

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)****Term-End Examination****June, 2014****BICS-016 : SYSTEM PROGRAMMING AND
COMPILER DESIGN***Time : 3 hours**Maximum Marks : 70*

Note : *Attempt any seven questions out of ten. All questions carry equal marks.*

1. Define assembler. What are the phases of an assembler ? Explain with a neat diagram. 10
2. (a) What are the types of tables in assembler ?
Write a short note on the different tables. 5
(b) Define macro. What are the kinds of expansion ? Also explain macro definition and macro call. 5
3. What is loading, program relocation, linking and performing relocation ? Explain them briefly. 10
4. Mention the fundamental steps in program development and explain each of them. 10
5. Draw the structure of Editor. Write down the different text editors. 10

6. (a) Write a short note on Bookkeeping and Bootstrapping in a Compiler. 5
- (b) Explain the operator precedence parsing, with an example and diagram. 5
7. (a) Define parsing. Explain top-down parsing with some grammar and draw the parse tree for it. 5
- (b) Explain predictive parsing using grammar and write the calculation for it. 5
8. (a) Construct SLR parsing table for the following grammar :

$$S \rightarrow AS | b$$

$$A \rightarrow SA | a$$
 5
- (b) Construct LALR(1) parse table from the following grammar :

$$S \rightarrow Aa | bAc | dc | bda$$
 5
9. (a) Write the quadruples, triples and indirect triples for the expressions : 5
- (i) $(a + b) * (c + d) * (a + b + c)$
- (ii) $a * (b + c)$
- (b) Define syntactic and semantic errors. Explain with example grammar. 5
10. (a) What are the applications of DAG ? Explain how the following expression can be converted in a DAG 5

$$a + b * (a + b) + c + d$$
- (b) What is a three address code ? Explain with example. 5