Started on	Tuesday, 12 April 2022, 5:14 PM
State	Finished
Completed on	Tuesday, 12 April 2022, 5:38 PM
Time taken	23 mins 16 secs
Grade	**25.00** out of 30.00 (**83**%)

Question 1

Incorrect

Mark 0.00 out of 1.00

Select the efficient code that can be generated for the following three-address code sequence: (Assume R0 and R1 is allocated for B and C respectively)

A=B+C

C=C+1

○ a. MOV B,R0

  ADD R1,R0

  INC C

○ b. MOV R1,R0

○ c. ADD R1,R0

  INC C

◉ d. ADD R1,R0   ✗

  ADD #1,R1

Your answer is incorrect.

The correct answer is:

ADD R1,R0

INC C

Question **2**

Correct

Mark 1.00 out of 1.00

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

○ a. Algebraic expression simplification

○ b. Code generation

◉ c. Reduction in strength   ✔

○ d. Accessing machine instructions

Your answer is correct.

The correct answer is:
Reduction in strength

Question **3**

Incorrect

Mark 0.00 out of 1.00

Consider the following code segment:

a=b+c

e=a+1

d=b+c

f=d+1

g=e+f

The number of nodes in a DAG would be

◉ a. 7   ✘

○ b. 8

○ c. 6

○ d. 5

Your answer is incorrect.

The correct answer is:
6

Question **4**

Correct

Mark 1.00 out of 1.00

In Algebraic expression simplification, a = a + 1 can simply be replaced by?

○ a. INC a ✔

○ b. DEC a

○ c. a

○ d. MUL a

Your answer is correct.

The correct answer is:
INC a

Question **5**

Correct

Mark 1.00 out of 1.00

Intermediate code is taken as input and is converted into the target machine's instructions set by the _____

○ a. Lexical analyser

○ b. Code Optimizer

○ c. Parser

○ d. Code Generator ✔

Your answer is correct.

The correct answer is:
Code Generator

Question **6**

Correct

Mark 1.00 out of 1.00

The execution time of the code depends on?

○ a. the way registers are used

◉ b. All of the above   ✔

○ c. order in which computations are performed

○ d. the usage of machine idioms

Your answer is correct.

The correct answer is:
All of the above

Question **7**

Correct

Mark 1.00 out of 1.00

The instruction **MOV 4(R0),M** stores _____ into memory location M.

○ a. contents(R0)

○ b. All the given options

○ c. contents(4*contents(R0))

◉ d. contents(4+contents(R0))   ✔

Your answer is correct.

The correct answer is:
contents(4+contents(R0))

Question **8**

Correct

Mark 1.00 out of 1.00

Issues that arise during the code generation phase: (Multiple Select)

☑ a. Evaluation Order   ✔

☐ b. Code optimization

☑ c. Register Allocation   ✔

☑ d. Instruction Selection   ✔

Your answer is correct.

The correct answers are:

Register Allocation,

Instruction Selection,

Evaluation Order

Question **9**

Correct

Mark 1.00 out of 1.00

Which of the following is not a form of Intermediate representation?

○ a. Abstract Syntax Tree

◉ b. Directed cyclic Graph   ✔

○ c. Reverse Polish Notation

○ d. 3-address code

Your answer is correct.

The correct answer is:
Directed cyclic Graph

Question **10**

Correct

Mark 1.00 out of 1.00

Sequence of consecutive statements in which flow-of-control enters at the beginning and leaves at the end without halt or possibility of branching except at the end is called _____

- ○ a. Dominator tree

- ○ b. Flow graph

- ○ c. DAG

- ◉ d. Basic Blocks   ✔

Your answer is correct.

The correct answer is:
Basic Blocks

Question **11**

Incorrect

Mark 0.00 out of 1.00

Formula for allocating a register to x within loop L is

- ◉ a. $\sum 2 * live(x, B)$ ✘

- ○ b. $\sum use(x, B)$

- ○ c. $\sum (use(x, B) + 2 * live(x, B))$

- ○ d. $\sum (use(x, B) + live(x, B))$

Your answer is incorrect.

The correct answer is:
$\sum (use(x, B) + 2 * live(x, B))$

Question **12**

Incorrect

Mark 0.00 out of 1.00

Choose the correct statement from the following

○ a. Use(x,B) is the number of times x is used in B prior to any definition of x

○ b. Use(x,B) is always equal to 0

◉ c. Use(x,B) is the number of times x is used in a loop   ✖

○ d. Use(x,B) is always equal to 1
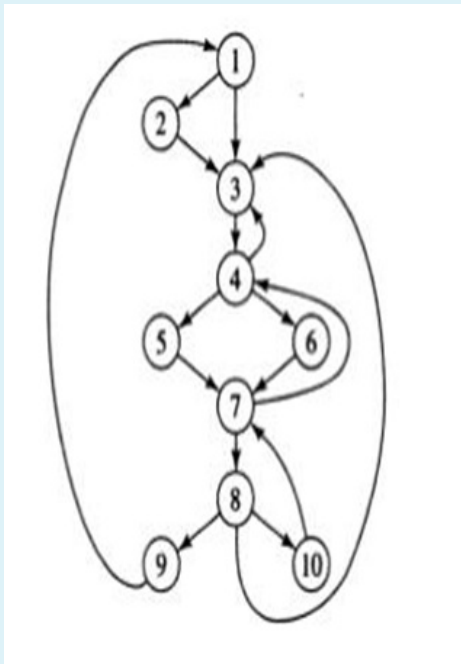
Your answer is incorrect.

The correct answer is:
Use(x,B) is the number of times x is used in B prior to any definition of x

Question **13**

Correct

Mark 1.00 out of 1.00

For the given flowgraph, compute D(6)-Dominators of node 6:

○ a. D(6)={1,3,4,6}   ✔

○ b. D(6)={1,2,3,4,5,6}

○ c. D(6)={1,3,4,5,6}

○ d. D(6)={1,2,3,4,6}

Your answer is correct.

The correct answer is:
D(6)={1,3,4,6}

Question 14

Correct

Mark 1.00 out of 1.00

Select the Three-Address Code associated with the run-time allocation and de-allocation of activation records.

- ⦿ a. Call, Return, Action and Halt   ✔
- ○ b. Halt and Action
- ○ c. Call and Action
- ○ d. Call and Return

Your answer is correct.

The correct answer is:
Call, Return, Action and Halt

Question 15

Correct

Mark 1.00 out of 1.00

_____ is a simple, systematic technique for allocating registers and managing register spills.

- ⦿ a. Graph coloring   ✔
- ○ b. *Interference graph*
- ○ c. Filling
- ○ d. Spilling

Your answer is correct.

The correct answer is:
Graph coloring

Question 16

Correct

Mark 1.00 out of 1.00

Internal nodes in a DAG can contain:

- ⦿ a. Attached list of identifiers   ✔
- ○ b. Attached list of operators
- ○ c. Attached list of identifiers and constant
- ○ d. Attached list of constant

Your answer is correct.

The correct answer is:
Attached list of identifiers

Question **17**

Correct

Mark 1.00 out of 1.00

The following code is an example of?

    void add(int x)

    {

      return x + 10;

      printf(""value of x is %d"", x);

    }

○ a. Redundant code

◉ b. Unreachable code   ✔

○ c. Local optimization

○ d. Reduction in strength

Your answer is correct.

The correct answer is:
Unreachable code

Question **18**

Incorrect

Mark 0.00 out of 1.00

Calculate the cost of: 1)MOV b, R0   2) ADD 5,R0

◉ a. 6   ✘

○ b. 2

○ c. 5

○ d. 4

Your answer is incorrect.

The correct answer is:
4

Question **19**

Correct

Mark 1.00 out of 1.00

The Compiler collects complete information about the program using

○ a. Peep hole optimization

○ b. Local optimization

○ c. Loop optimization

◉ d. Global data flow analysis   ✔

Your answer is correct.

The correct answer is:
Global data flow analysis

Question **20**

Correct

Mark 1.00 out of 1.00

Instructions involving _____ are usually faster than those involving other operands.

○ a. All of the above

○ b. Memory

○ c. Cache memory

◉ d. Registers   ✔

Your answer is correct.

The correct answer is:
Registers

Question **21**

Correct

Mark 1.00 out of 1.00

_____ is a data structure that consists of a use, U, of a variable, and all the definitions, D, of that variable that can reach that use without any other intervening definitions.

○ a. Use-Definition Chain   ✔

○ b. Definition- Use Chain

○ c. Definition Chain

○ d. Use Chain

Your answer is correct.

The correct answer is:
Use-Definition Chain

Question **22**

Correct

Mark 1.00 out of 1.00

Producing an _____ machine language as output has the advantage that it can be placed in a fixed location in memory and immediately executed.

○ a. Relocatable

○ b. Reloadable

○ c. Absolute   ✔

○ d. Intermediate

Your answer is correct.

The correct answer is:
Absolute

Question **23**

Correct

Mark 1.00 out of 1.00

An unlabeled instruction immediately following an unconditional jump is called _____

○ a. Always reachable code

○ b. Executable code

○ c. Frequently reachable code

◉ d. Unreachable code   ✔

Your answer is correct.

The correct answer is:
Unreachable code

Question **24**

Correct

Mark 1.00 out of 1.00

Replacement of run-time computation by compile-time computation is called:

○ a. Reduction in strength

○ b. Copy propagation

○ c. Usage of machine idioms

◉ d. Constant folding   ✔

Your answer is correct.

The correct answer is: Constant folding

Question **25**

Correct

Mark 1.00 out of 1.00

The memory locations where the values of the identifiers are stored are tracked by the _____

○ a. Temporary Descriptor

○ b. Stack Pointer

○ c. Register Descriptor

◉ d. Address Descriptor   ✔

Your answer is correct.

The correct answer is:
Address Descriptor

Question **26**

Correct

Mark 1.00 out of 1.00

Which optimization technique is used to reduce the multiple jumps?

○ a. Local optimization

○ b. Global optimization

◉ c. Peephole optimization   ✔

○ d. Code optimization

Your answer is correct.

The correct answer is:
Peephole optimization

Question **27**

Correct

Mark 1.00 out of 1.00

Choose the correct statement from the following:

1.Local optimization-Transformations that are applied to small blocks of statements.

2.Global optimization-Transformations that are applied to large program segments that includes functions, procedures and loops.

○ a. Statement 2 is correct

○ b. Statement 1 & 2 are incorrect

○ c. Statement 1 is correct

◉ d. Statement 1 & 2 are correct   ✔

Your answer is correct.

The correct answer is:
Statement 1 & 2 are correct

Question **28**

Correct

Mark 1.00 out of 1.00

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

○ a. 6

◉ b. 2   ✔

○ c. 3

○ d. 1

Your answer is correct.

The correct answer is:
2

Question **29**

Correct

Mark 1.00 out of 1.00

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

○ a. getReg   ✔

○ b. cinReg

○ c. setReg

○ d. inReg

Your answer is correct.

The correct answer is:
getReg

Question **30**

Correct

Mark 1.00 out of 1.00

Generation of intermediate code based on an abstract machine model is useful in compilers because

○ a. Syntax translations are easier for intermediate code generation

○ b. It makes implementation of lexical and syntax analysis easier

○ c. It is difficult to generate executable code from high level language program

○ d. It enhances the portability of the program   ✔

Your answer is correct.

The correct answer is:
It enhances the portability of the program

◄ RETEST (11-05-2022)

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