

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -I EXAMINATIONS-2023

B.Tech-VI Semester (SS/IT)

COURSE CODE (CREDITS): 18B11CI612 (3)

MAX. MARKS: 15

COURSE NAME: Compiler Design

COURSE INSTRUCTORS: Dr. Yugal Kumar, Dr. Himanshu,

MAX. TIME: 1 Hour

Mr. Prateek Thakral, Dr Rajni Mohana

*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

Q.1 [CO2] Consider the following grammars. Are these grammars suitable for parsing, if yes, justifying your answer otherwise makes it suitable for parsing? (1.5x2=3)

i)  $A \rightarrow BC \mid DBC$

$B \rightarrow Bb \mid \epsilon$

$C \rightarrow c \mid \epsilon$

$D \rightarrow a \mid d$

ii)  $S \rightarrow a$

iii)  $S \rightarrow (A)$

iv)  $A \rightarrow S$

v)  $A \rightarrow A, S$

Q.2 [CO2] Which types of changes can be done in the below mentioned grammar such that is no longer be ambiguous for the given string  $\text{id} + \text{id} + \text{id}$ ? (2)

$P \rightarrow E$

$E \rightarrow E + T$

$E \rightarrow T$

$T \rightarrow \text{id} + \text{id}$

$T \rightarrow \text{id}$

Q.3 [CO2] Look at the first token of expression  $3 * x + y * z$  (which is const) and the productions for the start symbol (E),  $E \rightarrow E + T \mid T$ . How can you tell whether it derives  $E + T$  or simply  $T$ ? (2)

Q.4 [CO1] a) Suppose, you want to generate the machine code directly from the source code. Is it possible? (2+2+2)

Justify with appropriate evidence?

b) How to design the transition diagram for identifier and reserved words?