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PES University, Bangalore

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UE15CS202**Nov - Dec 2016: END SEMESTER ASSESSMENT (ESA) B.TECH. III SEMESTER****UE15CS202- Data Structures**

Time: 3 Hrs

Answer All Questions . Neglect syntax errors

Max Marks: 100

1	a)	<p>i. Consider the following arithmetic expression. Simulate the action of the algorithm to convert the expression into postfix expression using stack. $((A+B)*(C/D)+E-(F+G))$</p> <p>ii. Apply the evaluation algorithm to evaluate the following postfix expression. Assume $A=1, B=2, C=3$. $ABC+*CBA-+*$</p>	06
	b)	<p>A list has $n - 1$ nodes whose data elements have values from 1 to n in increasing order - with one value missing. Find the missing value. NODE is a structure of singly linked list.</p> <pre>int missing_element(Node list) { // TODO }</pre> <p>Ex: $1 \rightarrow 2 \rightarrow 3 \rightarrow 5 \rightarrow 6$. Here missing element is 4.</p>	04
	c)	<p>Write only a function in C to reverse a given input string inputstr = "MYNAME" using stack. Store the output string in the variable outputstr = "EMANYM".</p>	04
	d)	<p>Consider the NODE definition as follows:</p> <pre>typedef struct node { int info; struct node *next; }NODE;</pre> <p>Write a function to check whether the two lists are same. Check all extreme conditions.</p> <pre>int Same(Node list1, Node list2) { // TO DO }</pre>	06
2	a)	<p>Consider a doubly linked list node as follows:</p> <pre>struct node { int data; struct node *prev, *next; };</pre> <p>A node in the middle of a doubly linked list is connected to its next node and its previous node, but the links from those two nodes to the current node have gone corrupt. Write only the statements to correct these links in the function correct.</p> <pre>void correct(Node temp) { // TO DO }</pre>	04
	b)	<p>Write a function <i>prefix</i> to accept an infix string and create the prefix form of that string. Assume that the string is read from right to left and the prefix string is created from right to left.</p> <p>Ex: Input string is $A*B+C$. Traverse from right that is from B towards A. Output is $CBA*+.$</p>	06

[illegible]

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