Roll No. ☐☐☐☐☐☐☐☐☐☐☐ **Total No. of Pages : 2**

Total No. of Questions : 09

B.Tech. (CSE/IT) (Sem.–4)
SYSTEMS PROGRAMMING
Subject Code : CS-210
Paper ID : [A0462]

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

l. Write briefly :

   a) Give the difference between multiprogramming and multiprocessing.

   b) What is the difference between a macro and a subroutine?

   c) Define Grammar of a language. Which grammar is used in parsing?

   d) What is system programming?

   e) How non-relocatable programs are different from relocatable programs?

   f) What is the use of LTORG pseudo-op?

   g) Give the difference between BALR and USING.

   h) What is relocation? Why is it needed?

   i) What is bootstrap loader?

   j) What is the difference between DFA and NDFA?

SECTION-B

2. What is parsing? Explain the difference between top-down and bottom-up parsing.

3. Write down the general model for the translation process of a C program.

4. Enumerate the data structures used during the first pass of the assembler. Indicate the fields of these data structures and their purpose/usage.

5. Give details about ESD, TXT, RLD and END cards with a suitable example.

6. What are the advantages of Intermediate Representation? What are the various forms of representing intermediate code?

SECTION-C

7. Write short notes on :
   a. YACC.
   b. Debuggers.

8. What are the functions of passes used in two-pass assembler? Explain pass-1 algorithm.

9. What are the advantages of code optimization? Explain various optimizing transformations.