B.Tech. Degree V Semester Examination November 2017

CS 15-1502 SYSTEM PROGRAMMING
(2015 Scheme)

Time : 3 Hours   Maximum Marks : 60

PART A
(Answer *ALL* questions)

(10 × 2 = 20)

I. (a) Define an assembler and its function.
   (b) What is symbol stable (SYMTAB)? Explain its use in assemblers.
   (c) Explain briefly the design of absolute loader with the algorithm used.
   (d) Explain the ways of representing relocation in SIC and SIC/XE.
   (e) What are linkage editors? Compare it with linking loader.
   (f) Differentiate between macro and subroutine with example.
   (g) Explain how unique labels can be generated during macro expansion.
   (h) What is meant by recursive macro expansion?
   (i) Explain object oriented operating system.
   (j) What are the basic functions of an operating system?
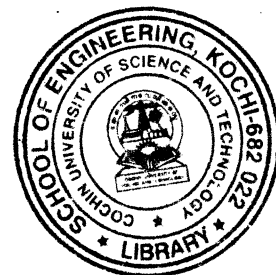
PART B

(4 × 10 = 40)

II.   Explain pass 1 algorithm for 2 pass SIC assembler with data structures   (10)
            used for it.
                                        OR
III. (a) What is forward referencing? How can we handle it in a one pass   (5)
           assembler?
      (b) Describe the design of a single pass assembler.   (5)

IV.   Explain the term 'bootstrap loader'. Write a SIC/XE program for   (10)
            bootstrap loader.
                                        OR
V.   Explain pass 1 and pass 2 algorithms for linking loader.   (10)

VI.   Explain the data structures and algorithm for single pass macro   (10)
            processor.
                                        OR
VII. (a) Explain the advantages of dynamic binding with the help of an example.   (5)
      (b) Define MACRO. Explain its usage in assembly language program.   (5)

VIII.   Explain (i) User Interface (ii) Run-time Environment   (10)
            (iii) Hierarchical structures.
                                        OR
IX.   Compare multiprocessor operating systems and distributed operating   (10)
            systems.

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