COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)

END Semester Examination

Programme: B.Tech | **Semester: VI**

Course Code: IT-09007 | **Course Name: Language Processors**

Branch: Information Technology | **Academic Year: 2017-18**

Duration: 3 Hours | **Max Marks: 60**

Student PRN No.

Instructions:

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of stationery, calculator etc. not allowed.
5. Write your PRN Number on Question Paper.

Q. 1	A	Macros are single instructions that expands into a set of instructions to perform particular task. Explain types of macros expansion with an example.	6	CO-1	PO-1, 6, 9, 11
	B	A complete scan of source code is called as a pass of a language processor. Explain Single and two pass translation schemes used by language processors and Explain in detail how a two- pass assembler is designed.	6	CO-1	PO-1, 6, 9, 11
Q. 2	A	Programs are classified based on how they are modified or get modified while executing from given load origin. Explain these types of programs and comment on "Self-relocating programs are less efficient than relocatable program.".	6	CO-1	PO-1, 6, 9, 11
	B	To support semantic expansion some advanced facilities are provided with micro-processor. Explain in detail these advancements	6	CO-1	PO-1, 6, 9, 11
Q. 3	A	Compilation is process of transferring a code from one language to another. This process contains several phases. List and describe these phases and discuss input and output of each phase with a proper example, also state role of Symbol Table Manager and Error handler.	8	CO-1	PO-1, 6, 9, 11
	B	Illustrate how lexical analyser recognises a token and how it uses buffers for reading input with suitable diagrams.	4	CO-1, CO-2	PO-1, 6, 8, 9, 11

Q. 4	A	What is an activation record? Explain contents of an activation record with an example.	4	CO-1	PO-1, 6, 9, 11
	B	Consider following grammar- E→E+T E→E-T E→E*T E→(E) E→T T→ID T→num Design Dependency Graph for the grammar Construct Syntax Tree and DAG with sequence of instructions for constructing DAG for expression a+a*(b+c)-(b+c)*d using Syntax Directed Definition	8	CO-1, CO-2	PO-1, 6, 8, 9, 11
Q. 5	A	For the code below apply the following code transformations - Constant Propagation, Constant Folding, Copy Propagation, Dead Code Elimination, Strength Reduction t1 = t1 +1 L0: t2 = 0 t3 = t1 * 8 t4 = t3 + t2 t5 = t4 * 4 t6 = *t5 t7 = FP + t3 *t7 = t2 t8 = t1 if (t8 > 0) goto L1 L1: goto L0 L2: t1 = 1 t10 = 16 t11 = t1 * 2 goto L1	8	CO-2	PO-1, 6, 8, 9, 11
	B	Explain different issues in designing of a code generator	4	CO-1	PO-1, 6, 9, 11