

Vivekananda College of Engineering & Technology, Puttur
 [A Unit of Vivekananda Vidyavardhaka Sangha Puttur @]
 Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM0827/11/2021

Rev 1.10

CSE

29/11/2021

CONTINUOUS INTERNAL EVALUATION - 1

Dept: CSE	Sem / Div: 3 / A&B	Sub: Data Structures and Applications	S Code: 18CS32
Date: 2/12/2021	Time: 3:00-4:30 pm	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	CO's
PART A				
1	a Define Data structures. Give its classification. What are the basic operations performed on data structure?	8	L2	CO1, 2
	b Write a C program :(i) To find the length of the string (ii) string concatenation, without using built-in function.	8	L3	CO1, 2
	c What is Sparse matrix? Express the given sparse matrix in triplets and find its transpose and also write algorithm to transpose a sparse matrix.	9	L3	CO1, 2
	$\begin{bmatrix} 15 & 0 & 0 & 22 & 0 & -15 \\ 0 & 11 & 3 & 0 & 0 & 0 \\ 0 & 0 & 0 & -6 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 91 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 28 & 0 & 0 & 0 \end{bmatrix}$			
OR				
2	a Define pointers. Explain Dynamic memory allocation functions in C with syntax.	8	L2	CO1, 2
	b Write Binary search algorithm. Also trace the same with an example.	8	L3	CO1, 2


c	Write KMP pattern matching algorithm and apply the same to search the pattern 'ababd' in the text: 'ababcabcabababd'.	9	L3	CO1, 2
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PART B

3 a	Define stack data structure. Write C functions for push(), pop() and display() operations.	8	L3	CO3
b	Write an algorithm for evaluating a post fix expression and trace it on a) 123+*321-+* b) 623+-382/+*2^3+	8	L3	CO3
c	Write an algorithm to convert infix to postfix expression. Trace the following with stack: (A+B)*(C+D-E/F)*G\$H	9	L3	CO3

OR

4 a	Define recursion? State the 2 properties of a well defined recursive procedure. What is Ackermann's function? Evaluate A(1,3) using the same.	8	L3	CO3
b	Write short notes on (i) Dequeue (ii) Priority queues.	8	L3	CO3
c	What is a circular queue? What is the advantage of circular queue over ordinary queue? Write a C program to simulate the working of circular queue of integers using array. Provide the following operations : i) Insert ii) Delete	9	L3	CO3

token | Stack | Postfix.


Prepared by: Roopa G K


 HOD