Assignment NO 4

Interview Questions.

1) 'Static' is crucial ~~Keyword~~ role in memory management. it used to allocate memory only once at class loading time. and the allocated memory is shared among the all instance in class.
This means that changes to a static member are class name rather than an object reference.

2) Static method can be overloaded (multiple method with the same name but different parameter) but can not be overridden (method to be invoked is determined at compile-time.
Static variable shared across multiple instance of a class stored in the class memory space as and all instance. share the same copy.

3)/4) Final Keyword in java has three main uses.

1) Final variable : a variable declared as 'final' cannot be reassigned once it's initialized.

2) Final method : A method declared as final cannot be overridden in a subclass.

3) Final classes : A class declared as final cannot be subclassed.

5) Widening conversion.
It occurs when a smaller data type is converted to a longer data type
ex
byte to 'short', 'int', 'long', 'float' or double

Narrowing Conversion.
it conversion occurs when a longer data type is converted to a smaller data type
ex
short to byte or char.

6) During narrowing conversion, java handles potential loss of precision by performing the following

Rounding: when converting float or double to an integer type, java rounds towards zero.

Truncation: when converting a long to int type, java truncates the high order bits.

Information loss: when converting a large type to a smaller type java discards the extra info, which can result in loss of ~~per~~ precision.

7) automatic widening conversion in java :-
In java automatic widening occurs. when a smaller data type is assigned to a larger data type this conversion is done implicitly by the compiler without the need for explicit casting.
ex :-
byte to "short, int", long, float, double

8) Narrowing conversion can result in data loss due to truncation or rounding, while widening conversion are generally safe and do not result in data loss.

Narrowing conversions : can lead to loss of precision, overflow or underflow making them potentially incompatible with the original data type.

Widening Conversion :- they are generally compatible with the original data type as they do not result in data loss, but may still cause issues if the widened value exceeds the maximum limits the new type.