

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***Sixth Semester, B.E. - Electronics and Communication Engineering****Semester End Examination; July / Aug. - 2022****Introduction to Basics of Information Technology**

Time: 3 hrs

Max. Marks: 100

Course Outcomes*The Students will be able to:**CO1: Will be able to formulate computer arithmetic and understand the performance requirements of systems.**CO2: Will be able to formulate computer arithmetic and understand the performance requirements of systems.**CO3: Will be able to identify the problems related to task synchronization and deadlock.**CO4: Will use appropriate data structures like arrays, linked list, stacks and queues to solve real world problems efficiently.**CO5: Will be able to represent and manipulate data using nonlinear data structures like trees to design algorithms for various applications.***Note: I) PART - A is compulsory. Two marks for each question.****II) PART - B: Answer any Two sub questions (from a, b, c) for a Maximum of 18 marks from each unit.**

Q. No.	Questions	Marks	BLs	COs	POs
I : PART - A		10			
I a.	List the condition for overflow in integer arithmetic	2	L1	CO1	PO1
b.	List the achievements of the operating system	2	L2	CO2	PO1
c.	What are the three operations performed on semaphores	2	L2	CO3	PO1
d.	What is queue?	2	L1	CO4	PO1
e.	Draw the figure for sort classification	2	L3	CO5	PO1
II : PART - B		90			
UNIT - I		18			
1 a.	Draw and explain addition subtraction logic network.	9	L1	CO1	PO1
b.	Explain 4-bit carry-look ahead adder.	9	L3	CO1	PO1
c.	Explain Booth algorithm with example.	9	L2	CO1	PO1
UNIT - II		18			
2 a.	With neat figure, explain computer hardware and software structure.	9	L2	CO2	PO1
b.	Illustrate and explain five-state process model.	9	L2	CO2	PO1
c.	Draw and explain relationship between operating system and user process.	9	L2	CO2	PO1
UNIT - III		18			
3 a.	With neat figure explain indirect process communication.	9	L2	CO3	PO2
b.	Explain the conditions of deadlock and how it can be prevented.	9	L2	CO3	PO2
c.	Explain what are the parameters required for memory management.	9	L2	CO3	PO2

UNIT - IV**18**

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|---|---|----|-----|-----|
| 4 a. What are the basic structures used to implement an ADT? Explain in detail. | 9 | L2 | CO4 | PO3 |
| b. With neat figure explain basic stack operations. | 9 | L2 | CO4 | PO3 |
| c. Write an algorithm for insertion and deletion of data form a queue. | 9 | L2 | CO4 | PO3 |

UNIT - V**18**

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|---|---|----|-----|-----|
| 5 a. With neat figure explain the terminologies used in tree. | 9 | L1 | CO5 | PO3 |
| b. Write the algorithm for finding the largest node and smallest node using Binary search Tree (BST). | 9 | L3 | CO5 | PO2 |
| c. Analyze and write the algorithm for sequential search. | 9 | L3 | CO5 | |

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