

KLS Gogte Institute of Technology, Belagavi
Department of Mathematics
Program: B.E

Semester: III (ODD SEM)

IA Test - I

Academic Year: 2022-23

Course Title: Discrete Mathematical Structures and Numerical Methods Course Code: 21MATCS/IS31
Max. Marks: 25 Date: 15-12-2022

Q. No.	Instructions: Answer any five of the following questions	[L]	[CO]	[PO]	[M]
1.	a) Prove that $\{(p \rightarrow q) \rightarrow r\} \leftrightarrow \{(\sim p \vee q) \rightarrow r\}$ is a tautology using truth table b) $\{p \rightarrow (q \wedge r)\}$ and $\{(p \rightarrow q) \wedge (p \rightarrow r)\}$ are logically equivalent using truth table.	1	1	1	5
2.	Show that following are logically equivalent using laws of logic: c) $[p \vee q \vee (\sim p \wedge \sim q \wedge r)] \equiv [p \vee q \vee r]$ d) $[(p \vee q) \wedge (p \vee \sim q)] \vee q \equiv p \vee q$	2	1	1	5
3.	Test the validity of the following: b) If I work hard then I do not fail If I do not fail then I will get a job \therefore If I work hard then I will get a job. b) $p \vee q$ $\sim q \rightarrow r$ p $\therefore \sim q$	1	1	1	5
4.	Negate the following statements: (a) $\forall x, \{p(x) \rightarrow q(x)\}$; (b) $\exists x, \{p(x) \vee q(x)\}$; (c) $\exists x, [\{p(x) \vee q(x)\} \rightarrow r(x)]$	1	1	1	5
5.	If $A = \{1, 2, 3, 4\}$, $R = \{(x, y): x \text{ divides } y\}$. Compute: a) Relation R b) Matrix of relation R c) digraph of relation R.	1	1	1	5
6.	For $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$ and relation R on A is $\{(x, y): x - y \text{ is a multiple of } 5\}$. Prove that R is an equivalence relation. Also, find equivalence class and partition.	1	2	1	5
7.	If $A = \{1, 2, 3, 5, 6, 10, 15, 30\}$ and $R = \{(x, y): x \text{ divides } y\}$. b) Write relation R b) Prove (A, R) is a poset c) Draw Hasse diagram	2	2	1	5
		2	2	1	5

KLS Gogte Institute of Technology
Department of Computer Science and Engineering
Academic Year 2022-23 (Odd Sem)
Internal Assessment I

Subject : DATA STRUCTURES AND ALGORITHMS

Code : 21CS32

Semester : III (A, B, C)

Date: 16/12/2022

NOTE: Answer any five questions. Each carries 5 M.

Q1) What is a structure in C? Discuss the applications of stack and queues. [L1, L2, CO1, PO1]

Q2) Develop a C program using stack to check whether a given string is palindrome or not. [L3, CO2, PO3]

Q3) Develop a C program to print the elements of array in forward and reverse direction using pointers. [L3, CO1, PO3]

Q4) Given QSIZE = 3. Analyse and write the status of the queue after every operation given below.

- | | |
|-------|------------|
| i. | display() |
| ii. | enqueue(5) |
| iii. | enqueue(8) |
| iv. | dequeue() |
| v. | enqueue(7) |
| vi. | enqueue(9) |
| vii. | enqueue(1) |
| viii. | dequeue() |
| ix. | dequeue() |
| x. | enqueue(3) |

5 8 7 9 1 3

[L4, CO2, PO2]

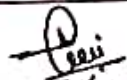
Q5) Develop a C program to implement all basic operations of queue. Create a queue to store floating point numbers. [L3, CO2, PO3]

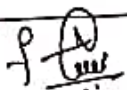
Q6) Apply the algorithm to convert the following infix expressions to postfix expression using stack.

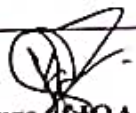
- a. $A + B - (C * (D - E) / (X * Y))$
- b. $(2 * 3 + 4 ^ (5 / 6))$

[L3, CO2, PO3]

Q7) Develop a C program to implement all basic operations of circular queue. Create a queue to store integer numbers. [L3, CO2, PO3]


Signature of the Faculty


Signature of Module Coordinator


Signature of IQAC

KLS Gogle Institute of Technology, Belagavi

Department of Computer Science Engineering

Academic Year: 2022-23(ODD SEM)

Program: B.E (Computer Science Engineering)

Semester: III (A, B, C)

IA Test - I

Course Title: OBJECT ORIENTED PROGRAMMING WITH JAVA

Code: 21CS33

Max. Marks: 25

Duration: 1 Hr.

Date:15/12/2022

Instructions:

1. Answers must be to the point and must be neatly written
2. Answer any 5 questions, all questions carry equal marks.

Q. No.		[L]	[CO]	[PO]	[M]
✓1.	List the key attributes of Java. Explain any five of them	1,2	1	1	5
✓2.	Implement a Java class ArraySum which includes a) a method sumA() to find the sum of the elements in an array 'a' with elements 1,2,3,4,5 initialized by a default constructor b) a show () method to display the array elements and the sum	3	1,2	1,12	5
3.	How does instance variable hiding take place? Explain with a suitable example, how do you access the hidden instance variables?	2	1	1	5
✓4.	Implement a class "Multiply" that has two overloaded methods to multiply 2 integer and 2 double types respectively and return the results to the invoking method. Write the corresponding driver class "Method_Overload" to display the result	3	1,2	1,12	5
✓5.	Distinguish between a class and an object? Give the general form to create them	2	1,2	1,12	5
✓6.	Define a string in Java. Explain any 4 methods that operate on strings with an example	2	1	1,12	5
✓7.	Implement a Java class ChkNum, that includes the method isEven() which returns true, if the value that is passed is even, false otherwise. Write the corresponding driver class to display the result.	3	1,2	1,12	5

Staff In Charge	Module Coordinator	Scrutinizer	IQAC Team
Prof. Parimal Tergundi		<i>R. A. Medas</i>	
Prof. Namitha Bhat <i>Shub</i>	Prof. Parimal Tergundi	(R.A. Medas)	<i>13.12.22</i>

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KLS Gogte Institute of Technology, Belagavi
Department of Computer Science and Engineering
Academic Year: 2022-23(ODD SEM)

Program: B.E (Computer Science and Engg.)

Semester: III Div: A, B, C

IA - I

Course Title: Constitution of India

Code: 21CS35

Max. Marks: 15

Date: 17.01.2023

INSTRUCTIONS: 1) Answer any three questions

Q. No		L	CO	PO	M
1	What is Constitution? List any 4 fundamental duties of the citizens.	2	1	6	5
✓ 2	Write a short note on Preamble of Indian Constitution	2	1	6	5
3	List any 5 Directive Principles of state policy	2	1	6	5
✓ 4	Discuss on President eligibility.	2	1	6	5
✓ 5	Write a short note on impeachment of president.	2	2	6	5