Total No. of Pages   1

Roll No............

VI -SEMESTER
MID SEMESTER EXAMINATION

B.Tech.(SE)
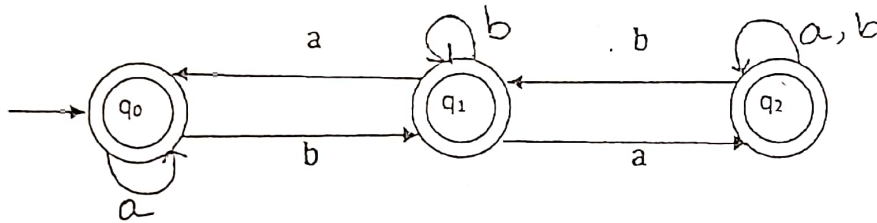March- 2018

SE-306 COMPILER DESIGN

Time: 1:30 Hours

Max. Marks: 25

Note: Answer all questions. Assume suitable missing data, if any

Q.No. 1   2X4=08

A) What is Finite Automata (FA)? What is the use of FA in lexical analysis (LA)? Construct a DFA that recognizes the language $(a+b)^*(ab+bba)$.

B) Construct a regular expression(RE) corresponding to the following FA using Arden's theorem

Q.No. 2   2X4=08

A) Construct a context free grammar(CFG) to generate the language

$$L= \{a^m b^n \mid m \neq n, m, n \geq 0\}.$$

B) What is the use of Push down automata (PDA) in Syntax analysis phase of the compiler? Design PDA for language $L=\{0^n 1^{2n+1} \text{ for } n \geq 0\}$.

Q.No.3   2X4=08

A) Discuss various phases of compiler and Check whether the following grammar is ambiguous for string " ibtibtaea" by constructing parse tree:

   i. $S \rightarrow iCtS$ ii. $S \rightarrow iCtSeS$ iii. $C \rightarrow b$ iv. $S \rightarrow a$

B) Design a FA with output (Mealy or Moore machine) which reads the input from $(0 + 1)^*$ and produces following outputs:
   i.   If input ends at 101, output is "YES"
   ii.   Otherwise output is "NO"