University of Mumbai
Examination Summer 2022

Time: 2 hour 30 minutes Max. Marks: 80

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Q1 (20 Marks)	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Forward Reference Table (FRT) is arranged like
Option A:	Linked List
Option B:	Stack
Option C:	Queue
Option D:	Double Linked List
2.	Compiler can check _____ error
Option A:	Logical
Option B:	Syntax
Option C:	Both A and B
Option D:	Content
3.	Three address statement is abstract form of _____
Option A:	Source program
Option B:	Target program
Option C:	Intermediate code
Option D:	Either A or C
4.	_____is designed to solve a specific problem or to do a specific task.
Option A:	Application Software
Option B:	System Software
Option C:	Utility Software
Option D:	User
5.	In a two-pass assembler, the task of the Pass II is to
Option A:	Separate the symbol, mnemonic opcode and operand fields
Option B:	Build the symbol table
Option C:	Construct intermediate code
Option D:	Synthesize the target program
6.	We can optimize code by
Option A:	Common subprogram
Option B:	Loop declaration
Option C:	Dead code elimination
Option D:	Copy intermediate loop
7.	A macro can be defined at
Option A:	Beginning of a program
Option B:	End of a program
Option C:	Anywhere in a program
Option D:	After initialization of program
8.	Match all items in Group 1 with correct options from those given in Group 2.

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	Group1	Group2
	P. Regular expression Q. Pushdown automata R. Dataflow analysis S. Register allocation	1. Syntax analysis 2. Code generation 3. Lexical analysis 4. Code optimization
Option A:	P-4. Q-1, R-2, S-3	
Option B:	P-3, Q-1, R-4, S-2	
Option C:	P-3, Q-4, R-1, S-2	
Option D:	P-2, Q-1, R-4, S-3	
9.	Nested Macro calls are expanded using the	
Option A:	FIFO rule (First in first out)	
Option B:	LIFO (Last in First out)	
Option C:	FILO rule (First in last out)	
Option D:	None of the above	
10.	Which of the following can be accessed by the transfer vector while in linking?	
Option A:	External data segments	
Option B:	External sub-routines	
Option C:	Data located in other procedure	
Option D:	None of the mentioned	

Q2 (20 Marks)	**Solve any Four out of Six** **5 marks each**
A	Describe Conditional Macro expansion with suitable example
B	Explain the role of code optimization in compiler design
C	Differentiate between Application Program and System Program
D	Remove the left recursion from the grammar E → E(T)|T T → T(F)|F F → id
E	Explain Forward Reference Problem and how it is handled in assembler design
F	Write note on Dynamic linking and Loading

Q3 (20 Marks)	
A	**Solve any Two** **5 marks each**
i	Explain Synthesized and inherited attributes
ii	What are the types of Assembly Language statements? Explain.
iii	Describe MNT, MDT and ALA with respect to macro processor with example
B	**Solve any One** **10 Marks**
i	Explain databases used in Two pass assembler design with suitable example
ii	Construct LL(1) Parsing table S→ aBDh B→ Cc

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	C→ bC | Є D→ EF E→ g | Є F→ f | Є Check whether the string ‘acbgh’ is valid or not.

Q4 (20 Marks)		
A	**Solve any Two**	**5 marks each**
i	Explain the different ways of parameter passing in macros.	
ii	Explain the role of Finite automata in compiler design	
iii	Explain different issues in code generation.	
B	**Solve any One**	**10 Marks**
i	Explain working of Direct Linking loader with example showing entries in different database built by DLL	
ii	What is the need of Intermediate Code Generation? Explain any 2 intermediate code generation forms with example	

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