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	OOPJ- Assignment NO.3 (Interview Questions).
185	The state of the s
Qì	Explain the concepts of JDK
32	ANS: JDK (Java Development kit) has three main component
Mr. of	A CONTRACT OF THE PROPERTY OF THE STATE OF T
	1. JKE (Java Runtime Environment):
4.	It allows you to rum Java Pragrams, It includes the
	Java virtual machine (JVIM) and core licutraries.
الوالحوا	the state of the s
10	2. JVM (Java virtual Machine):
Di sai	It is responsible for summing the Java bytecode (The
Maria IV	complited version of java code) Jivin makes sure the same
	Java program con sun on different computers.
5 % C	
1	3. Development tools:
<u> </u>	These tools are like Java compiler (javac), debugger
1.00	and other utilities to write compile and debugg Java programs.
	12.2
Qગ્ર	Differentiate between JDK, JVM, JRE
d main	and the second of the second o
	Difference between JDK, JRE, JVM-
	JDK-It is a software development envisonment that
	Provide tools to devlop Java applications. It includes
- 10	tools like JRE (compiler.
¥	The second of th
	JVM- Its virtual Machine that runs Java byte code, It allows
	Java program to be executed on different program.
3.4	
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	JRE- Java Runtime environment- Its a pakage of software
	that includes the JVM and libraries to run Java
	applications but it doesn include development tools
	like JOK
\$16- · I	the second of the form of the second
Q3	What is the sole of JVM in Java? How does the JVM execute
	the Java code.
,	value to the specific page of the set of the
	ANG: The Java Virtual Machine (JVM) is responsible for
	ruming a Java program. It provide an environment where
	Java bytecode (compiled Java code) is executed. The JVM
174	allows Java to be platform independent, meaning the
	Some Java code can sun on any device with a compatible
	JVM. 12 Tests of the second se
	· How the JVM executes the Java code - the Java code -
114 - 14	20 m) rolling rolling 21. 25 to 3 3. 16
6 11 12	1. Compilation: - Java source rade firsty compiled to bytecode
	by the Java Compiler
	The first promoted provided the first the firs
	2. class loading: - The JVM's class loader loads the class
	Ales Into memory:
1	3. Byte code Verification: - The byte code is checked for
	errors ensuring it doesn't violates Javac security mules.
4_	The state of the s
	4. Execution: - The JVM's Interpreter or Just in time
C 1-1	compiler converts bytecode into machine code and execute
. p. 4 8	
	classmate PAGE PAGE
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dia.	DATE DATE
- No. 1	5. Garbage Collection: - The JVM manages memory by atomatically
15 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m	freeing unused objects during execution.
100	
Q4	Explain the memory management system of JVM
15	
Trick Later	ANS:- The memory management system of JVM is divided into
125	several areas , each responsible for storing different types
194.1	of data during program execution:
15 10	
	I. Heap: Stores objects and instance variable. This is where
2	the JVM allocates memory dynamically at runtime
	Garbage collection happens here to free up unused
	objects.
Dark 1	the same of the sa
	2. Stack: Holds local variables and function calls. Each thread
	has its own stack, and memory is released when
The second	method returns.
4	
N. C.	3. Method Areq: Contains class level data like method code
	strict variable, and mantime constant pool
- 注	
	4. PC . Registers: keeps tracks of the current Instruction
	being executed for each thread.
1	to be a series of the property of the series
1	5. Native Method Stack: Manages calls to mative (Non-Java)
	code: Frank in the second of t
	the JVM's Garbage collector is responsible for
	atomatically managing memory in the heap by removing
- 1831/10	mused object. I also as then had it depressed
1801 <u>1</u>	AN CONTRACTOR OF THE PROPERTY
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क्छ्र	JEE Complet What are the JIT Compiler and its note in the
	JVM? What is the bytecode and why it is important
	for Java.?
	CAN THE THE RESERVE TO A STATE OF THE PARTY
	ANS: JTT compiler and its Role in the JVM:
	. JIT (Just In Time) Compiler is a part of the JVM that
	converts bytecode into machine code at runtime for
	faster execution.
	The role of JIT compiler is it compiles frequently used
	code sections, improving performance by avoiding
× 75 (-)	reapeated interpretation.
1 2 1	an well and a strong some some of the second some
	Bytc code:-
	It is the intermidiate, platform independent code
1.	generated by Java Compiler
	It allows Java to men on any platform with JVM
	making it portable and emubling the "write once, run
	anywhere feature
	and the state of t
Q6]	Describe the Architecture OF JVM
	WANS: The Architecture of the JVM consist of
	1 - C - C
	1. class loader: loads Java files (completed byte code) Into memory.
	2. Byte code venifier: Ensures the loaded bytecode is valid
	2. Byte was rome. Ensured the rougher sylver is valid
	and doesn't violate any security rules.
	3 Interpreter: - Reach and execute the bytecode line byline
	S ITHOUGHTEN. THE GIRL CREATE THE BYLINE
77.5	page PAGE

	DATE
	4. Just In Time (JIT) compiler - Converts bytecode into mative
AND -	machine code for foster execution.
(He	Manfric Case to Justov Caccomo
117	5 Purchismo De Desers Trachiles
1,000	5 Runtime Data Areas: Includes: Method Area: Stores class structures like methods and variables.
SAL -	
	· Heap: Allocates memory for objects
	· Stack: Holds method calls and local variable
	· PC Register: Tracks the next instruction for each thread.
	· Native Method Stuck: Manages native (non-Java) method calls.
rates de	the state of the s
ALC:	6. Garbage Collector: Automatically reclaim memory by removing
	unused objects.
100	The total state of the state of
Q7	How does Java achieve platform independence through JVM?
- 12	Java achieves platform independence through the Java
題	virtual machine (JVM) by using an intermidiate form
	of code couled bytecode. Here's how the porcess work:
Ų.	is to all definition of
	1. compilation to bytecode: When a Java program is compiled, the
12/2	Java compiled, converts the source code into bytecode, which
- 13	is platform independent and that the land the
4C	
1	2 JVM Execution: The bytecode not specific to any machine or
11. 11.	operating System. Instead it is executed by the JVM. which
Hall Control	is available for various platform (Windows, Linux, macos, etc)
7.7%	Each platform has its own implementation of the JVM
(A)	which translates the bytecode into machine code for that
in.	specific system.
A Park	
A SALE	since the JVM abstract away the underlying hardware
2	Since the strike and the and the
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	and operating System differences, a Juva program can run
	any machine that has a compatible JVM installed achieving
	the "write once run anywhere" principle.
	THE WITTE BILL MATTINGUESE PINOT
०९	What is the significance of the class loader in Java? What is
	the process of garbage collection in Java.
p	The second of th
	Significance of the class loader in Java.
	1. Dynamic class loading: classes are loaded when required,
3.7	Saving memory and improving efficiency.
	d d
	2. Numespace Management: It ensures that each class is
	loaded within its own namespace, civoiding conflicts
	11 A de the and general representation of the law of the
	3. Security: The class loader ensures that classes are
	loaded from trusted sources and can enforce access
	restrictions
_4e ⁴	to appear of names and property of the second of the first of the firs
	4. Extensibility: Developers can define custom class loaders for special class-loading mechanisms
	đ
-	· Process of garbage collection.
(I Making: The GC Identifies which objects are Still
1.3%	I Making: The GC Identifies which objects are Still reachable in use and marks them.
15	A THE STREET OF STREET STREET STREET
elast.	2. Sweeping: It identifies imreferenced objects that one
	2. Sweeping: It identifies unreferenced objects that are mo larger needed.
	G. Compactiny:
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: 1-	After or	eclaining	memory fr	om Unre	Grenced obje	ets, the				
7	remaining objects are compacted to reduce foregreentation									
4	and ma	ke momory	allocation	more effi	icient.					
1		J	and day to			1				
	Java's a	arbage col	lection pro	ress rums	in the box	kgwund				
ri N	mpouving	1 memosu	managemen	t without	the need for	r				
	ezyolicit	memory	deallocation	by the d	eveloper.					
				· Land :		1				
9	What are	four acc	cess modifie	ess in Java	, and how	do they				
	differ for					J				
					171 22 285					
	Modifier	class	Packaye	Subclass	Morld					
ic Maria	Public	Yes	Yes	Yes	Yes	ty.				
=	Protected	No.	Yes	YES	, 20					
	Default	No	Yes	No.	NO					
ŗ.	Private	No	NO	No	No					
žn.			A Company of the		n si i	H +				
	· Public: Maximum visibility! accessible from anywhere									
	· Pactecte	ed: Limited	l to the s	same pack	age and sub	class				
2.	· default	: Limited	to the sam	ne package.						
	· Private	: Restrict	ed to the	deltaring a	class only.					
13 20 1	in the	1 17 11	Les while	of there :	Later Marie Contract	+1.				
7	These access modifiens allow developers to design									
1-3	rebust and secure Java application by controlling how									
<u>i</u>	differe	nt park	of the co	te interact	- with each	other.				
		413-23		N Die.	1 3 1	Y K				
	can you override a method with a different access									
Q 1]	can you	override	a metho			modifiers in a Subclass? for example can a protected				
Q 1]										
Q 1]	modifiers	in a Sul	belass? for	example		eted				
Q 1]	modifiers method	in a Sul	belass? fer Derclass b	e overnode	can a prote	eted private				

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	No, we can't override a method with more restrictive
	access modifier. A protected method in a superclass
	cannot be oversiden with a private method in a
	Subclass. The access level of the orriding method must be
loses.	the same or more permissive.
	and there are made and many one property the second than
Q12]	What is the difference between protected and default
0	(Palage-private) access?
1124	en la
1	The difference between protected and defait (Pakage-Private)
	acess is:
	The state of the s
	· Protected: The member is accessible within the same
	pakage and also by subclasses, even if they are in
	different pakages
	of the second
	· Default Pakage: - The member is only accessible within
	(Falsage Private) the Same palkage, not outside it or by
197	Subalgsses in other pakages.
	and the second of the second o
वर्ष	Is it possible to make a class in private in Java?
	If yes, where can it be done and what are limitabilities?
	. Held and in a rainful and the profession of the same of
	ANS! Yes It is possible to make a class private in Java
	but it can be done only for mested (inner) classes.
	A top level class can not be posivate.
	In the Manual Transfer of the state of the s
	Limitations:
· · · · · ·	. A private nested class can only be accessed within the
	enclosing class.
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	· A top level class in Java can only have public or
	package - private (defait) access, not private.
	package - private (setting as-
- ON	Com a top level class a Java be declared as protected or private.
<u> </u>	why or why not?
	and a second
	ANS: No a top-level class in Java cannot be declared as
	protected or private.
	das linear in
	This is because access modifiers like protected and private
	are meant to control access within classes and inheritence
	for top level classes, the only allowed access modifiers
	are public (accessible everywhere) or pakage private
	Allowing protected or private would conflict with the
	visibility rules for top-level classes, which must be accessible
	to the entire pakage or beyond.
QU	What happens if you declare a variable or method as
	private in a class and try to access it it form another
	class within the same pakuye.
	ANS: If you declare a variable or method as private
	in a class and try to access it form another class
	within the same pakage, you will get compile-time
	error. Private members are only accessible within
	the same class and not from the classes, even if
	they are in the same pakage.
	classmate

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QL	Explain the concept of "fackage-finite" or "defaut" access How does it affect the visibility of class members.?
	ANS: Package-Private (or "default") access in Java means that a class member (variable, method, or class) is accessible
71 .	level when no access moder the radio, is specified.
	· Accessible within the same parkage (including all classes
	Not accessible from classes in other package reven if they are subclasses This access level is useful for grouping related classes
	and restricting access to pateuge neval functionality.
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