QP Code : 6266

(3 Hours) | Max Marks 80

N.B.
(1) Question no. 1 is compulsory.
(2) Attempt any 3 from the remaining questions.
(3) Assume suitable data if necessary.
(4) Figures to right indicate full marks.

Q1(a)	Differentiate between Application program and system program. Indicate the order in which following system programs are used, from developing program upto its execution. Assemblers , Loaders , Linker , Macro processor , compiler , Editor	5
Q1(b)	Elliminate Left recursion in the following grammar (Remove Direct and Indirect recursion) $S \to Aa \mid b \quad A \to Ac \mid Sd \mid \varepsilon$	5
Q1(c)	What is an activation record? Draw diagram of General Activation record and explain the purpose of different fields of an activation record	5
Q1(d)	What are the different functions of loader.	5
Q2(a)	For a given grammar below , construct an operator precedence relation matrix , assuming * , + are binary operators and *id* as terminal Symbol and E as non-terminal. $E \to E+E \quad E \to E*E \quad E \to id$ Apply operator precedence parsing algorithm for the statement id + id * id	10
Q2(b)	Explain the role of code optimization in compiler designing ? Explain Peephole optimization along with an example.	10
Q3(a)	Write a note on JAVA compiler environment.	5
Q3(b)	Write a brief note on Design of an Editor.	5
Q3(c)	Explain synthesized and Inherited attributes used in Syntax Directed Definition.	5
Q3(d)	Find FIRST and FOLLOW Set for given grammar below $E \to T E' \quad E' \to + T E' \mid \varepsilon$ $T \to F T' \quad T' \to * F T' \mid \varepsilon$ $F \to (E) \quad F \to id$	5
Q4(a)	Explain Design of Dynamic Linking Loader along with example	10
Q4(b)	For the following grammar construct LL(1) parser table $S \to F \quad S \to (S - F) \quad F \to a$ And Parse the string (a – a) . Show contents of stack and i/p buffer and action taken after each step.	10
Q5(a)	Explain different pseudo-ops used for conditional macro expansion along with an example	10
Q5(b)	What are the different phases of Compiler ? Illustrate compilers internal representation of source program for following statement after each phase Position := initial + rate * 60	10
Q6(a)	With reference to Assembler explain following tables with suitable example . (i) POT , (ii) MOT (iii) ST (iv) LT	10
Q6(b)	Explain Backpatching with an example.	10