



# **SYSTEM PROGRAMMING AND COMPILER CONSTRUCTION**

## **MAY 2018**

**Total Marks: 80**

**Total time: 3 hours**

### **INSTRUCTIONS**

- (1) Question 1 is compulsory.**
- (2) Attempt any three from the remaining questions.**
- (3) Draw neat diagrams wherever necessary.**

**Q.1** Attempt all 4.

- (a)** Define System Programming?  
State difference between Application Programs and System programs? (5)
- (b)** Explain different types of text editors in brief. (5)
- (c)** Explain the java compiler environment. (5)
- (d)** State difference between LL parser and LR parser. (5)

**Q.2.(a)** Explain the design of two pass assembler with flowchart and databases. (10)  
(Clearly show entries in databases.)

- (b)** What do you mean by operator precedence grammar? With the help of following given grammar, parse the input string, "a+bcd". (10)

$$E \rightarrow E+T \mid T$$

$$T \rightarrow T*V \mid V$$

$$V \rightarrow a \mid b \mid c \mid d$$

**Q.3.(a)** Explain the working of two pass macro processor with neat flowcharts and databases, (10)  
(Clearly show entries in databases.)

- (b)** Explain different types of code optimization techniques in compiler design. (10)  
Explain with example.

**Q.4.(a)** Construct LL (1) parsing table for the following grammar: (10)

$$S \rightarrow aBDh$$

$$B \rightarrow cC$$

$$C \rightarrow bC \mid \epsilon' \epsilon'$$

$$D \rightarrow EF$$

$$E \rightarrow g \mid \epsilon' \epsilon'$$

$$F \rightarrow f \mid \epsilon' \epsilon'$$

Check whether the string "acbgh" is valid or not.

- (b)** Discuss different issues in design of code generator. (10)

**Q.5.(a)** Explain different types of Intermediate Code representation with examples? (10)



- (b) Explain working of direct linking loader with example, showing entries in different databases built by DLL. (10)
- Q.6.(a)** Explain the different phases of compiler with suitable example? (10)
- (b) Write short note on: (Any Two) (10)
- (i) Syntax Directed Translation
  - (ii) LEX & YACC
  - (iii) garbage collection and compaction