Q1:

|  |
| --- |
| different objects have different sizes |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q2:

|  |
| --- |
| to process a recursive data structure such as a tree, recursion is often the best strategy |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q3:

|  |
| --- |
| the Eight Queens problem can be solved elegantly and efficiently using recursion and backtracking |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q4:

|  |
| --- |
| objects are stored on the heap until they are no longer referenced |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q5:

|  |
| --- |
| objects are stored on the heap because they are too large to fit on the stack  Look at Q9 |
| |  |  | | --- | --- | | Answers: | True | |  | Correct False | |

Q6:

|  |
| --- |
| a recursive method without a base case will run forever  Look at mock exam answers for explanation |
| |  |  | | --- | --- | | Answers: | True | |  | Correct False | |

Q7:

|  |
| --- |
| a recursive method must have a correctly defined base case to guarantee termination |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q8:

|  |
| --- |
| the best garbage collection strategy to use is application specific |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q9:

|  |
| --- |
| objects are stored on the heap because their lifetime cannot be predicted |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q10:

|  |
| --- |
| recursion gives a simple way to generate all permutations of a sequence |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q11:

|  |
| --- |
| objects can change size during their lifetime |
| |  |  | | --- | --- | | Answers: | True | |  | Correct False | |

Q12:

|  |
| --- |
| with each level of recursion arguments must decrease according to some measure |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q13:

|  |
| --- |
| a naive recursive definition of the Fibonacci sequence has exponential time complexity |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q14:

|  |
| --- |
| some problems have clearer recursive solutions, others have clearer iterative ones |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q15:

|  |
| --- |
| an iterative program can always be turned into a tail recursive one |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q16:

|  |
| --- |
| the main disadvantages of manual memory management are dangling references and space leaks |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q17:

|  |
| --- |
| recursive exponentiation can be used to compute Fibonacci numbers with linear time complexity |
| |  |  | | --- | --- | | Answers: | True | |  | Correct False | |

Q18:

|  |
| --- |
| recursion is a pattern of self-definition known to be safe |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q19:

|  |
| --- |
| the main disadvantage of automatic memory management is the garbage collection overhead |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q20:

|  |
| --- |
| primitive recursion, defining f(x+1) using f(x) where x > 0, is equivalent to a foreach loop |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q21:

|  |
| --- |
| a recursive program can always be turned into an iterative one emulating the call stack |
| |  |  | | --- | --- | | Answers: | Correct True | |

Q22:

|  |
| --- |
| The Towers of Hanoi is a well known problem that is easily solved recursively |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q23:

|  |
| --- |
| objects can be shared between threads because they are stored on the heap |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q24:

|  |
| --- |
| recursion can be used to define data types as well as methods |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q25:

|  |
| --- |
| to process a linear data structure such as a list, recursion is often the best strategy |
| |  |  | | --- | --- | | Answers: | True | |  | Correct False | |

Q26:

|  |
| --- |
| recursive programs always run more slowly than equivalent iterative ones |
| |  |  | | --- | --- | | Answers: | True | |  | Correct False | |

Q27:

|  |
| --- |
| automatic variables are (de-)allocated by (dec-)/incrementing the stack pointer  <https://en.wikipedia.org/wiki/Automatic_variable> |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |

Q28:

|  |
| --- |
| the heap may need to be compacted to bring free spaces together |
| |  |  | | --- | --- | | Answers: | Correct True | |  | False | |