WEST BENGAL STATE UNIVERSITY

B.A./B.Sc. Honours 2nd Semester Examination, 2022

CMAACOR03T-COMPUTER APPLICATION (CC3)
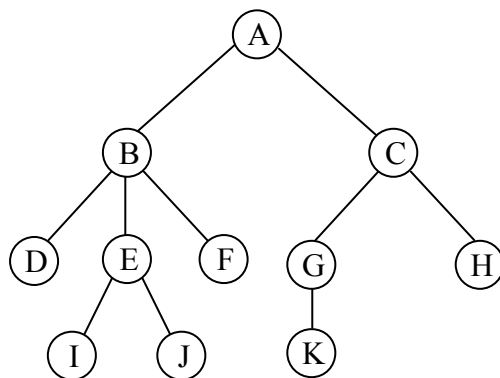
Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

Answer Question No. 1 and any *four* from the rest

1. Answer any *four* questions from the following: 2×4 = 8

   (a) Define ADT for Stack and Queue.

   (b) How is a Queue different from Circular Queue?

   (c) When is binary search most suitable for searching?

   (d) What is the advantage of single linked list over double link list?

   (e) What are the properties of a complete binary tree?

   (f) What do you understand by hashing in data structure?

   (g) What are the application of stack?

2. (a) Write pseudocode for insertion of an element into and deletion of an element from linear queue. 3+3

   (b) Write the output of post fix traversal of the tree given below: 2

3. (a) Define AVL tree. Draw AVL tree for the following set of elements. 2+4

   10 5 9 4 2 16 20 13

   (b) What are the advantages of Linked list over array? 2

1

4. (a) What do you mean by Dynamic Memory Allocation?   2×4 = 8

   (b) What do you understand by trace of a matrix?

   (c) What do you mean by Transpose of a Matrix?

   (d) Draw a flowchart to insert an element in an One dimensional Array.

5. (a) Write an algorithm to find the G.C.D of two positive integers using Recursion.   2

   (b) What are the different types of Recursion? Explain with example.   4

   (c) Define "Tail Calls" of a recursive function using example.   2

6. (a) Construct a binary tree from the given set of In order and Post order traversals   4

   Post order Traversal: **E C K A H B G D F**

   In order Traversal: **E A C K F H D B G**

   (b) Explain insertion sort with an example.   4

7. (a) What are the advantages and disadvantages of circular queue?   2+2

   (b) Convert the given infix expression into postfix expression and then evaluate the   2+2
   obtained postfix expression using stack (symbols /, +, *, – signifies division,
   addition, multiplication and subtraction respectively).

   6 / 3 + 4 * 2 – 1

8.   Write short note on:

   (a) Coalesced Hashing   4

   (b) Priority Queues.   4

   N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to
   their own respective colleges on the same day / date of examination within 1 hour after end of
   exam. University / College authorities will not be held responsible for wrong submission (at
   in proper address). Students are strongly advised not to submit multiple copies of the same
   answer script.*

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