4	
	Homework Questions of 1st April 2023
Q1	What is padding & greedy alignment in
	Classes ?
	It is important to note that only the
	non- Static data members will contribute
	to the size of class. The static data
	members & the member functions does
	members & the member functions does not contribute to the size of class.
	in the territory of the second
	class Animal {
	intai mante a manufe
	charb;
+3 +	public: 11 = mitting ab Sunning 1 *
	void set A (inta) {
	this → a = a;
	g . xatiled
	3; Entre Linda A Zenion
	main() {
	cout << Size of (Animal)
_ ` }	3 *
	The output of the above code will be 8
	butes but shouldn't it be 4+1 = 5 buter.
	The output of the above code will be 8 bytes but shouldn't it be 4+1 = 5 bytes. The answer is no 4 the reason behind this
	is known as padding & alignment.
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	int → 4 bytes
	char I byte
1950	int (4 bytes)
To Chin	Char Padding
	1(Ibyte)) 3 bytes
Cil	Size of class = Size of all non- static data
	members + padding.
	members + padding. Hence size of (Animal) = 4+1+3 = 8 bytes.
	class Fish {
	double as
	intabi
	charchi
	3;
	Now what is the size of Fish? The answer is bytes Let's see how.
	1s by tes. Let's see Now.
	int → 4 bytes
	char - 1 byte + 3 badding bytes
	double -1 8 bytes
	COGBI-
	4+4+8=16 bytes.
	double (8 bytes)
	int (4 bytes) 5 Done padding
	1 byte > 3 bytes
	It is a delien in housever combiler
	The method of padding is however compiler
	dependent & kind of greedy. It aligns till the boundary of maximum memory allocated.
	boundary of manifering
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Ql	What is memory leak? How to prevent it?
	Memory leakage occurs in C++ when the
	programmer has allocated memory with
	programmer has allocated memory with the help of new keyword & then forget to
	delete the memory allocated with the
	delete keyword.
2.1	Memory leak occurs when we use the wrong
	delete operator. The delete operator should
	be used to free a single allocated memory
	spall whereas delete [] is used free an
	array of data values.
1)	
)	Always deallocate the memory after use.
<u> </u>	We should have few new /delete calls in
	We should have few new /delete calls in program level - ideally none.
Q3	
_ & >	Prompt is garbage collector?
	What is garbage collector? Garbage collection is an automated process of deleting code that is no longer to
	of deleting code that is no longer needed
	and a second the second to the
	The garbage collector considers unreachable objects garbage & releases the memory that is allocated by them. During the collection, it examines the managed heap, looking to
	Objects garbage & releases to
	is allocated by them. During the memory that
	it examines the managed head to collection,
	blocks of address space occupied to
	it examines the managed heap, looking for objects.
Q4	What is const keyword in C++?
	Value that can real to define a constant
	What is const keyword in C++? We use const keyword to define a constant Value that can not be changed during the execution.
	THE EXCUMINATION
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1)	const variable -> defines variable values that can never be changed. Syntaxiatype -> value to be assigned here itself.
	that can never be changed.
100	Syntaxatatype value to be assigned here itself.
	CONSEA W = 33
4	4 Reyword - variable name
	Now if we try to do any modifications to
	a, we would get an evror.
	Jones Clarate Line
ತ್ರ	constant pointer - we can't change the
	address of const pointer after its initialization
	Which means it points to the same memory
	location.
	Syntax / keyword > variable name
	int* const ptr = ξ
a de la constante de la consta	4 datatype 4 name of pointer
	Harris I'm minu haares as a second
3)	Pointer to constant variable - It means that
	pointer points to the value of const variable
100	that can not be changed.
	Suntax
The second	int = 7
100	const int * ptr = 4 x j
	the constant variable &
C.	Now or becomes the constant variable &
	its value can not be changed.
(.)	1 Junction againements -> 9fths
4)	constant function againment is constant.
	constant function arguements -> 9f the value of function arguement is constant, then function can't change its value
	Then Junction and
	Syntax int Test (const int x) { 3
244	4 Test can't change value of X.
	" Scarined With Can

	Date Page
	> Read only function
5)	const member function of class - A const member function of class never changes the value of any class data members &
	member function of class never changes
	the value of any class data members &
	also never calle any non-const function.
	syntasc
	class Animal ?
	public: > const keyword added
	void sleep() const {
	cout << "Sleeping" j
	3;
	AND THE STATE OF T
6)	const data members of class - The const
•	data members can not be assigned the
	values awaity is account from however
	they can be assigned value via constructor.
31))	Syntax
2' ;	class Animal t
	const int x3
	public: x Animal (inty): (y) { 3
	Animal (Inty): (y) { 3
57)	constant objects → The value of data members can never change till the life of the object in the frogram. They are also
	members can never change till the lile of
	the object in the program. They are also
	RIJOVOIT WS I COME OTHING OBJECTS.
	Syntax piclais name
	const Animal obj ; 4 keyword 4 object name
	4 keyword 4 Object name

Q5	What is static keyword in C++? Static variables -> When a variable is declared
1)	Static variables - When a variable is declared
	as static, the space for it gets allocated for
1000	the lifetime of the broggam · Even if function
	the lifetime of the program · Even if function is called multiple times, space for static variable is allocated only once & the value of
	variable is allocated only once & the value of
	variable in previous call gets carried through
	mext function call.
	Mext function call. Syntax p datatype
	static int is
	Static int is hame
Ex→	void demo () {
	Static int cnt ; // By default cnt = 0.
	static int cnt j // By default cnt = 0. cout << cnt << "");
	cnt ++j
	3
A part of	main () {
	for (int i=0) i < 5) i++) {
	demo();
	<u>}</u>
	3
	0/p -> 0 1 2 3 4
	If we didn't use static Reyword, Then
	If we didn't use static keyword, then 0/p will be 0 0 0 0 0.
2)	Static member functions - They are allowed
	to access only static data members or
	Static member functions - They are allowed to access only static data members or static member functions of the class.
	Syntax - Static Knid Sleek () & - 3
	Inside class = Static void Sleep () \(\xi - \xi \)

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Q٤	What is initializer list in C++?
	Initializer list is used to initialize the
	data members of the class.
aca.	the Michigan of the broad and the amiliary that
	class Point { and die
	private: an almo bottos de el plantes
	and beint xilan against an alliance
	int y i allos nochana exam
	bublic:
	Point (int i, int j) :x(i), y(j) { 3
	Initializer list
	3;
	t (1) to make Liove + 2)

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