

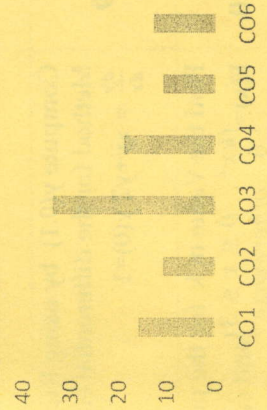


11	Apply Gauss - Jordan method to solve $2x+y+4z=12$ $8x-3y+2z=20$ $4x+11y-z=33$	10	CO4	K5	PO3
12	Find the real root of the equation $x^3 - x - 1$ using bisection method correct up to 3 decimal Places.	10	CO2	K3	PO2

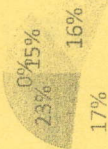
Course Outcomes, KL- Knowledge Level, PO – Program Outcome

Course Outcomes	CO1	Analyse and Evaluate the accuracy of common Numerical Methods
	CO2	know how to find the roots of transcendental equations
	CO3	Learn how to interpolate the given set of values.
	CO4	How to use for solving a system of equations
	CO5	Learn numerical differentiation, integration and solution of differential equations by numerically.
CO6	Define the discrete distributions and solve the problems about these distributions	

Course Outcome Wise Marks Distribution



Bloom's level Wise Marks Distribution



Branch	Bachelor of Computer Application	Program Code	BCA
Subject Name	Numerical and Statistical Method	Semester	II nd
Course Code	MTH2202	Year	2022/Even
Time: 3 Hour Max Marks :70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write On The 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u> 		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 01 Marks from Q1i to Q 1ix) – 12 Marks

Q. No.1	QUESTION	Marks	COs	KL	PO
1(i)	The expected value of a discrete random variable 'x' is given by (i) $P(x)$ (ii) $\sum P(x)$ (iii) $\sum x P(x)$ (iv) 1	1	CO6	K3	PO2
1(ii)	The general Formula of Newton Rap son's method is given by (i) $x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$ (ii) $x_n = x_{n-1} + \frac{f(x_{n-1})}{f'(x_{n-1})}$ (iii) $x_n = x_{n+1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$ (iv) None of these	1	CO3	K1	PO2
1(iii)	In solving simultaneous equation by gauss Jordan method the coefficient matrix is reduced to (i) Unit matrix (ii) diagonal matrix (iii) Null matrix (iv) square matrix.	1	CO4	K1	PO3

1(iv)	The relative error in taking $\pi = 3.141593$ as $\frac{22}{7}$ (i) 0.1234 (iii) 0.0024 (ii) 0.0004 (iv) none of these	1	CO1	K3	PO3
1(v)	$\Delta f(x_0) = ?$ (i) $f(x_0+h)$ (iii) $f(x_0+h) + f(x_0)$ (ii) $f(x_0-h) - f(x_0)$ (iv) None of these	1	CO3	K2	PO1
1(vi)	Let E be the shifting Operator and Δ be the forward difference Operator then $E = ?$ (i) $1 + \Delta$ (iii) Δ (ii) $1 - \Delta$ (iv) None of these	1	CO3	K3	PO1
1(vii)	Out of following value which is not possible in probability (i) $P(X) = 1$ (iii) $P(X) = -5$ (ii) $P(X) = 0.5$ (iv) None of these	1	CO6	K1	PO3
1(viii)	Which operation can be used in Gauss Elimination method? (i) Row operation (iii) Both (ii) Column Operation (iv) None of these	1	CO4	K1	PO4
1(ix)	$\Delta(c) = ?$ (i) 1 (iii) c (ii) 0 (iv) None of these	1	CO3	K2	PO2
1(x)	Inherent error occurs due to i) Error occurs due to error in statement ii) Errors due to rounding off the numbers iii) Errors due to replacing infinite series by finite one. iv) None of these	1	CO1	K1	PO1
1(xi)	Simpson's $\frac{3}{8}$ rule is also called as (i) $n=2$ rule (iii) $n=3$ rule (ii) $n=1$ rule (iv) none of these	1	CO5	K2	PO2
1(xii)	Let $F(x)$ be probability Function then $F(-\infty) = ?$ (i) 0 (iii) not defined (ii) 1 (iv) none of these	1	CO6	K4	PO2

Section B (Answer any FOUR out of SIX) - 28 Marks (Each question 7 marks)

Q. No.	QUESTION	Marks	COs	KL	PO
2	If $U = \frac{3x^2y}{z}$ Find the Absolute Error when	7	CO1	K5	PO5

3	$\Delta x = \Delta y = \Delta z = 0.001$ at $x = y = z = 1$. $x = y = z = 1$. $x = y = z = 1$. Prove that $\Delta \log f(x) = \log\left(1 + \frac{\Delta f(x)}{f(x)}\right)$.	7	CO3	K5	PO2								
4	Apply Lagrange's formula inversely to find the value of x when $y = f(x) = 19$ given the following <table border="1" style="margin-left: 20px;"> <tr> <td>x</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>y</td> <td>0</td> <td>1</td> <td>20</td> </tr> </table>	x	0	1	2	y	0	1	20	7	CO3	K2	PO4
x	0	1	2										
y	0	1	20										
5	Using Taylor's Series Method Solve $\frac{dy}{dx} = 1 + xy$ with $y(0) = 2$ Find (i) $y(0.1)$ (ii) $y(0.2)$ (iii) $y(0.3)$.	7	CO4	K3	PO2								
6	A random Variable X has following probability Function X: -2 -1 0 1 2 3 P(X): 0.1 k 0.2 2k 0.3 k Find the value of k and calculate the mean and variance.	7	CO1	K2	PO4								
7	Minimize $Z = 2x + 3y$ subject to constraint $x + 2y \geq 1, x + 2y \leq 10, x \geq 0, y \geq 0$.	7	CO3	K4	PO3								

Section C (Answer any THREE out of FIVE) - 30 Marks-(Each question Carry 10 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO												
8	Find the first and 2nd derivative of the function tabulated below at the point $x=1.1$ <table border="1" style="margin-left: 20px;"> <tr> <td>x</td> <td>1.2</td> <td>1.4</td> <td>1.6</td> <td>1.8</td> <td>2</td> </tr> <tr> <td>y</td> <td>0.1280</td> <td>0.5440</td> <td>1.2960</td> <td>2.4320</td> <td>4</td> </tr> </table>	x	1.2	1.4	1.6	1.8	2	y	0.1280	0.5440	1.2960	2.4320	4	10	CO3	K2	PO4
x	1.2	1.4	1.6	1.8	2												
y	0.1280	0.5440	1.2960	2.4320	4												
9	Compute $y(0.1)$ by using Runge-Kutta Method for the differential equation $\frac{dy}{dx} = xy + y^2, y(0) = 1$	10	CO5	K3	PO2												
10	Find the Value of k for the pdf $F(x) = \begin{cases} kx^2, & 0 \leq x \leq 3 \\ 0 & \text{otherwise} \end{cases}$ and compute $p(1 \leq x \leq 2)$	10	CO6	K4	PO1												



2nd Semester End Term Backlog Examination: 2021-22.

Subject: Object Oriented Programming with C++ Roll No:

Course : BCA

Full Marks: 70 Time: 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards; Don't Write On The 1st Page Backside.
- Question Paper is divided into Three Parts -A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.

PART - A

Multiple Choice Questions [12x1=12]

1. An int data type requires
a. 2 b. 4 c. 1 d. 8
2. The go to statement transfers the control
a. A label b. A variable c. A function d. An operator
3. Which of the following language supports top-down design concept?
a. Object-Oriented c. Object-based
b. Procedure-Oriented d. None of These
4. Procedure-oriented programming approach focuses on
a. Function b. Data c. Both d. None of These
5. Which of the following property distinguishes one object from the others?
a. Behaviors b. Identity c. State d. Message

PART C

Answer any TWO out of FOUR:

(2x15=30)

1. Explain the various concept of Object Oriented Programming with suitable example
2. Define the Following: -
 - a. Classes and Object
 - b. Friend Function
 - c. Abstract Class
 - d. Constructor
 - e. Default Argument
 - f. Abstract Data Type
 - g. Polymorphism

3. An electricity board charges the following rates to domestic users to discourage large consumption of energy.

Units Consumed	Charge
Up to 100 unit's	1.50 per unit
For next 200 units	3.00 per unit
More than 300 unit's	5.00 per unit

All the users are charged a minimum of Rs. 100. If the total cost exceeds Rs.250, then an additional charge of 15% is added. Write a program to read the names of the user and number of units consumed and print out the charges with names.

4. Define a class to represent the bank account, include the following members.

Data Members

Name of the depositor, Account Number, Type of Account, Balance amount in the account

Member Functions

To assign initial values, To deposit an amount, To withdraw an amount after checking the balance, To display name and balance
Write the main function to test the program

6. Abstraction is
 - a. A collection of similar data items
 - b. A combination of similar data items and the function
 - c. The combination of data items and function
 - d. A collection of necessary data items and function

7. Which access type data gets derived as private member in derived class?
 - a. Private
 - b. Public
 - c. Protected
 - d. Protected & Private

8. Which of the following is not type of class?
 - a. Abstract
 - b. Final
 - c. Start
 - d. String

9. By default all the members of a class are
 - a. Private
 - b. Public
 - c. Protected
 - d. None of these

10. float a=10/3; will give answer
 - a. 3
 - b. 3.33
 - c. 3.0
 - d. Error

11. float a=10/3; will give answer
 - a. Object
 - b. Class
 - c. Function
 - d. Command

12. >> is called
 - a. Insertion operator
 - b. Extraction operator
 - c. Object
 - d. Function

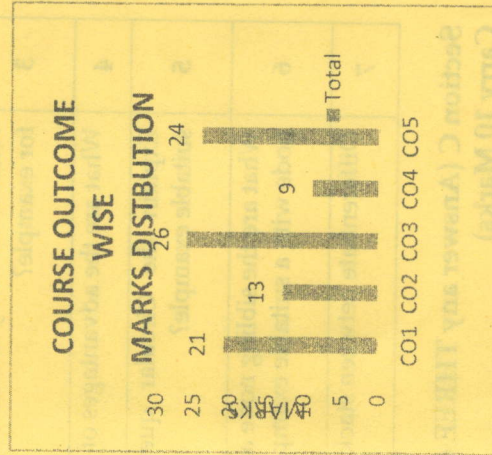
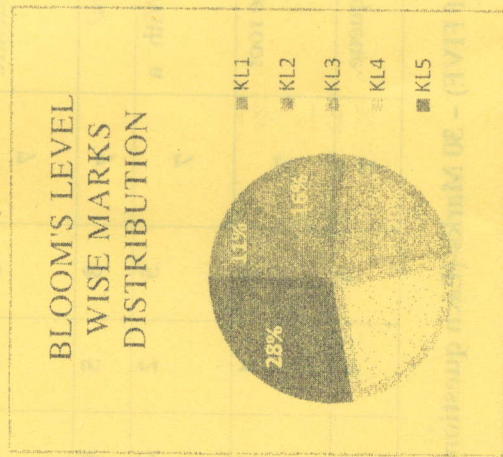
PART B

ANSWER ANY FOUR OUT OF SIX (4X7=28)

1. Explain the various Access Specifier used in C++?
2. Define Inheritance? List out the different types of inheritance with its concept?
3. Differentiate between Class and Object. Describe them by giving an example.
4. Write a program in C++ to perform Matrix Multiplication?
5. Discuss the Importance of Data Abstraction and Encapsulation with a real time example.
6. Define constructor and destructor. With the help of an example illustrate different types of Constructor?

CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

CO1	Different operation can be implemented in data structure
CO2	Prefix to postfix stack can be done on any given expression
CO3	Insertion or deletion of data using link list
CO4	Any expression can be converted into tree structure
CO5	Minimize the over use of traversing



ARKAJAIN
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Jharkhand

END TERM
EXAMINATION

Branch	Bachelor of Computer Application	Program	BCA
Subject Name	Data Structure through C	Semester	IIND
Course Code	CSC22006	Year	2022/Even

Time: 3 Hour
Maximum Marks : 70

- Start writing from 2nd page onwards; don't Write On The 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Four out of Six of Section B
- Answer Any Three out of Five of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.

Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 02 Marks from Q1a to Q1j) – 20 Marks

Q. No.1	QUESTION	Marks	COs	KL	PO
1(i)	Process of inserting an element in stack is called _____ a) Create b) Push c) Evaluation d) Pop	1	1	3	2
1(ii)	Pushing an element into a stack already having five elements and a stack size of 5, then the stack becomes _____ a) Overflow b) Crash c) Underflow d) User flow	1	1	2	1
1(iii)	What is the value of the postfix expression (6 3 2 4 + - *). a) 1 b) 40 c) 74 d) -18	1	2	3	2

1(iv)	How can we describe an array in the best possible way? a) The Array shows a hierarchical structure. b) Arrays are immutable. c) Container that stores the elements of similar types d) The Array is not a data structure	1	1	5	4
1(v)	What will be the result if the given stack is popped? t a p a) Pat b) Tap c) Atp d) Apt	1	1	3	5
1(vi)	What will be the word obtained if the word "abcabb" is reversed using a stack? a) Bbabba b) Abbcabb c) Bbacbba d) Bbacabb	1	4	5	6
1(vii)	Which is the most appropriate data structure for reversing a word? a) Queue b) Stack c) Tree d) Graph	1	1	1	4
1(viii)	In general, the index of the first element in an array is _____ a) 0 b) -1 c) 2 d) 1	1	2	2	7
1(ix)	When does the Array Index Out Of Bounds Exception occur? a) Compile-time b) Run-time c) Not an error d) Not an exception at all	1	3	4	6
1(x)	How do you initialize an array in C? a) int arr[3] = (1,2,3); b) int arr(3) = {1,2,3}; c) int arr[3] = {1,2,3}; d) int arr(3) = (1,2,3);	1	3	2	4
1(xi)	Which of the following is the name of the node having child nodes? a) Brother b) Sister c) Mother d) Parent	1	2	3	5

1(xii)	How many child nodes does each node of the Ternary Tree contain? a) 4 b) 6 c) 5 d) 3	1	4	4	5
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Section B (Answer any FOUR out of SIX) – 20 Marks (Each question 5 Marks)

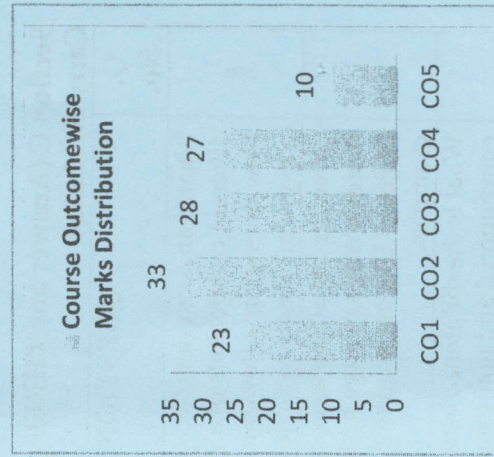
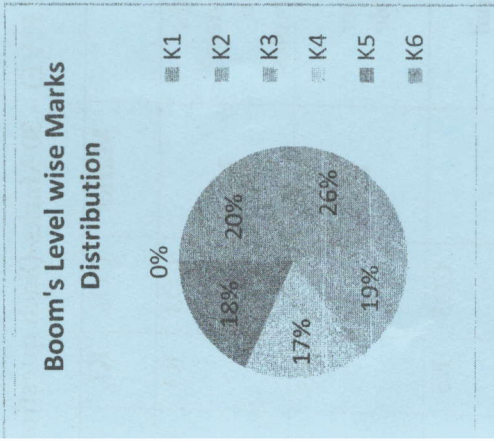
Q. No.	QUESTION	Marks	COs	KL	PO
2	Definition of primitive data structure.	7	4	2	1
3	What is an array in the data structure for example?	7	1	3	3
4	What are the advantages of arrays?	7	3	5	4
5	Explain the Circular queue. With a suitable example?	7	5	2	2
6	What are the sibling node and the root node with a suitable example?	7	5	4	3
7	Differentiate between stack and queue.	7	3	4	1


Section C (Answer any THREE out of FIVE) – 30 Marks-(Each question Carry 10 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO
8	Consider Data for binary search tree: 6, 8, 33, 3, 40, 2, 9, 10, 22, 15, and 17. Consider 10 as the root.	10	1	4	4
9	What is a linked list? Explain different types of linked lists with their graphical representation.	10	2	5	5
10	Write an algorithm to insert an element in the Queue.	10	5	3	9
11	Write an algorithm to insert a node at the beginning of a doubly linked list.	10	3	5	8
12	What is Data Structure? Explain different types of Data structures.	10	1	1	2

Course Outcomes, KL- Knowledge Level, PO – Program Outcome

CO1	Concept clarification about the components of environment and their inter relatedness.
CO2	Understanding of all the resources available and their origin and the ways to conserve them for sustainable future.
CO3	To evaluate the environment and various species present and their importance and ways to conserve biodiversity.
CO4	To construct and evaluate ways of managing solid waste and safe disposal techniques.
CO5	To understand various measures undertaken by Government and laws related to protection of environment.



 ARKAJAIN University Jharkhand		END TERM EXAMINATION	
Branch	Bachelor of Computer Application	Program	BCA
Subject Name	Environmental Science	Semester	IIND
Course Code	MGT22010	Year	2022/Even
Time: 3 Hour Maximum Marks : 70	• Start writing from 2nd page onwards; don't Write On The 1st Page Backside • Answer all Questions of Section A (Compulsory) • Answer Any Four out of Six of Section B • Answer Any Three out of Five of Section C • Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u>		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 02 Marks from Q1i to Qvii) – 20 Marks

Q. No.1	QUESTION	Marks	COs	KL	PO
1(i)	Which of the following is a renewable source of energy? a. Coal b. Wind c. Uranium d. None of the above	1	CO1, CO2	K2	PO4
1(ii)	Which of the following is said to be a biodegradable waste? a. Plastics b. Eggshell c. Glasses d. Polythene	1	CO2, CO4	K1	PO5
1(iii)	Which of the following is the cause of soil pollution? a. Ozone b. Acid rain c. Aerosol d. None of the above	1	CO2, CO3	K5	PO4
1(iv)	Which of the following has a maximum speed?	1	CO1	K1	PO5

Section B (Answer any FOUR out of SIX) - 28 Marks (Each question 7 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO
2	Enlist three effects of acid rain.	7	CO2	K1	PO4
3	Mention major impacts of global warming.	7	CO3	K5	PO5
4	Name three types of ecological pyramids? Which pyramid is always straight?	7	CO1	K4	PO5
5	What is population growth? Define with examples.	7	CO4	K2	PO6
6	Differentiate between food chain and food web.	7	CO3	K2	PO4
7	Write major objectives of environmental education.	7	CO4	K1	PO7

Section C (Answer any THREE out of FIVE) - 30 Marks-(Each question Carry 10 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO
8	What is an ecosystem? What are the different components of an ecosystem? How does energy flow through an ecosystem? Discuss by citing examples.	10	CO3	K3	PO1
9	What are the advantages and disadvantages of large hydropower projects? Discuss by giving suitable examples.	10	CO2	K3	PO5
10	What is the difference between conventional and non-conventional sources of energy? Which kind of energy sources are environment-friendly and why?	10	CO5	K5	PO4
11	Write definitions and sources of air pollution. Is air pollution also responsible for global warming? How?	10	CO2	K2	PO4
12	How is atmospheric pollution leading to ozone layer depletion? What would be the possible impacts of ozone layer depletion?	10	CO4	K4	PO6

1(v)	a. Light b. Sound c. Air d. Water current What is the estimated percentage of forest land that India should ideally have? a. 15% b. 44% c. 50% d. 33%	1	CO1 CO4	K2	PO4
1(vi)	The ozone layer is present in - a. Mesosphere b. Thermosphere c. Stratosphere d. None of the above	1	CO2 CO3	K1	PO7
1(vii)	Paper is made up of - a. Polythene and cotton b. Starch and cellulose c. Grass and Bamboo d. None of the above	1	CO2 CO3	K5	PO6
1(viii)	Which of the following gas destroys the chlorophyll present in the plant leaves? a. SO3 b. SO2 c. H2S d. CO2	1	CO3 CO4	K4	PO6
1(ix)	Which of these elements is present in the drinking water that can lead to numerous fatal diseases? a. Phosphorus b. Arsenic c. Calcium d. None of the above	1	CO2	K1	PO4
1(x)	Which of these gases is not permitted to be released by the Prevention and Control of Pollution Act by the Government? a. Sulphur Dioxide b. Carbon Monoxide c. Nitrogen Oxide d. All of the above	1	CO1	K2	PO6
1(xi)	How many total numbers of biodiversity hotspots are there in the world? a. 36 b. 32 c. 28 d. 18	1	CO1	K1	PO4
1(xii)	Which of these days is celebrated in the form of World Environment Day all around the world? a. July 5th b. October 20th c. June 10th d. June 5th	1	CO1	K1	PO4



Branch	Bachelor of Computer Application	Program Code	BCA
Subject Name	Operating System	Semester	IIInd
Course Code	CSC22008	Year	2022/Even

Time: 3 Hour Maximum
Marks : 70

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Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 01 Marks from Q1a to Q1j) - 10 Marks

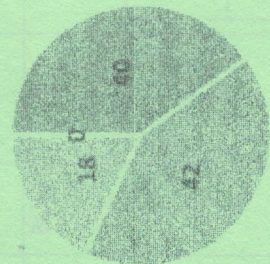
Q. No.1	QUESTION	Marks	COs	KL	PO
1(i)	In operating system, each process has its own a) Address space and global variables b) Open files c) Pending alarms, signals and signal handlers d) All of the mentioned	1	CO1	K2	PO4
1(ii)	Which one of the following error will be handle by the operating system? a) power failure b) lack of paper in printer c) connection failure in the network d) all of the mentioned	1	CO2	K1	PO5
1(iii)	The main function of the command interpreter is	1	CO2	K2	PO4

9	What is Process Synchronization? Explain Producer Consumer Problem and discuss about Race Condition.	4+6	CO6	K4	PO5
10	Explain Time sharing and Multiprogramming operating system with respect to scheduling.	5+5	CO3	K2	PO4
11	What is Paging? Explain Paging Techniques with example.	2+8	CO6	K2	PO4

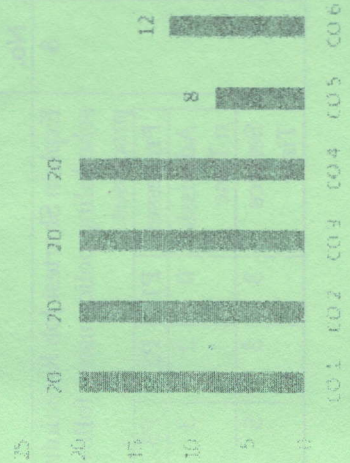
CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

Course Outcomes	CO1	To acquire the fundamental knowledge of the operating system architecture and components
	CO2	To know the various operations performed by the operating system.
	CO3	To Know about the Types of operating systems and differences among them
	CO4	To Know about the Processes, threads, and the differences between the two
	CO5	To Know about the Interrupts, synchronization, waiting, and atomic behaviour
	CO6	To Know about the Virtual memory, paging, and memory allocation Caching principles and quantitative estimation of cache behaviour

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



1(iv)	a) to get and execute the next user-specified command b) to provide the interface between the API and application program c) to handle the files in operating system d) none of the mentioned	1	CO1	K1	PO5
1(v)	What is the ready state of a process? a) when process is scheduled to run after some execution b) when process is unable to run until some task has been completed c) when process is using the CPU d) none of the mentioned	1	CO4	K2	PO4
1(vi)	Which one of the following is a synchronization tool? a) thread b) pipe c) semaphore d) socket	1	CO6	K1	PO7
1(vii)	In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of a) All process b) Currently running process c) Parent process d) Init process	1	CO5	K2	PO6
1(viii)	When high priority task is indirectly preempted by medium priority task effectively inverting the relative priority of the two tasks, the scenario is called a) priority inversion b) priority removal c) priority exchange	1	CO5	K4	PO6
1(ix)	Time quantum is defined in a) shortest job scheduling algorithm b) round robin scheduling algorithm c) priority scheduling algorithm d) multilevel queue scheduling algorithm	1	CO6	K1	PO4
1(x)	Process synchronization can be done on a) hardware level b) software level	1	CO1	K2	PO6

1(xi)	c) both hardware and software level d) none of the mentioned Which of the following is a Real Time Operating System. a) Industrial Control System b) Novell NetWare c) Multicast d) None of these.	1	CO1	K1	PO4
1(xii)	CPU fetches the instruction from memory according to the value of a) program counter b) status register c) instruction register d) program status word	1	CO1	K1	PO4

Section B (Answer any FOUR out of SIX) - 20 Marks (Each question 5 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO
2	What is Semaphore? Explain Binary Semaphore with one example.	7	CO2	K1	PO4
3	Explain Memory management in Operating System.	7	CO6	K2	PO5
4	Explain the process scheduling with neat diagram in operating system.	7	CO6	K4	PO5
5	Discuss the necessary conditions that cause deadlock situation to occur.	7	CO4	K2	PO6
6	Write down the importance of Distributed Operating System.	7	CO3	K2	PO4
7	What do you mean by Multiprocessor? Write down the applications of Multiprocessor?	2+5	CO4	K1	PO7

Section C (Answer any THREE out of FIVE) - 30 Marks-(Each question Carry 10 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO																		
8	Explain Shortest Job Remaining First scheduling policy using following set of processes.	10	CO5	K5	PO1																		
	<table border="1"> <thead> <tr> <th>Processes</th> <th>P1</th> <th>P2</th> <th>P3</th> <th>P4</th> <th>P5</th> </tr> </thead> <tbody> <tr> <td>Admission Time</td> <td>0</td> <td>2</td> <td>3</td> <td>4</td> <td>8</td> </tr> <tr> <td>Service Time</td> <td>3</td> <td>3</td> <td>5</td> <td>2</td> <td>3</td> </tr> </tbody> </table>	Processes	P1	P2	P3	P4	P5	Admission Time	0	2	3	4	8	Service Time	3	3	5	2	3				
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END TERM
EXAMINATION

Branch	Bachelor of Computer Application	Program	BCA
Subject Name	Object Oriented Programming with C++	Semester	IIND
Course Code	CSC22007	Year	2022/Even

Time: 3 Hour
Maximum Marks : 70

- Start writing from 2nd page onwards; don't Write On The 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Four out of Six of Section B
- Answer Any Three out of Five of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.

Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating
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Section A (Each question Carry 02 Marks from Q1i to Q1xii) – 120 Marks

Q. No.1	QUESTION	Marks	COs	KL	PO
(i)	Which of the following is not type of class? a) Abstract Class b) Final Class c) Start Class d) String Class	1	CO2	K2	PO1
(ii)	What is default access specified for data members or member functions declared within a class without any specified, in C++? a) Private b) Protected c) Public d) Depends on compiler	1	CO4	K4, K5	PO8
(iii)	What is the scope of a class nested inside another class? a) Protected scope b) Private scope c) Global scope	1	CO1	K4	PO3

	d) Depends on access specified and inheritance used					
1(iv)	Which syntax for class definition is wrong? a) class student{ }; b) student class{ }; c) class student{ public: student(int a){ } }; d) class student{ student(int a){ } };	1	CO2	K4	PO	
1(v)	What is the role of a constructor in classes? a) To modify the data whenever required b) To destroy an object c) To initialize the data members of an object when it is created d) To call private functions from the outer world	1	CO1	K2	PO	
1(vi)	What is a copy constructor? a) A constructor that allows a user to move data from one object to another b) A constructor to initialize an object with the values of another object c) A constructor to check the whether to objects are equal or not d) A constructor to kill other copies of a given object.	1	CO2	K1	PO	
1(vii)	Which among the following best describes polymorphism? a) It is the ability for a message/data to be processed in more than one form b) It is the ability for a message/data to be processed in only 1 form c) It is the ability for many messages/data to be processed in one way d) It is the ability for undefined message/data to be processed in at least one way	1	CO3	K1, K2	PO	
1(viii)	Which is the correct syntax of defining a pure virtual function? a) pure virtual return type func(); b) virtual return type func() pure; c) virtual return type func() = 0; d) virtual return type func();	1	CO1	K1, K2	PO	
1(ix)	Which access type data gets derived as private member in derived class?	1	CO3	K1	PO	

	a) Private b) Public c) Protected d) Protected and Private				
1(x)	Which type of program is recommended to include in try block? a) Static memory allocation b) Dynamic memory allocation c) Const reference d) Pointer	1	CO3	K1	PO10
1(xi)	What is meant by the template parameter? a) It can be used to pass a type as an argument b) It can be used to evaluate a type c) It can of no return type d) It can be used to delete a type	1	CO4	K2	PO3
1(xii)	Which of the following is used to create a stream that performs both input and output operations? a) Of stream b) If stream c) Upstream d) Stream	1	CO4	K2	PO4

Section B (Answer any FOUR out of SIX) - 20 Marks (Each question 7 Marks)

Q. No.	QUESTION	Marks	COs	KL	PO
2	Discuss the Importance of Data Abstraction and Encapsulation with a real time example.	7	CO1	K2, K4	PO1
3	Differentiate between Class and Object. Describe them by giving an example.	7	CO1	K1, K6	PO10
4	Why Operator Overloading is used in C++? How to Overload operators in C++?	7	CO2	K3, K5	PO3
5	Write a program using a try block to detect and throw an exception if the condition "divide-by-zero" occurs.	7	CO3	K1, K6	PO5
6	Define Inheritance? List out the different types of inheritance with its concept?	7	CO3	K1, K2	PO2

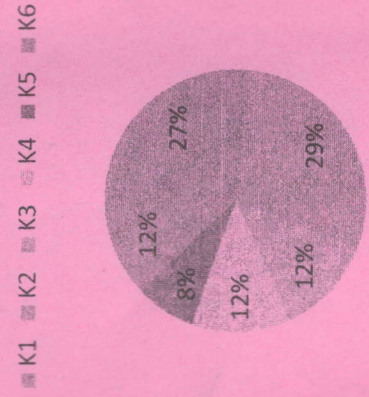
Q. No	QUESTION	Marks	COs	KL
7	Write a C++ program using a member function to get the Students details (roll-on, name and marks of five subjects). Introduce a Friend Function to calculate and Print the Percentage of marks.	7	CO3	K3, K6
Section C (Answer any THREE out of FIVE question 3x 10=30)				
Q. No	QUESTION	Marks	COs	KL
8	Discuss the Unique advantages of Object Oriented Programming paradigm?	10	CO2	K1 K2
9	What are the various types of Constructor? Give an example for each. Whether constructor could be overload? Justify Your answer through an example.	10	CO3	K1 K2 K3, K6
10	Create a base class shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class, a member function get data () to initialize base class data member and another member function display area () as a virtual function and redefine this function in the derived class to suit their requirements. Using these three classes, design a program that will accept dimensions of a rectangle or a triangle interactively and display the area. Remember the two values given as input will be treated as length of two sides in case of rectangle and base and height in case of triangles.	10	CO4	K2 K6
11	An electricity board charges the following rates to domestic users to discourage large consumption of energy. Units Consumed Charge • Up to 100 units 1.50 per unit • For next 200 units 3.00 per unit • More than 300 units 5.00 per unit All the users are charged a minimum of Rs. 100. If the total cost exceeds Rs.250, then an additional charge of 15% is added. Write a program to read the names of the user and number of units consumed and print out the charges with names.	10	CO4	K3 K4 K5, K6

Q. No	QUESTION	Marks	COs	KL	PO
12	Define the Following a. Abstract Data Type b. Polymorphism c. Virtual Function d. Encapsulation e. function Overriding		CO1	K1, K2	PO5

CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

Course Outcomes	CO1	CO2	CO3	CO4
	Analyze the logic of a given problem	Use branching control statements and iterative control statements using C++.	Demonstrate the concepts of Reusability through the use of functions, Inheritance & Polymorphism	Analyze the problem statement and decide the logic to solve the problem using C++ Programming.

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution

