001. A synthesized attribute is an attribute whose value at a parse tree node depends on _____ **C**

A Attributes at the siblings only
B Attributes at parent node only
C Attributes at children nodes only
D Attributes at children nodes and parents nodes.

002. In a bottom up evaluation of a syntax direction definition, inherited attributes can _____ **C**

A Always be evaluated
B Be evaluated only if the definition is L attributed
C Evaluation only done if the definition has synthesized attributes
D Be evaluated only if the definition is Rattributed

003. Consider the given below SDT. P1: S -> MN {S.val= M.val + N.val} P2: M -> PQ {M.val = P.val * Q.val and P.val =Q.val} Select the correct option **C**

A Both P1 and P2 are S-attributed.
B P1 is S-attributed and P2 is L-attributed.
C P1 is L-attributed but P2 is not L-attributed.
D Both P1 and P2 are L- attributed

004. Synthesized attribute can be easily simulated by a_____ **D**

A LL grammar
B Ambiguous grammar
C CLR grammar
D LR grammar

005. The errors that can be pointed out by the compiler are known as _____ **D**

A Internal errors
B Logical errors
C Semantic errors
D Syntax errors

006. Inherited attribute is a natural choice in _____ **A**

A Tracking declaration of a variable
B Correct use of L and R values
C Tracking the declaration of L values
D Correct use of R values

007. Semantic errors can be detected at _____ **C**

A Compile time only
B Run-time only
C Both Compile and Run time
D Loading time

008. Which of the following groups is/are token together into syntactic structures? **C**

A Syntax Analyzer
B Semantic Analyser
C Lexical Analyzer
D Intermediate Code Generation

009. Syntax directed translation can be based on_____ **C**

A Syntax Tree
B Parse Tree
C Syntax tree as well as Parse Tree.
D Abstract Syntax Tree

010. Notations for associating semantic rules with productions are_____ **D**

A Syntax Directed Definition
B Translation Scheme
C Postfix Notation
D Syntax Directed Definition and Translation Scheme

011. The interdependencies among inherited and synthesized attributes at nodes in parse tree can be depicted by_____ **B**

A DAG
B Dependency graph
C Interdependency graph
D Wait for graph

012. Inherited attribute can easily be simulated by an _____OW **A**

A LL grammar
B Ambiguous Grammar
C LR grammar
D Unambiguous Grammar.

013. Syntax Directed Translation (SDD) that involves only synthesized attributes is called_____ **A**

A S-Attributed
B L-Attributed
C K-Attributed
D R- Attributed

014. Which one of the following is not method for evaluating semantic rules? NSWER **C**

A Parse tree methods
B Oblivious method
C Syntax -based methods
D Rule-based methods

015. In synthesize attribute, we can evaluate in_____order. **A**

A Bottom-up B Top-down
C Preorder D postorder.

016. Syntax Directed Translation (SDD) without side effects is called _____ **C**
A Context free grammar B Operator grammar
C Attribute grammar D Context sensitive grammar

017. When is the type checking usually done? **A**
A During syntax directed translation B During lexical analysis
C During code optimization D During syntax analysis

018. Which of the following component is important for semantic analysis? **D**
A Lex B Symbol Table
C Yacc D Type Checking

019. In the compiler, the function of using intermediate code is_____ **C**
A toincrease the error reporting & recovery B tomake semantic analysis easier
C toincrease the chances of re-using the machine-independent code optimizerin other compilers D toimprove the register allocation

020. Which one of the following is not type of intermediate code representations? **C**
A Syntax tree B Postfix
C Preorder D Three address code

021. In inherited attribute, we can evaluate in_____order.OW ANSWER **B**
A Bottom-up B Top-down
C Post order D Preorder

022. Which of the following is essential for converting an infix expression to the postfix from efficiently? **A**
A An operator stack B An operand stack
C An operand stack and an operator stack D A parse tree

023. From the following production with semantic rule E.val is_____ E E1 + T { E.val = E1.val + T.val} **D**
A L-Attribute B Inherited Attribute
C Syntax Attribute D Synthesized Attribute

024. What is true about Syntax Directed Definitions? **C**
A Syntax Directed Definitions + Semantic rules = CFG B Syntax Directed Definitions + CFG = Semantic rules
C CFG + Semantic rules = Syntax Directed Definitions D CSG+ Syntax Directed Definitions=Semantic Rules

025. _____ constructs the desired target program from the intermediate representation of the source program. **C**
A Analysis Part B Lexical Part
C Synthesis Part D Syntactic Part

026. In a single pass assembler, most of the forward references can be avoided by putting the restriction. **B**
A on the number of strings/life reacts B code segment to be defined after data segment
C on unconditional jumps D on conditional jumps

027. Back-patching is useful for handling_____ **D**
A uncondinal jumps B conditional jump
C backward references D forward references

028. Which of the following component is important for semantic analysis? **D**
A Yacc B Lex
C Symbol Table D Type Checking

029. _____Type Checking is defined as the type checking being done at run time. **C**

A Static B Control
C Dynamic D Syntactic

030. Translating the expression given below into quadruple representation, how many operations are required? (i*j) + (e+f) * (a*b+c). **D**

A 5 B 2
C 4 D 6

031. Quadruple is a record structure with four fields_____ **A**

A op, arg1, arg2 and result B op1, op2, arg2 and result
C arg1, arg2, result and op D arg1,arg2,arg3 and result

032. Graph used to represent semantic network is _____ **B**

A Undirected Graph B Directed Graph
C Directed Acyclic Graph (DAG) D Directed Complete Graph

033. Consider line number 3 of the following C - program. int main ( ) { int i, n; for (i = 0, i < n, i++); } **C**

A No compilation error B only lexical errors
C only syntactic errors D both lexical and syntactic errors

034. ab* is an example of _____ **A**

A postfix notation B abstract syntax tree
C three address code D parse tree

035. Which of the following representation is a type of three address code? **D**

A Quadruples B Triples
C Indirect triples D All of the above

036. Which statement is an abstract form of intermediate code? **A**

A 3- address B 2-address
C address D Intermediate code

037. Identify the function which generates three-address code. **B**

A gen_code() B emit()
C new_label() D lookup()

038. The three address code is a combination of assignment and a binary operator. **B**

A True B False
C True or False D True and False

039. Identify the incorrect statement about three address code. **D**

A It is not used by the optimizing compilers. B The instruction was hard to translate into assembly language.
C Each Three address code instruction has at least three operands. D All the mentioned

040. What is the function of the storage assignment? **D**

A Assign storage to all variables referenced in the source program B Assign storage to all temporary locations that are necessary for intermediate results
C Assign storage to literals, and to ensure that the storage is allocated and appropriate locations are initialized D All of the mentioned

041. What is garbage? **B**

A Unallocated storage B Allocated storage whose access paths are destroyed?
C Allocated storage D Uninitialized storage

042. _____can be used to generate code for Boolean expressions and flow-of-control statements in one pass. **C**

A Procedure call B Type expression
C Back-patching D Type equivalence

043. Three address code statements are typically implemented in the compiler as_____ **D**

A hash tables B symbol tables
C linked lists D records

044. _____have pointers to triple. **D**
A Triples B Quadruples
C TAC D Indirect triples

045. In Triples, a record with_____fields represent each of the Three Address Code(TAC) statements. **C**
A 4 B 2
C 3 D 1

046. _____is a simple statement that includes the procedure name, parentheses with actual parameter names or values, and a semicolon at the end. **A**
A Procedure Call B Calling Sequence
C Callee Sequence D Calling Function

047. In _____memory allocation, storage is allocated at run-time i.e. memory binding are established and destroyed during the execution of a program. **A**
A Dynamic B Static
C Automatic D Heap.

048. Which field is not present in activation record? **B**
A Saved machine status B Register allocation
C Optional control link D Temporaries

049. In_____allocation, a memory can be allocated or deallocated at arbitrary points during its execution. **D**
A Static B Dynamic
C Automatic D Program Controlled

050. The languages that need heap allocation in the runtime environment are _____ **D**
A Those that use Global Variable B Those that use Dynamic Scoping
C Those that support Recursion D Those that allow Dynamic Data Structures

051. Identify the Technique used to replace Run-Time Computations with Compile-Time Computations. **C**
A Peephole Optimization B Invariant Computations
C Constant Folding D Code Hoisting

052. Dynamic memory allocation is implemented using _____ **D**
A Array B Stacks
C Heap D Stacks and Heap

053. The memory for variable is allocated before the execution of a program is called ____allocation. **A**
A Static B Dynamic
C Automatic D Program Controlled

054. _____Tree is used to depict the way control enters and leaves activations. **A**
A Activation B Parse
C Syntax D Semantic

055. In activation tree each node represent_____. **B**
A Activation of main program B Activation of a procedure
C Activation of a function call D Activation of a record

056. Which of the following fields are of activation record? **D**
A Return value B Local data
C Temporaries D All of the above SHOW ANSWE

057. Which is not part of runtime memory subdivision? **C**
A Stack B Heap
C Access link D Static data

058. The size field of activation record can be determined at_____ **B**
A Run Time B Compile Time
C Compile Time and Run Time D Compile Time or Run Tim

059. Which of the following symbol table implementation makes efficient use of memory? **C**

A List B Search Tree
C Hash Table D Self-Organizing List

060. In which storage allocation strategy size is required at compiler time? **A**

A Static Allocation B Dynamic Allocation
C Stack Allocation D Heap Allocation.

061. In activation record, optional control link points to_____. **A**

A Activation record of caller B Activation record of callee
C Activation record of procedure D Activation record of sequence

062. Which of the following is used in various stages or phases of the compiler? **C**

A Records B Program
C SymbolTable D Table

063. The field of actual parameter in activation record is used by which procedure_____ **B**

A Calling procedure B Called procedure
C Calling and Called procedure D Calling sequence

064. The node for a is the parent of node for b if and only if_____. **B**

A If lifetime of a occurs before lifetime of b B If control flows from activation of a to b
C If lifetime of b occurs before lifetime of a D If control flows from activation of b to a

065. If the occurrence of name in procedure is in the scope of declaration within the procedure then it is said to be_____. **A**

A Local B Temporary
C Global D Class

066. Call by reference also called as_____. **C**

A Call-by-address B Call-by-location
C Call-by-address and location D Call-by-value

067. In which allocation, names are bound to storage as program is compiled_____. **D**

A Static B Heap
C Dynamic D Stack

068. The graph that shows basic blocks and their successor relationship is called _____ **C**

A DAG B Control Graph
C Flow Chart D Hamilton graph

069. An optimizing compiler _____ **A**

A Optimized the code B Is optimized to occupy less space
C Is optimized to take less time for execution D Optimized to occupy less space and less time for execution

070. Some code optimizations are carried out on the intermediate code because _____ **B**

A They enhance the portability of the complier to other target processors B Program analysis is name accurate on intermediate code than on machine code
C The information from data flow analysis cannot otherwise be used for optimization D The information from the front end cannot otherwise be used for optimization

071. Whenever a procedure is executed, its activation record is stored on the stack, also known as? **B**

A Access Stack B Control stack
C Formal Stack D Return Stack

072. The location of memory (address) where an expression is stored is known? **C**

A r-value B k-value

C l-value D t-value

073. A basic block can be analyzed by _____ **B**

A Graph with Cycles B Directed Acyclic Graph(DAG)
C Flow Graph D Directed Graph

074. The value of which variable is updated inside the loop by a loop-invariant value? **D**

A Invariable B Strength
C Loop D Induction

075. Substitution of values for names (whose values are constants) is done in_____. **C**

A Local optimization B Loop optimization
C Constant folding D Strength reduction

076. Which of the following comment about peep-hole optimization is true? **A**

A It is applied to small part of the code and applied repeatedly
B It can be used to optimize intermediate code
C It can be applied to a portion of the code that is not contiguous
D It is applied in symbol table to optimize the memory requirements

077. In compiler terminology reduction in strength means_____.. **D**

A Replacing run time computation by compile time computation
B Removing loop invariant computation
C Removing common sub expressions
D Replacing a costly operation by a relatively cheaper one

078. DAG representation of a basic block allows _____ **A**

A Automatic detection of local common sub expressions
B Detection of induction variables
C Automatic detection of loop variant
D Detection of dead code elimination

079. Replacement of an expensive operation by a cheaper one is called_____ **D**

A Common Sub Expression Elimination B Loop-Invariant Computation
C Code Motion D Reduction in Strength

080. Peephole optimization _____ **C**

A Loop Optimization B Local Optimization
C Constant folding D Data Flow analysis

081. Which graph describes the basic block and successor relationship? **B**

A DAG B Flow graph
C Control graph D Hamilton graph

082. Which graph describes the basic block and successor relationship? **C**

A Control graph B DAG
C Flow graph D Hamilton graph

083. Code can be optimized at_____ **A**

A Source from user B Target code
C Intermediate code D Assembler

084. Optimization can be categorized broadly into ____ types. **A**

A 2 B 3
C 4 D 5

085. Code optimization is responsibility of_____. **B**

A Application Programmer B System Programmer
C Operating System D Database Administrator

086. Dead-code elimination in machine code optimization refers to_____ **B**

A Removal of all labels.
B Removal of values that never get used.
C Removal of function which are not involved.
D Removal of a module after its use.

087. The technique of live variable analysis is used for_____ **C**

A Type checking B Code generation
C Code optimization D Parsing

088. Which of the following symbol table implementation is based on the property of locality of reference? **B**

A Linear list
B Self-organizing list
C Search tree
D Hash table

089. Which optimization technique is used to reduce the multiple jumps? **B**

A Latteroptimization technique
B Peepholeoptimization technique
C Localoptimization technique
D Codeoptimization technique

090. Input to code generator is _____ **B**

A Source code
B Intermediate code
C Target code
D Assembly code

091. Which method merges the multiple loops into the single one? **C**

A Constant Folding
B Loop rolling
C Loop fusion or jamming
D Strength reduction

092. The optimization which avoids test at every iteration is_____ **B**

A Loop jamming
B Loop unrolling
C Constant folding
D Loop Invariant

093. The optimization technique which is typically applied on loops is_____ **D**

A Removal of invariant computation
B Peephole optimization
C Constant folding
D All of these

094. Local and loop optimization in turn provide motivation for_____ **A**

A Data flow analysis
B Constant folding
C Pee hole optimization
D DFA and constant folding

095. Who is responsible for the creation of the symbol table? **B**

A Assembler
B Compiler
C Interpreter
D Loader

096. x * 2 can be replaced by x << 1 is an example of? **C**

A Algebraic expression simplification
B Accessing machine instructions
C Strength reduction
D Code Generator

097. The following code is an example of? void add_ten(int x) { return x + 10; printf(""'value of x is %d"", x); } **B**

A Redundant instruction elimination
B Unreachable code
C Flow of control optimization
D None of the above

098. In Algebraic expression simplification, a = a + 1 can simply be replaced by? **B**

A A
B INC a
C DEC a
D MUL a

099. Which of the following class of statement usually produces no executable code when compiled? **A**

A Declaration
B Assignment statements
C Input and output statements
D Structural statement

100. _____is the final phase of compiler **B**

A Semantic analysis
B Code generation
C Target code generation
D Syntax analysis

101. Consider the following intermediate program in three address code p = a - b q = p * c p = u * v q = p + q Which one of the following corresponds to a static single assignment form of the above code? **B**

A

```
p1 = a - b
q1 = p1 * c
p1 = u * c
q1 = p1 + q1
```

B

```
p3 = a - b
q4 = p3 * c
p4 = u * c
q5 = p4 + q4
```

C

D

```
p1 = a - b
q1 = p2 * c
p3 = u * c
q2 = p4 + q3
```

```
p1 = a - b
q1 = p * c
p2 = u * c
q2 = p + q
```

102. Some code optimizations are carried out on the intermediate code because_____ **A**

A They enhance the portability of the compiler to other target processors
B Program analysis is more accurate on intermediate code than on machine code
C The information from dataflow analysis cannot otherwise be used for optimization
D The information from the front end cannot otherwise be used for optimization.

103. Which of the following is related to synthesis phase? **B**

A Syntax analysis
B Code generation
C Lexical analysis
D Semantic analysis

104. The input to the code generator is a_____. **NO ANSWER GIVEN**

A Sequence of tree at lexical level
B Sequence of tree at semantic level
C Sequence of assembly language instruction
D Sequence of machine idioms

105. What is Machine Code_____ **C**

A Serial number of the CPU
B Instructions and data in human readable form
C Instructions and data in binary
D Instructions and data in assembly code mnemonics

106. How many descriptors are used for track both the registers (for availability) and addresses (location of values) while generating the code? **A**

A 2
B 3
C 4
D 5

107. _____ are used to keep track of memory locations where the values of identifiers are stored. **B**

A Register descriptor
B Address descriptor
C Memory descriptor
D Process descriptor

108. Code generator uses _____ function to determine the status of available registers and the location of name values. **D**

A setReg
B cinReg
C pfReg
D getReg

109. Replacing the expression 4*2.14 by 8.56 is known as a_____ **A**

A Constant Folding
B Induction Variable
C Strength reduction
D Code reduction

110. A register descriptor_____ **B**

A Keeps track of the usage of a register
B Keeps track of what is currently in each register
C Keeps track of what is currently in each address
D Keeps track of the address of each register

111. The cost of following instruction sequence isMOV b,R0 ADD c,R0 MOV R0,a **C**

A 3
B 2
C 6
D 4

112. An address descriptor is maintained for_____ **A**

A Each name in a block B Each symbol in the program
C Each register variable D Each memory variable

113. How many descriptors are used for track both the registers (for availability) and Addresses (location of values) while generating the code **A**
A 2 B 3
C 4 D 5

114. A fragment of code that resides in the loop and computes the same value at each iteration is called a? **C**
A Induction analysis B Strength reduction
C Loop-invariant code D Dead code elimination.

115. The compiler can make use of memory hierarchy and CPU registers. **A**
A TRUE B FALSE
C Can be true or false D Can notsa

116. The cost of the instruction MUL #1,R1 is_____ **A**
A 2 B 3
C 1 D 6

117. Formula for Instruction cost _____ **A**
A 1+cost for source and destination address modes B 1-cost for source and destination address modes
C 1+cost for source or destination address modes D 1-cost for source or destination address modes

118. The cost of following instruction sequence is _____ MOV *R1, *R0ADD *R2, *R0 **C**
Assuming R0, R1 and R2 contain the addresses of a, b, and c
A 4 B 3
C 2 D 1

119. address descriptorkeeps track of the location or locations where the _____ **A**
A Current value of that variable can be found. B Current register of that variable can be found.
C Current address of that variable can be found. D Current memory of that variable can be found.

120. In a simple code generation algorithm the GETREG() function is used to_____ **B**
A Return the location B Determine the location
C Find the previous location D Find the next location

121. Identify the odd statement in the list_____ **A**
A a = a+b B b[i] = a
C c = &b D a = *c

122. Which algorithm invokes a function GETREG()? **D**
A Code motion algorithm B Code optimization algorithm
C Intermediate code D Code generation algorithm

123. _____ is a tool that depicts the structure of basic blocks, helps to see the flow of values flowing among the basic blocks, and offers optimization too. **A**
A DAG B CAG
C SAG D PAG

124. Mapping names in the source program to addresses of data object in run time memory done comparatively by the front end and the code generator is called _____ **B**
A Target programs B Memory management
C Instruction selection D Register allocation

125. Address modes involving registers have cost _____ **D**
A One B Two
C Three D Zero

126. Which one is the form of target program_____ **B**
A High level language B Absolute machine language
C Low Level language D Middle level language

127. Initially all register descriptors value is _____ **B**

A Zero B Empty
C Non Empty D One

128. Descriptors are necessary for variable load and store decision. Descriptors are necessary for variable load and store decision. Descriptors are necessary for variables_____ **D**

A Load or Store decision B Load and Move decision
C Store and Move decision D Load and Store decision

129. Register allocation depends on: **A**

A Cost of loads/stores needed. B Cost of loads/moves needed.
C Cost of instructions/stores needed. D Cost of moves/stores needed.

130. Global register allocation can be solved **C**

A NP-Complete problems B Cache Memory Problems
C Graph colourings problems D NP-Hard Problems

131. Consider the following expression u*v+a-b*c Which one of the following corresponds to a static single assignment from the above expressions **B**

A x1= a - b y1= x2* c x3= u * v y2= x4+ y3 B x1= a - b y2= x1* c x2= u * v y3= x2+ y2
C p = a - b q = p * c p = u * v q = p + q D x1= a - b y1= p * c x2= u * v y2= p + q

132. **D**

```
for (i = 0, i<n; i++)
{
  for (j=0; j<n; j++)
  {
    if (i%2)
    {
      x += (4*j + 5*i);
      y += (7 + 4*j);
    }
  }
}
```

Consider the following C code segment.

A The code contains loop invariant computation B There is scope of common sub-expression elimination in this code
C There is scope of strength reduction in this code D There is scope of dead code elimination in this code

133. The pass number for each of the following activities 1. Object code generation 2. Literals added to literal table 3. Listing printed 4. Address resolution of local symbols **B**

A 1, 2, 1, 2 B 2, 1, 2, 1
C 2, 1, 1, 2 D 1, 2, 2, 2

134. Address modes involving memory location or literal have cost _____ **A**

A One B Two
C Three D Zero

135. Which of the following class of statement usually produces no executable code when compiled? **A**

A Declaration B Assignment statements
C Input and output statements D Structural statement

136. In a resident- OS computer, which of the following system software must reside in the main memory under all situations? **C**

A Assembler B Linker
C Loader D Compiler

137. The expression(a*b)* cop..... where &#39op &#39 is one of &#39+&#39,&#39*&#39 and &#39↑ &#39 (exponentiation) can be evaluated on a CPU with a single register without storing the value of(a * b)if_____ **A**

A &#39op is + or * B &#39op is or *
C &#39op is or + D not possible to evaluate without

storing

138. _____reduces the evaluation frequency of expression. **B**

A Variable propagation
B Code motion
C Dead code elimination
D Induction variable

139. Generate the code for Indexed Assignment statement a : = b[i] ? **A**

A MOV b(Ri), R
B MOV b, a(Ri)
C MOV b, a[Ri]
D MOV b[Ri], R

140. Register allocation is only within a basic block. It follows _____approach. **D**

A Bottom up
B Left to right
C Right to left
D Top-down

141. Consider the following code segment. x = u - t; y = x * v; x = y + w; y = t - z; y = x * y;The minimum number of total variables required to convert the above code segment to static single assignment form isNote : This question was asked as Numerical Answer Type. **A**

A 10
B 8
C 9
D 6

142. Relative to the program translated by a compiler, the same program when interpreted runs? **B**

A Faster
B Slower
C At the same speed
D May be faster or slower

143. Advantage of Local register allocation is _____ **D**

A Does not consider non-uniform distribution of uses
B few values reside in registers
C Does consider non-uniform distribution of uses
D Heavily used values reside in registers

144. To find out the live range(s) of each variable and the area(s) where the variable is used/defined _____allocation is needed. **C**

A Local
B Memory
C Global
D Register