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

131

CRM08 Rev 1.15 (2024 rev) <CSE> <10/10/2024>

CONTINUOUS INTERNAL EVALUATION - 1

Dept:CSE/ CD/AI	Sem / Div:3	Sub: Data structures and Applications	S Code: BCS304
Date: 19/10/2024	Time:2.30-4.00 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. Explain with neat block schematic diagram different type of data structures with examples. What are the primitive operations that can be performed?	10	L2	CO1, CO2
	b	Solve using stack to convert given infix expression to postfix form. i) A*(B*C+D*E)+F (ii) (a+(b*c)/(d-e))	10	L3	CO2
	c	Explain Pattern Matching and outline Knuth Morris Pratt Pattern matching algorithm.	5	L2	CO1, CO2
		OR			
2	a	Explain the implementation of push, pop and display operations of stack using array.	10	L2	CO1, CO2
	b	Develop an algorithm to evaluate postfix expression and apply the same for the given postfix expression: ABC-D*+ESF+ and assume A=6, B=3, C=2, D=5, E=1 and F=7.	10	L3	CO2
	c	Explain the different functions of dynamic memory allocation.	5	L2	CO1, CO2

PART B

3	a	What are the disadvantages of ordinary queue? Develop a C program to implement circular queue.	10	L3	CO2
	b	Develop a C function for the following operations on circular linked list. i) inserting at front of a list ii)deleting from end of a list	10	L3	CO3
	c	Construct a diagrammatic linked representation of given sparse matrix. $A = \begin{bmatrix} 2 & 0 & 0 & 0 \\ 4 & 0 & 0 & 3 \\ 0 & 0 & 0 & 0 \\ 8 & 0 & 0 & 1 \\ 0 & 0 & 6 & 0 \end{bmatrix}$	5	L3	CO3
		OR			
4	a	Develop a C program to implement various operations of ordinary queue.	10	L3	CO2
	b	Develop a C function to add two polynomials. Show the linked representation of the below two polynomials and their addition using a singly linked list. P1: $5x^3 + 4x^2 + 7x + 3$ P2: $6x^2 + 5$ Output: add the above two polynomials and represent them using the linked list.	10	L3	CO3
	c	Develop a C-function for the following operations on Doubly Linked List: (i) add a node at the beginning of list (ii) delete a node from the end of list.	5	L3	CO3

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HOD