



MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

Subject: Compiler Design (B0532)

Branch: Department of Computer Science and Engineering

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Instructions:

1. All the questions carry equal marks
2. Solve all the questions

Q. No.	Question	Marks	BT Level	CO
Module III				
1	Elaborate the three forms of intermediate code representations? Construct three codes for $a + a * (b - c) + (b - c) * d$	5	L3	3
OR				
2	Construct Intermediate code for the following code segment along with the Syntax Directed Translation Scheme. if ($a > b$) $x = a + b$; else $x = a - b$; Where 'a' and 'x' are of real and 'b' of int type data.	5	L3	3
3	Summarize the short note on: a. Types and Declarations b. Backpatching c. Type checking.	5	L2	3
OR				
4	Construct a Quadruple, Triple and Indirect triple for the statement $x := A[y, z]$	5	L3	3
Module IV				
1	Explain various storage allocation strategies with an example	5	L2	4
OR				
2	Demonstrate in detail the principles sources of optimization. Give proper examples for each	5	L3	4
3	Outline the following with an example a) Constant Propagation b) Partial Redundancy Elimination.	5	L4	4
OR				
4	Describe Flow-Graph? Explain how the given program can be converted into Flow-Graph?	5	L2	4
5	Explain the foundations and basic notations used in data-flow analysis for optimizations with examples.	5	L2	4
OR				
6	Construct the basic block and compute DAG for the code fragment?	5	L3	4

	Explain with the following code fragment. <pre> procedure fun(x,y,z) begin y=z+1; z=z+x; end fun begin main() a=2; b=3; fun(A+B,A,B); print(A); end main </pre>			
7	Elaborate what is an activation record? Describe various components in an activation record considering a sample c program.	5	L2	4
OR				
8	Describe reference counting. What is the role of reference counting in garbage collection?	5	L2	4
Module V				
1.	List and analyze the common issues to be considered while designing a good code generator.	5	L4	5
OR				
2	Describe the code generation algorithm and explain briefly.	5	L2	5
3	Explain different methods for register allocation and assignment.	5	L2	5
OR				
4	Summarize peephole optimization with an illustrative example.	5	L2	5
5	Identify the detail about address descriptors and register descriptors for the expression $X = (a+b) * (c-d) + ((e/f) * (a+b))$	5	L4	5
OR				
6	Outline with example, various machine dependent code optimization techniques.	5	L4	5
7	Classify various forms of object code in code generation techniques with example	5	L3	5
OR				
8	Interpret various strategies used for register allocation and register assignment with example.	5	L5	5

Signature of the Faculty

Signature of the HoD