Sanjay Ghodawat University, Kolhapur

2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: 2020-21 B. Tech. Computer Science & Engg. | **School of Technology** | **Department: Computer Science & Engg.**

Course Code: CST305 | **Course Title: Compiler Design** | **Semester : V**

Day : Wednesday | **End Semester Examination** | **Time : 2 Hrs. 11 am to 1 pm.**

Date : 16.12.2020 | **Max Marks : 50**

Instructions: 1) All Questions are compulsory.
2) Draw neat diagrams wherever necessary.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (Any two)**			
a)	Describe Pass - I algorithm of absolute loader with basic functions performed by the absolute loader.	8	L1	CO1
b)	Construct a predictive parser for a given LL (1) class of a grammar and give the derivation steps to derive a string w="abfg" **S→A** **A→ aB | Ad** **B→ bBC | f** **C→g**	8	L4	CO2
c)	Construct the Canonical LR(CLR) parser table the LR(K) class of grammar. G={V={E, T, OP}, ∑={a,b,+},S=E } and production rules are **P = { E → T OP T** **T → a** **T → b** **OP → + }**	8	L3	CO1
Q.2	**Answer the following (Any two)**			
a)	Translate the given arithmetic expression into a) Abstract Syntax Tree b) Quadruples c) Triples. **a + - (b + c) 2) a =b * - c + b* - c**	8	L3	CO2
b)	Construct the LR(0) parser for the given grammar, G = (V={S,C }, ∑={c,d},S={S} and P= { **S → CC** **C →cC** **C → d }**)	8	L3	CO3

c)	Construct dependency graph for Simple declaration statements along with Syntax Directed Definition (SDD). **D -> T L** **T -> int** **T -> float** **L -> L_1 , id** **L -> id**	8	L2	CO3

Q.3 **Answer the following (Any two)**

a)	Describe algorithm for partitioning three - address instructions into basic blocks with an example.	9	L4	CO3
b)	Show the use of Directed Acyclic Graph (DAG) in optimization of the code represented through the basic blocks.	9	L4	CO4
c)	Elaborate an algorithm for common sub expression elimination.	9	L3	CO4

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