# MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

**III B.Tech. II Sem (MR21) II -Mid Question Bank-2023-24 (Objective)**

**Subject: Compiler Design (B0532)**

**Branch: Department of Computer Science and Engineering**

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| S. No | Questions | Answers |
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| | **Modul-III** | |
| 1 | Find the prefix of the string "HINDUSUTAN".<br>a)HINDU b)STAN c)HINDUSTAN d)DUSTAN | [ A ] |
| 2 | Postfix notations are_____ representations.<br>(a) Linear (b) Graphical (c) Three-address (d) Virtual | [ A ] |
| 3 | How many types of intermediate code representations<br>a) 2<br>b) 3<br>c) 1<br>d) 4 | [ B ] |
| 4 | Memory allocation is dealt with_____<br>(a) pointer (b) code generation (c) backend (d) Symbol table | [ D ] |
| 5 | By whom is the symbol table created?<br>(a) Interpreter (b) Compiler (c) Assembler (d) None of the mentioned | [ B ] |
| 6 | Semantic Analyzer is used for?<br>(a) Generating Object code (c) None of the mentioned<br>(b) Main ting symbol table (d) Both of the mentioned | [ D ] |
| 7 | Select a Machine Independent phase of the compiler<br>(a) Syntax Analysis b) Intermediate Code generation<br>(c) All of the mentioned d) Lexical Analysis | [ D ] |
| 8 | The specific task storage manager performs<br>a) Allocation/ deal location of programs<br>b) Protection of storage area assigned to the program<br>c) Both of the mentioned<br>d) None of the mentioned | [ C ] |
| 9 | Type Conversion is the Process of<br>a) Converting one type to another type<br>b) Converting basic to higher<br>c) Both a and b<br>d) None of the mentioned | [ C ] |
| 10 | A grammar for a programming language is a formal description of<br>(a) Syntax (b) Semantics (c) Structure (d) Library | [ C ] |
| 11 | Assembler is a program that<br>(a) places programs into memory and prepares them for execution<br>(b) automates the translation of assembly language into machine language<br>(c) accepts a program written in a high level language and produces an object program | [ C ] |

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| | (d) None of these | |
| 12 | The symbol table implementation is based on the property of locality of reference is<br>(a) linear list (b) search tree (c) hash table (d) self-organization list | [ C ] |
| 13 | What are the issues that the runtime environment deals with<br>(a) The linkages among procedures (c) Procedures and parameters<br>(b) The parameter passing mechanism (d) None of these | [ C ] |
| 14 | The elements of runtime environment include _____<br>(a) Memory organization (c) Activation records<br>(b) Procedure calling, return sequences and parameter passing (d) All of these | [ D ] |
| 15 | Which of the following area in the memory is used to store activation records that are generated during procedure calls<br>(a) Heap (b) Runtime stack (c) Heap and stack (d) None of these | [ B ] |
| 16 | Which of the following is the parameter passing mechanism of a high level language<br>(a)Call by value (b) Call by reference (c) Call by Value and reference (d) Call by name | [ C ] |
| 17 | The _____ is a block of memory on the control stack used to manage information for every single execution of a procedure<br>(a) Procedure control block (c) Procedure basic block<br>(b) Activation tree (d) Activation record | [ B ] |
| 18 | _____ are used to depict the flow of control between the activations of procedures<br>a) Binary trees b) Data flow diagrams c) Activation tree d) transition diagrams | [ C ] |
| 19 | Intermediate forms of source language<br>a)Abstract syntax tree, Polish notation, Three address code<br>b)Abstract syntax tree ,Polish notation<br>c) Polish notation, Three address code<br>d) None of the above | [ A ] |
| 20 | What are two different type conversions<br>a) Implicit and explicit<br>b) User defined and system defined<br>c) Both a and b<br>d) None of the above | [ A ] |
| 21 | When is the type checking usually done?<br>a) During syntax directed translation b) During lexical analysis<br>c) During code optimization d) During syntax analysis | [ A ] |
| 22 | To generate intermediate code for expression and statements the language support two types of data types<br>a) Basic and constructed<br>b) Basic and defined<br>c) Both a and b<br>d) None of the mentioned | [ ] |
| 23 | Function of the storage assignment is<br>a) Assign storage to all variables referenced in the source program<br>b) Assign storage to all temporary locations that are necessary for intermediate results<br>c) Assign storage to literals, and to ensure that the storage is allocated and appropriate locations are initialized<br>d) None of the mentioned | [ ] |
| 24 | Which of the following does not interrupt a running process?<br>(a) A device (b) Timer (c) Scheduler (d) Power failure | [ D ] |
| 25 | Which of the following is not true for error detection and recovery<br>(a) error detection and recovery is the main task of the compiler | [ C ] |

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| | (b) Most of the errors are detected during lexical phase<br>(c) A compiler returns an error, if the input is not in the required format<br>(d) (d) A compiler returns an error, if the input in the required format | |
| 26 | Which of these features of assembler are Machine-Dependent<br>(a) Instruction formats (b) Addressing modes (c)Program relocation (d)All of the mentioned | [ D ] |
| 27 | A pictorial representation of the value computed by each statement in the basic block is<br>(a) Tree (b) DAG (c) Graph (d) None of the above | [ B ] |
| 28 | Reduction in strength means<br>(a) Replacing run time computation by compile time computation<br>(b) Removing loop invariant computation<br>(c) Removing common sub expression<br>(a) Replacing a costly operation by a relatively cheaper one | [ A ] |
| 29 | The optimization which avoids test at every iteration is<br>(a) Loop unrolling (b) Loop jamming (c) Constant folding (d) None of these | [ A ] |
| 30 | The optimization technique which is typically applied on loops is<br>(a ) Peephole optimization (b) Constant folding<br>(c ) Removal of invariant computation (d) All of these | [ D ] |
| 31 | _____Concept which can be used to identify loops is<br>(a) Dominators (b) Reducible graphs (c) Depth first ordering (d) All of these | [ D ] |
| 32 | Local and loop optimization in turn provide motivation for<br>(a) Data flow analysis (c) Pee hole optimization<br>(b) DFA and constant folding (d) Constant folding | [ A ] |
| 33 | The graph that shows basic blocks and their successor relationship is called<br>(a) DAG (b) Flow chart (c) Control graph (d) Hamiltonian graph | [ B ] |
| 34 | An optimizer compiler<br>(a) Is optimized to occupy less space (c) Is optimized to take less time for execution<br>(b) Optimizes the code (d) None of these | [ D ] |
| 35 | Pee hole optimization<br>(a)Loop optimization (b)Constant folding (c)local optimization (d)data flow analysis | [ C ] |
| 36 | Substitution of values for names whose values are constant, is done in<br>(a)Local optimization (b)Loop optimization (c)Constant folding (d)Variable propagation | [ C ] |
| 37 | The segment base is specified using the register named is<br>(a) ORG instructions (b) TITLE instruction (c) ASSUME instruction (d) SEGMENT instruction | [ A ] |
| 38 | Some code optimizations are carried out on the intermediate code because<br>(a) they enhance the portability of the compiler to other target processors<br>(b) program analysis is more accurate on intermediate code than on machine code<br>(c) the information from dataflow analysis cannot otherwise be used for optimization<br>(d) the information from the front end cannot otherwise be used for optimization | [ A ] |
| 39 | The method which merges the bodies of two loops is _____<br>(a) Loop rolling (b) Loop jamming (c) Constant folding (d) Loop unrolling | [ B ] |
| 40 | Frame pointer points to the<br>(a)Current activation record (b)parent activation record (c)child activation record<br>(d)none | [ ] |
| 41 | In analyzing the compilation of PL/I program, the term "Machine independent optimization" is associated with<br>(a) recognition of basic elements and creation of uniform symbols<br>(b) creation of more optical matrix | [ C ] |

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| | (c) reorganization of basic syntactic construction through reductions<br>(d) use of macro-processor to produce more optimal assembly code | |
| 42 | _____optimization is done after the target code has been generated.<br>(a) Machine-Independent b) Machine-dependent c) Both d) None | [ B ] |
| 43 | Machine-dependent optimizers put efforts to take maximum advantage of_____<br>(a) memory hierarchy b) Basic blocks c) Both d) None | [ A ] |
| 44 | A basic block does not include any _____ statement of any other basic block.<br>(a) Loop (b) Header (c) Initialization (d) none | [ B ] |
| 45 | Basic blocks play an important role in identifying _____.<br>(a) Loops ( b) Jump statements (c) Variables (d) All | [ C ] |
| 46 | Basic blocks in a program can be represented by means of _____.<br>(a) control flow graphs (b) Optimization (c) Both (d)None | [ A ] |
| 47 | A fragment of code that resides in the loop and computes the same value at each iteration is called a_____.<br>(a) loop-invariant code (b) Control flow graph (c) Data flow graph (d) all | [ A ] |
| 48 | A variable is called an _____ if its value is altered within the loop by a loop-invariant value.<br>(a) Strength reduction (b) induction variable (c) Both d) none | [ B ] |
| 49 | Each compiler uses its own _____ language<br>(a) Source (b) Target (c) intermediate (d) All | [ C ] |
| 50 | A basic block is a maximal sequence of instructions with _____.<br>(a) No labels and no jumps (b) Labels and jumps (c) both (d) none | [ A ] |
| 51 | The first instruction of each basic block is _____.<br>(a) Leader (b) Loop (c) Variable (d) none | [ A ] |
| 52 | A control-flow graph is a directed graph with Basic blocks as _____<br>(a) Nodes (b) edges ( c) tree (d) all | [ A ] |
| 53 | _____ is applying to a basic block in isolation.<br>(a) Global optimization (b) Local optimization (c) Both (d) None | [ B ] |
| 54 | Optimization must _____ the algorithm.<br>(a) Not change (b) Change (c) Both (d) None | [ A ] |
| 55 | Operations on constants can be computed at _____ time<br>(a) Run (b) Compile (c) Both (d) None | [ B ] |
| 56 | Intermediate code can be rewritten to be in _____ form.<br>(a) Double assignment (b) single assignment (c) No assignment (d) All | [ B ] |
| 57 | Optimization should increase the speed and performance of the _____.<br>(a) Program (b) Compiler (c) System (d) None | [ A ] |
| 58 | This code optimization phase attempts to improve the intermediate code to get a better target code as the output.<br>(a) Machine Independent Optimization (c) Both<br>(b) Machine Dependent Optimization (d)None | [ A ] |
| 59 | _____ is a optimization which brings code out of inner loop.<br>(a) Code motion (b) Strength reduction (c) Code movement (d) All | [ A ] |
| 60 | _____, an optimization technique that moves certain computations from program regions where they are very frequently executed to regions where they are less frequently executed.<br>(a) Frequency reduction (b) Strength reduction (c) Code motion (d) All | [ A ] |
| 61 | Three types of operations which will be considered loop-variant are:<br>(a) Assignments<br>(b) Function and procedure calls using call-by-reference parameter passing | [ D ] |

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| | (c) Output statements and the parameters in read (i.e., input) statements<br>(d) All | |
| 62 | If the value of a variable is a constant, then replace the variable by the constant is _____.<br>(a) Constant propagation (b) Variable propagation (c) Both (d) None | [ A ] |
| 63 | Consider a variable whose values can be computed at compilation time and controls whose decision can be determined at compilation time is _____.<br>(a) Folding (b) Propagation (c) Sub expression evaluation (d) All | [ A ] |
| 64 | Extension of constant propagation is _____.<br>(a) Folding (b) Constant propagation (c) Sub expression evaluation (d) None | [ B ] |
| 65 | _____ block will not have an incoming edge<br>(a) Unreachable code (b) Basic (c) DAG (d) All | [ A ] |
| 66 | Replace a function call with the body of the function is _____.<br>(a) Function inlining (b) Function cloning (c) Both (d) None | [ A ] |
| 67 | _____ is a tool that depicts the structure of basic blocks<br>(a) Directed Acyclic Graph (DAG) (b) Code optimizer (c) Code Generator (d) All | [ A ] |
| 68 | Leaf nodes represent_____.<br>(a) identifiers (b) names (c) Constants (d) All | [ D ] |
| 69 | An_____ is a variable whose value on each loop iteration is a linear function of the iteration index.<br>(a) induction variable (b) Identifier (c) Constant (d) None | [ A ] |
| 70 | Variable is live at a point p if its value is used along _____ Path.<br>(a) Two (b) Three (c) at least one (d) All | [ C ] |
| 71 | Set of Variables Used in B is _____.<br>(a) Gen set (b) Kill set (c) Both (d) None | [ A ] |
| 72 | What is Live-Variable Analysis?<br>(a) Backward Data-Flow Analysis Problem (c) Both<br>(b) Upwards Exposed (Gen) - Computed in a Forward Pass (d) None | [ C ] |
| 73 | We can avoid recomputing the expression if we can use the previously computed value by using _____.<br>(a) Common sub expression elimination (c) Copy propagation<br>(b) Dead-code elimination (d) None | [ A ] |
| 74 | Assignments of the form f : = g called _____.<br>(a) Assignment statement (b) copy statements (c) Dead code (d) All | [ B ] |
| 75 | A variable value is not used throughout the execution is called _____.<br>(a) Dead variable (b) Live variable (c) Both (d) None | [ A ] |
| 76 | The final phase of code generation is_____<br>(a) lexical analysis (b) syntax analysis (c) code generation (d) semantic analysis | [ C ] |
| 77 | Object code forms are_____<br>(a) absolute code (b) relocatable code (c) assembler code (d) all of the above | [ D ] |
| 78 | _____are the compilers which produce the absolute code as output<br>(a) WHATFIV (b) java (c) PL/C (d) both (a) and(b) | [ D ] |
| 79 | To add source to destinationthe machine instruction is_____<br>(a) SUB (b) DIV (c) MUL (d) ADD | [ D ] |
| 80 | In nested loop if a is allocated in loop L2 then it should not be allocated in _-____<br>(a) L1+L2 (b) L1-L2 (c) L1*L2 (d) L1/L2 | [ B ] |
| 81 | The modes of operand addressability S is used to _____<br>(a) Indicate value of operand in storage (c) Indicate value of operand in RAM<br>(b) Indicate value of operand in register (d) none of these | [ A ] |
| 82 | The modes of operand addressability R is used to _____ | [ B ] |

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| | (a) Indicate value of operand in storage (c) Indicate value of operand in RAM<br>(b) Indicate value of operand in register (d) none of these | |
| 83 | The algorithm used generating code from DAG is _____<br>(a) rearranging order (b) Heuristic ordering (c) labeling algorithm (d) all of the above | [ D ] |
| 84 | In global register allocation all the live variables are stored at_____<br>(a) beginning of each block (b) end of each block (c) middle of each block (d) None | [ B ] |
| 85 | In the instruction Op source destination the op is_____<br>(a) operator (b) Op code (c) operand (d) none of these | [ B ] |
| 86 | One of the following is an object code form<br>(a) Absolute machine language (c) Re-locatable machine code<br>(b) Assembly language (d) Above ALL | [ D ] |
| 87 | DAG stands for<br>a) Directed Acyclic Graph<br>b) Distributed Acyclic Graph<br>c) Both a and b<br>d) None of the above | [ A ] |
| 88 | Object Code forms are<br>(a) Absolute code (b) Relocateble machine code (c) Assembler code (d)All | [ A ] |
| 89 | The Output of Code generator is _____<br>(a) Source code (b) Target code (c) Intermediate code (d) None | [ B ] |
| 90 | _____ Phase takes intermediate code as input<br>(a) Code generation (b) Code optimization (c) Intermediate code generation (d) All | [ A ] |
| 91 | The instruction MOV moves<br>(a)Destination to Source (b)Source to Destination (c)Destination to Destination (d) None | [ B ] |
| 92 | The instruction ADD add<br>(a)Destination to Source (b)Source to Destination (c)Destination to Destination (d) None | [ B ] |
| 93 | The instruction SUB subtracts<br>(a)Destination to Source (b)Source to Destination (c)Destination to Destination (d) None | [ B ] |
| 94 | MOV #5,R0<br>(a)Stores constant 5 to R0(b)Stores constant 10 to R0(c)Stores constant R0 to 5 (d) None | [ A ] |
| 95 | Compute the cost of instruction MOV a,R0<br>(a) 4 (b) 6 (c) 2 (d) 0 | [ C ] |
| 96 | The Next-use information is a collection of _____<br>(a) Identifiers (b) Names (c) values (d)All | [ B ] |
| 97 | Strategies used in register allocation and assignment are_____<br>(a) Global register (b) Usage count (c) Register assignment for outer loop (d) All | [ D ] |
| 98 | In global register variables all the live variables are stored at_____<br>(a)Beginning of each block (b)Middle of each block (c)End of each block (d) None | [ C ] |
| 99 | machine code is also called as _____<br>(a) Source code (b) Intermediate code (c) Absolute code (d) All | [ C ] |
| 100 | A set of relocatable object modules can be linked together and loaded for execution with the help of a_____<br>(a) Linker (b) Loader (c) Linker and Loader (d) Assembler | [ C ] |
| 101 | A_____is used to keep track of what is currently in each register.<br>(a) File descriptor (b) File pointer (c) Register pointer (d) Register descriptor | [ D ] |
| 102 | The _____stores the location where the current value of the name can be found at run time<br>(a) address descriptor (b) Register descriptor (c) File descriptor (d) All | [ A ] |
| 103 | The labeling algorithm generates the _____for given expression in which | [ C ] |

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| | minimum registers are required.<br>(a) Intermediate code (b) Source code (c) optimal code (d) None | |
| 104 | The order of Three address code affects the cost of the _____code<br>(a) Source code (b) Intermediate code (c) Object code (d) All | [ C ] |
| 105 | The graph that shows basic blocks and their successor relationship is called<br>(a) Dag (b) Flow Graph (c) Control Graph (d) Hamilton Graph | [ B ] |
| 106 | A non relocatable program is the one which<br>(a) Cannot execute in any area of storage other than the one designated<br>(b) Consists of a program and information for its relocation<br>(c) None of the mentioned<br>(d) All of the mentioned | [ A ] |
| 107 | Target code for x:=a+b; is<br>(a) ADD b,Ri (b) SUB b,Ri (c) MUL b,Ri (d) All | [ A ] |
| 108 | The Graph coloring technique is applied for this register inference graph using _____<br>(a) l-color (b) m-color (c) n-color (d) k-color | [ D ] |
| 109 | Advantage of producing relocatable machine code is<br>(a)Compiling sub routines separately (b)Executing sub routines (c)Both A&B (d) None | [ A ] |
| 110 | A_____ is an important factor in generating an efficient target code<br>(a) Evaluation Order (b) Sequence (c) Order (d) None | [ A ] |
| 111 | Allocation of all variables to specific registers that is consistent across the block boundaries is called_____<br>(a) Local register allocation (b) Global register allocation (c) Both (d) None | [ B ] |
| 112 | In DAG leaf nodes represent<br>(a) Identifiers (b) names (c) constants (d) All | [ D ] |
| 113 | The _____ of instruction set is an important factor for the code generator<br>(a) Uniformity (b) Completeness (c) Uniformity and Completeness (d) None | [ C ] |
| 114 | The addressing modes are<br>(a) Absolute (b) Register (c) Indexed (d) All | [ D ] |
| 115 | In Simple code generation algorithm computed results can be kept in _____<br>(a) Files (b) Buffer (c) Registers (d) None | [ C ] |
| 116 | In Simple code generation algorithm IS indicates<br>(a) Address of operand stored in storage (c) Both<br>(b) Address of operand stored in registers (d) None | [ A ] |
| 117 | In Simple code generation algorithm IR indicates<br>(a) Address of operand stored in storage (c) Both<br>(b) Address of operand stored in registers (d) None | [ B ] |
| 118 | The code generator is a_____<br>(a) Graph rewriting technique (c) Tree rewriting technique<br>(b) DAG rewriting technique (d) None | [ B ] |
| 119 | The set of tree rewriting rules is called _____<br>(a) DAG translation scheme ( b) Graph translation scheme<br>(c) Tree translation scheme (d) None | [ B ] |
| 120 | Issues in code generation<br>(a) Input to the code generator (b) Target programs (c) Both (d) None | [ C ] |
| 121 | Peephole optimization can be applied on _____<br>(a) Intermediate code (b) Target codes (c) Source code (d) Both A & B | [ D ] |
| 122 | In DAG interior nodes represents<br>(a) Operands (b) Operators (c) Both (d) None | [ B ] |
| 123 | _____is a part of the program code that is never accessed | [ D ] |

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| | (a) Source code (b) Target code (c) Intermediate code (d) Unreachable code | |
| 124 | In certain languages like C programmer can do register allocation by using_____<br>(a) File allocation (b) Register allocation (c) Register declaration (d) None | [ C ] |
| 125 | Abbreviate DAG<br>(a)Direct Access Graph (b)Directed Acyclic Graph (c)Distinct Acyclic Graph (d) None | [ B ] |

**Signature of the Faculty(s)** **Signature of the HoD**