Q.1
a. Discuss in brief the widely used language processor development tool – the lexical analyzer generator LEX.

b. Discuss ‘Rehashing’ technique for collision handling in hash table.

c. Explain the following advanced assembler directives:-
   ORIGIN
   EQU

d. Explain the following directives of assembler:-
   PROC
   ENDP
   NEAR
   FAR

e. Discuss in brief the problem of single pass assembler.

f. Discuss the design of Macro preprocessor in brief.

g. Discuss feature to implement Top Down parsing. (7×4)

Q.2
a. What is system software? Explain ‘User’ and ‘System’ centric views of system software. (9)

b. Explain the following terms:
   (i) Translator
   (ii) Loader
   (iii) Interpreter (9)

Q.3
a. Differentiate two-pass and single pass translation scheme in assembler. (9)
Q.4  
   a. Advanced macro facilities are aimed at supporting semantic expansion. Explain “expansion time variable” and “facilities for altering flow of control during expansion” in this context. (9)
   
b. Explain concept of nested macro calls. (9)

Q.5  
   a. What is ‘binding time’ in compilation? Discuss importance of binding time. (9)
   
b. Discuss dynamic memory allocation and access in compilation process. (9)

Q.6  
   a. Explain the basic function of a simple one-pass compiler. (9)
   
b. Discuss the concept of ‘self-relocation’ program. (9)

Q.7  
   a. Explain ‘pure’ and ‘impure’ interpreter. (9)
   
b. Discuss the processing of an object program using linking loader and linkage editor. (9)