FUTURE VISION BIE

One Stop for All Study Materials
& Lab Programs

Future Vision

By K B Hemanth Raj

Scan the QR Code to Visit the Web Page

Or
Visit : https://hemanthrajhemu.github.io

Gain Access to All Study Materials according to VTU,
CSE – Computer Science Engineering,
ISE – Information Science Engineering,
ECE - Electronics and Communication Engineering
& MORE...

Join Telegram to get Instant Updates: https://bit.ly/VTU_TELEGRAM

Contact: MAIL: futurevisionbie@gmail.com

INSTAGRAM: www.instagram.com/hemanthraj_hemu/

INSTAGRAM: www.instagram.com/futurevisionbie/

WHATSAPP SHARE: https://bit.ly/FVBIESHARE

CBCS SCHEME

USN

15CS63

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020
System Software and Compiler Design

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1. a. Explain the various instruction formats used in SIC/XE machine. **(04 Marks)**
   b. Write a SIC/XE program to copy the string "COMPUTER SCIENCE ENGINEERING" from STR1 to another string STR2. **(06 Marks)**
   c. List the functions of Pass-1 and Pass-2 of a two pass assembler. **(06 Marks)**

OR

2. a. Write an algorithm of the Pass-1 of a two pass assembler. **(08 Marks)**
   b. List the various machine independent assembler features. Explain the control-sections, how the assembler converter them into object code. **(08 Marks)**

Module-2

3. a. Define Macro. Explain how Macros are defined and expanded. **(07 Marks)**
   b. What are the basic functions of a loader? Explain two ways of program relocation in loaders. **(09 Marks)**

OR

4. a. Explain the functions of dynamic linking with a diagram. **(08 Marks)**
   b. Write a note on MS-DOS linker. **(08 Marks)**

Module-3

5. a. Explain the different phases of a compiler, with an example. **(09 Marks)**
   b. What is input buffering in lexical analysis? List the different methods of input buffering explain any one of them. **(07 Marks)**

OR

6. a. List and explain the reasons for separating the analysis portion of a compiler into lexical and syntax analysis phases. **(06 Marks)**
   b. Construct the transition diagram to recognize the tokens of
      i) Identifier   ii) Relational operators   iii) Unsigned numbers. **(06 Marks)**
   c. Define Tokens, patterns, lexemes. **(04 Marks)**

Module-4

7. a. What is the role of parser? Explain the different error recovery strategies. **(08 Marks)**
   b. Construct the LL(1) parsing table for the following productions:
      $E \rightarrow E + T/T$; $T \rightarrow T * F/F$; $F \rightarrow (E)/id$ **(08 Marks)**

OR

8 a. Using operator-precedence parsing algorithm, construct the table and parse the input string id + id * id. **(12 Marks)**

   b. Define Handle, viable prefixes. **(04 Marks)**

Module-5

9 a. Discuss S-attributed and L-attributed SDD. **(06 Marks)**

   b. Write 3-address code syntax tree and DAG for the expression $a + a * (b - c) + (b - c) * d$. **(10 Marks)**

OR

10 a. Obtain the SDD and construct annotated parse tree for the input string $6 * 5 + 3$, for the grammar

      $S \rightarrow EN$

      $E \rightarrow E + T/T$

      $T \rightarrow T * F/F$

      $F \rightarrow (E)/digit$

      $N \rightarrow ;$ **(10 Marks)**

   b. Discuss the issues in the design of code generator. **(06 Marks)**

* * * * *