

MODEL QUESTION PAPER

BCA14

I Semester BCA Examination, August 2011 DATA STRUCTURE

Time: 3 Hours

Max. Marks: 75

GROUP A : Answer any three questions.

- Q.1. Explain priority queue with example.
- Q.2. What is heap? Explain max heap & min heap with example & also explain heap operations.
- Q.3. What is link list? Give applications of link list.
- Q.4. What is Threaded Binary Tree?
- Q.5. Explain binary search tree in brief with one example & also explain the advantages of binary search tree.

GROUP B : Answer any three questions.

- Q.6. Explain types of queue and their applications.
- Q.7. How dynamic memory gets allocated in 'C'? Explain with example.
- Q.8. List different searching techniques. Write an algorithm for linear search.
- Q.9. Explain the term Algorithm. Write an algorithm to find simple interest(s) when principle amount (p), rate of interest (r) & no. of years (n) are given
[$s = p*n*/100$]
- Q.10. Write a C code to merge two linked lists.

GROUP C : All Questions are Compulsory.

Q.11 Fill in the blanks

- (i) An _____ means writing a sequence of instructions which acts on input data and produce desired output in a finite number of steps for solving any problem.
- (ii) First element of array always starts from _____ index.
- (iii) Array is an ordered set which consists of a fixed number of _____.
- (iv) To allocate _____ memory in C calloc() & malloc () functions are used.
- (v) _____ is double ended queue.

Q.12 Multiple choice question.

- (i) In Max heap the root node is _____.
 - (a) Smallest
 - (b) Greatest
 - (c) Any of a/b
 - (d) Null
- (ii) Linked lists are best suitable _____.
 - (a) Dynamic data storage
 - (b) Compile time data storage

- (c) For both of above situation (d) For none of above situation
- (iii) The term “enqueue” and “dequeue” is related to the _____.
- (a) Array (b) Queue
(c) Stacks (d) All of above
- (iv) Which of the following statement is false?
- (a) Arrays are dense lists and static data structure
(b) Data elements in linked list need not be stored in adjacent space in memory.
(c) Pointers store the next data element of a list.
(d) Linked lists are collection of the nodes that contain information part and next pointer.
- (v) When memory to variable gets allocated during time of program execution is called.
- (a) Dynamic memory allocation (b) Static memory allocation
(c) All above (d) None of above

Q.13 True or false

- (i) Pseudo code is syntactically correct.
(ii) Time complexity of binary search is $O(\log n)$.
(iii) Graph is a linear data structure.
(iv) Fragmentation is disadvantage of garbage collection.
(v) Stack works on FIFO principle.
