Q.1
a. Differentiate between a Compiler and an Interpreter.

b. Write regular expression for a variable name in JAVA language.

c. What are the various elements of an assembly language programming? Give at least one example of each category.

d. What are the various aspects of compilation?

e. How literal references are handled in Pass I assembler? Show by taking a suitable example.

f. Explain program relocatability.

g. Compare and contrast recursive descent parsing with table driven LL(1) parsing? (7\times4)

Q.2
a. Define Parsing. Use Top down parsing to parse the string <id>+<id>*<id> using the grammar

\[
E := T + E | T \\
T := T * V | V \\
V := <id>
\]

b. Write brief notes on various compiler writing tools.

c. Explain some important transformations which are commonly used in optimizing compilers.

Q.3
a. Describe various parameter passing mechanisms. Compare their characteristics and side effects.
b. What do you mean by triples and quadruples? Generate the intermediate code of the following program segment
\[ z := a + b \times c + d \times e \rightarrow f; \]
\[ y := x + b \times c; \]

Q.4
a. Define a language processor. Describe various types of language processors. (7)

b. Give some insight into the tasks to be performed by a linkage editor. (7)

c. What do you mean by program overlays? State the advantages of overlay structure. (4)

Q.5
a. How a two-pass assembler is designed? Compare it with one-pass assembler. (9)

b. Explain macros and macro processors. What are the assembly statements which will replace the macro call as a result of macro expansion? (9)

Q.6
a. Explain Expansion Time Variables with suitable example. (6)

b. Write a macro that swaps two variables. (6)

c. Explain two explicit looping constructs REPT and IRP statements with example. (6)

Q.7
a. Explain Operator Precedence Parsing with example. (6)

b. What is dynamic linking? Discuss in brief a linkage editor for an IBM PC. (6)

c. How storage allocation and access is done in a Block Structured Programming language? (6)