Sanjay Ghodawat University, Kolhapur

2020-21

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EXM/P/09/00

Year and Program:	**School of Technology**	**Department: Computer Science and Engineering**
Course Code: CST305R1	**Course Title: Compiler Design**	**Semester :V**
Day : Tuesday **Date: 16.02.2021**	**End Semester Examination**	**Time:2 Hrs.** **Max Marks:50 Marks**

Instructions: 1) All Questions are compulsory.
2)Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (any Two)**–			
a)	How the Compiler Technologies are applicable while implementing any new programming language and designing the new computer architecture.	8	L1	CO1
b)	Describe the benefits of the tools used during the design and implementation of a Compiler.	8	L2	CO1
c)	How the limitations of 2N buffer pair technique are resolved by the compiler during analysis of tokens?	8	L2	CO1
Q.2	**Answer the following (any Two)** –			
a)	State the need of FIRST and FOLLOW functions in the Top Down Parser and Calculate FIRST and FOLLOW of the following Context-Free Grammar **Z –> d | XYZ** **Y –>c | ε** **X –> Y | a**	8	L3	CO2
b)	Construct the canonical collection for LR (1) items for the following grammar S' -> S A -> AA A ->aA | b	8	L3	CO2
c)	State the limitations of synthesized attributes and how these limitations may possible to solved with the help of inherited attributes during the syntax analysis phase.	8	L3	CO3
Q.3	**Answer the following (any Two)**			

a)	Explain the Dependency Graph with a suitable example.	9	L2	CO3
b)	Simplify the given grammar to generate the Syntax Directed Definition (SDD) and construct the Annotated Parse Tree to synthesize an input string **4 * 5 + 6**. **S -> E** **E -> E1 + T** **E -> T** **T -> T1 * F** **T -> F** **F -> digit**	9	L4	CO3
c)	Explain any three principal sources to optimize the intermediate code.	9	L2	CO4

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