

**Faculty of Science & Technology**  
**Sixth Semester B.Tech. (Computer Science Engineering) (C.B.C.S.) Examination**  
**COMPILER DESIGN**

Time : Three Hours]

[Maximum Marks : 70

**INSTRUCTIONS TO CANDIDATES**

- (1) All questions carry marks as indicated.
- (2) Solve Question 1 **OR** Question No. 2.
- (3) Solve Question 3 **OR** Question No. 4.
- (4) Solve Question 5 **OR** Question No. 6.
- (5) Solve Question 7 **OR** Question No. 8.
- (6) Solve Question 9 **OR** Question No. 10.
- (7) Assume suitable data wherever necessary.

1. (a) Explain the different phases of compiler in detail. 8
- (b) Explain bootstrapping & cross-compiler in detail. 6

**OR**

2. (a) Explain LEX and YACC in detail. 7
- (b) What is the role of finite automata in design of Lexical analysis phase. 7
3. (a) Compare SLR, CLR and LALR parser. 6
- (b) Construct LR(0) parser for the grammar :

$E \rightarrow BB$

$B \rightarrow cB/d$

Check validity of string 'ccdd'.

8

**OR**

4. (a) Check whether the given grammar is  
 $LL(1)$  or not  
 $S \rightarrow iEtSS$   
 $S \rightarrow eS/E$   
 $E \rightarrow b$  8
- (b) Explain handle and viable prefix in detail with example. 6
5. (a) Give three address code for given program :  
 While  $(A > B)$  or  $(C > B)$  do  
 if  $G < H$  then  
 $x = y + z$   
 else  $x = y - z$  10

(b) Discuss different symbol table organization in compiler.

4

OR

6. (a) Write the SDTS, and give TAC for the code :

for (i = 1; i < 50; i + 1

if (i < 10) then

a = b+1

else a = c+1

10

(b) Explain inherited & synthesized attributes.

4

7. (a) What is reducible flow graph ? Explain with example.

7

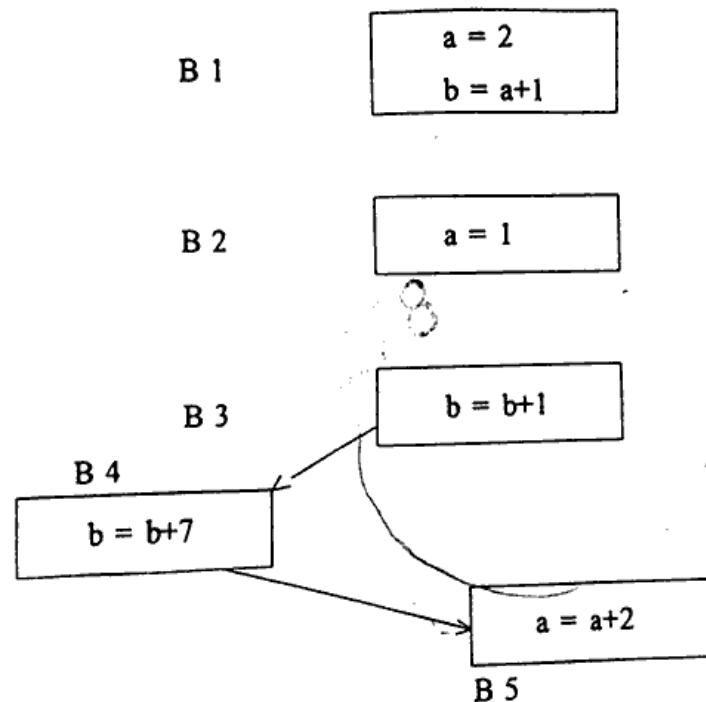
(b) Explain loop unrolling & loop jamming with example.

7

OR

8. Compute IN & OUT for the flow graph :

14



9. (a) Explain peephole optimization in detail.

7

(b) What are the problems in the way of good code generation ?

7

OR

10. Generate code for following expression using labelling algorithm :

14

$x = (a+b) - (e-c+d)$