



Shri Shankaracharya Institute of Professional Management & Technology

Department of Computer Science & Engineering

Class Test – I Session- JAN –JUNE, 2022 Month- june

Sem- CSE 4th Subject- Object Oriented Programming (with JAVA) Course Code: B022414(022)

Time Allowed: 2 hrs Max Marks: 40

Note: - All the questions are compulsory .

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
PART I				
Q1	Define JVM and Also explain garbage collection with suitable example.	8	Understand	CO1
Q2	Explain constructor and write a program taking input from user for passing the arguments and do the following: 1) call default constructor 2) call constructor with one integer parameter 3) call constructor with string parameter	8	Understand	CO1
Q3	Illustrate throw and throws by writing a program which throws user defined exception.	8	Apply	CO2
Q4	Create a Shape Interface which has a member method area(). Derive two subclasses Circle and Triangle from it. Using reference of Shape class fill the required members in Circle and Triangle also display the area of Circle and Triangle.	8	Apply	CO2
Q5	Differentiate between method overloading and method overriding with example.	8	Apply	CO2



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Class Test – I Session- Jan – June, 2022 Month-June

Sem- CSE 4th Subject- Database Management System Code-B0022413(022)

Time Allowed: 2 hrs Max Marks: 40

Note: - All the questions are compulsory. Each question carries 8marks.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	CO's
1.	Explain Database System Architecture with the help of neat and suitable diagram.	[8]	Understand	CO1
2.	Define RDBMS. What are the different types of constraints used in Database system.	[8]	Understand	CO1
3.	Consider the following relational database: employee(e-name, street, city) works(e-name, c-name, salary) company(c-name, city) manages(e-name, m-name) For each of the following queries, give an expression in the relational algebra. (a) Find the names of all employees who work for the First Bank Corporation (b) Find the names of all employees in this database who live in the same city as the company for which they work. (c) Find the names, street address, and cities of all employees who work for First Bank Corporation and earn more than \$10,000 per annum. Assume each person works for at most one company. (d) Find the names and cities of residence of all employees who work for the First Bank Corporation.	[8]	Apply	CO2
4.	Consider WorksOn Database: emp (eno, ename, bdate, title, salary, dno) proj (pno, pname, budget, dno) dept (dno, dname, mgreno) workson (eno, pno, resp, hours) (a) Write an SQL query that returns the employee name, department name, and employee title (b) Write an SQL query that returns the employee numbers and salaries of all employees in the 'Consulting' department ordered by descending salary. (c) Write an SQL query that returns the project name, hours worked, and project number for all works on records where hours > 10. (d) Write an SQL query that returns all works on records where hours worked is less than 10 and the responsibility is 'Manager'.	[8]	Apply	CO3
5.	A. Explain the usefulness of Armstrong Axiom's in DBMS. B. Compute the closure of the relational schema R={A B C D E} A→BC, CD→E, B→D, E→A Find key attributes of R. Also find all candidate keys.	[8]	Apply	CO3



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Class Test – I Session: January - June 2022 Month- June 2022

B. Tech. Computer Science & Engineering

Semester: 4th

Section: A / B / C

Subject: Discrete Mathematics

Code: B022411(14)

Time Allowed: 2 Hours

Max Marks: 40

Note: - All Questions Compulsory.

Q. N.	Question	Marks	Levels of Bloom's Taxonomy	COs
Q 1	(i) Prepare truth table for the proposition $(p \rightarrow q \wedge r) \vee (\sim p \wedge q)$.	[4]	Applying	CO1
	(ii) Verify whether the proposition $(p \leftrightarrow q) \wedge (r \vee q)$ is a tautology ?	[4]		
Q 2	Prove that in a Boolean Algebra B , for any $a, b \in B$ (i) $(a + b)' = a' \cdot b'$ (ii) $(a \cdot b)' = a' + b'$	[8]	Applying	CO1
Q 3	(i) Draw an electric circuit for the function $r \cdot t + [s \cdot (s' + t) \cdot \{r' + (s \cdot t)\}]$	[2]	Applying	CO1
	(ii) Simplify the given function $r \cdot t + [s \cdot (s' + t) \cdot \{r' + (s \cdot t)\}]$	[4]		
	(iii) Draw simplified circuit.	[2]		
Q 4	Define lattice and prove that $(P(S), \subseteq)$ is a lattice, where $P(S)$ is power set of S and $s = \{a, b, c\}$.	[8]	Applying	CO2
Q 5	If $f: X \rightarrow Y$ and $g: Y \rightarrow Z$ be one-one onto mapping, then prove that the mapping $g \circ f: X \rightarrow Z$ is also one-one onto and $(g \circ f)^{-1} = f^{-1} \circ g^{-1}$.	[8]	Applying	CO2



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Class Test – I Session- Jan – June, 2022 Month- June

Sem- CSE 4th [A & C] Subject- Computer System Architecture Code- B022412(022)

Time Allowed: 2 hrs Max Marks: 40

Note: - All questions are compulsory

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
PART I				
Q1	How do you implement a carry look ahead adder? Explain with an example.	[8]	Apply	CO2
Q2	Write the Booth's Algorithm for Multiplication. Show the final Contents of Register M(Multiplicand), Q(Multiplier), A(Accumulator), SC(Sequence Counter) during the process of multiplication of 2 binary numbers (9) M and (-2) Q.	[8]	Apply	CO2
Q3	An Instruction is stored at location 800 with its address field at 801. The address field has the value 350. A processor register R1 contains the number 210. Evaluate the effective address if the addressing mode of the instruction is: Direct, Immediate, Register indirect, PC Relative, Index with R1 as Index Register.	[8]	Apply	CO1
Q4	Consider a Bus System created for 16 registers of 32 bit each and answer the following- 1. How many multiplexers are used to create the bus system? 2. What is the size of each multiplexer? 3. The select line of multiplexer consist how many lines? 4. The bus consist of how many lines? Illustrate the above with a proper block diagram.	[8]	Apply	CO1
Q5	Evaluate the following by using Restoring Division Algorithm: Divisor is 3 and Dividend is 8.	[8]	Apply	CO2



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Class Test – I Session- Jan – June, 2022 Month- Jun

**Sem- CSE 4th(B) Subject:-Computer System Architecture Code-
B022412(22)**

Time Allowed: 2 hrs Max Marks: 40

Note: - All Questions are compulsory-

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
A.	Distinguish between hardware and microprogrammed control unit. Draw the block diagram of both.	[8]	Remembering	CO1
B.	Explain various addressing mode with example.	[8]	Understanding	CO1
C.	Demonstrate Booth Multiplication algorithm for 2's complement number using flow chart and example.	[8]	Applying	CO2
D.	Describe IEEE floating point number representation and its operation for 32 bits.	[8]	Analyzing	CO2
E.	Illustrate integer division using restoring method and non restoring method.	[8]	Applying	CO2



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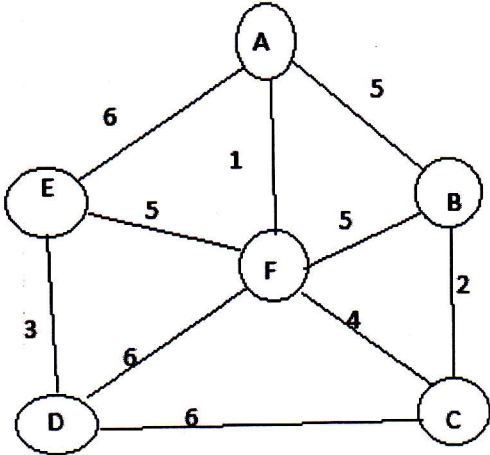
Class Test – I Session-Jan-June, 2022 Month-June

Sem- CSE 4th Subject- Design & Analysis of Algorithm Code- B022415(022)

Time Allowed: 2 hrs

Max Marks: 40

Note: -All Questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
A.	What is Asymptotic Notation? Explain its different types.	[8]	Understanding	CO1
B.	Solve the following Recurrence Equation using Master Method. 1) $T(n)=9T(n/3)+n$ 2) $T(n) = 3T(n/4) + n \log n$	[8]	Applying	CO1
C.	Solve Strassens algorithm to compute the matrix Product $A = \begin{bmatrix} 1 & 5 \\ 3 & 8 \end{bmatrix}$, $B = \begin{bmatrix} 7 & 4 \\ 6 & 2 \end{bmatrix}$	[8]	Applying	CO2
D.	Illustrate Huffman coding with suitable Example.	[8]	Applying	CO2
E.	Find out Minimum Spanning Tree for the given graph using Prims Algorithm. 	[8]	Applying	CO2