(½ mark)**
	(iii)	**Initialise**	**(½ mark)**

5. (a) Explain the two basic stack operations   **(8 marks)**

  (b) State three characteristics of a good hash functions   **(3 marks)**

  (c) Brief describe the following

   (i) Fragmentation   **(3 marks)**

   (ii) Best fit   **(3 ½ marks)**

6. (a) Give a brief description of the followings

	(i)	A package	**(3 marks)**
	(ii)	Object-oriented programming	**(3 marks)**
	(iii)	An interface	**(3 marks)**
	(iv)	Dynamic programming	**(3 marks)**

  (b) Briefly discuss a hash table   **(5 ½ marks)**