

## Sample Question Paper

**Course Name : Computer Engineering and Computer Technology**

**Course Code : CO/CM/CD**

**Semester : Sixth for CO/CM and Seventh for CD**

**Subject : Systems Programming**

**Marks : 80**

**9169**

**Time: 3 Hours**

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**Instructions:**

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

**Q.1 Attempt any FOUR of the following:**

**16 Marks**

1. State the functions of relocating loader.
2. Explain interchange sort with suitable example.
3. Explain the database used by pass 1 of two pass macro processor.
4. Explain general loader scheme.
5. How fragmentation of memory can be minimized. Explain how the following will be processed by an assembler  $X \quad EQU \quad Y+25$  where X and Y are addresses and Y is forward reference.
6. Explain binary search with suitable example.

**Q.2 Attempt any THREE of the following:**

**12 Marks**

1. Describe the first pass and second pass steps of assembler while stating the problem.
2. Explain the concept of assembler.
3. Show the result of each pass for following using radix sort 424, 887, 807, 882, 709.
4. Demonstrate the use of databases by assembler passes.

**Q.3 Attempt any THREE of the following:**

**12 Marks**

1. Describe macro with a suitable example.
2. State and explain the four basic tasks of macro processor.
3. Distinguish between multiprocessing and multiprogramming.
4. Draw flowchart for processing macro definitions in two pass macro processor.

**Q.4 Attempt any FOUR of the following:**

**16 Marks**

1. Describe functions of absolute loader.
2. Describe databases required by each pass of loader.
3. Explain the design of direct linking loader.
4. Explain dynamic binder loading scheme.
5. Explain the function of macro processor.
6. What is purpose of ID number on ESD cards? Why it is not needed for locally defined symbols?

**Q.5 Attempt any THREE of the following:**

**12 Marks**

1. List the advantages of binding at loadtime over binding at assembly time. List the three tasks of the lexical analysis phase.
2. Describe the function of each of the RLS, ESD, TXT and END cards.
3. Draw the block diagram of the phases of compiler (structure of compiler).
4. Describe the main function of lexical phase of compiler.

**Q.6 Attempt any THREE of the following:**

**12 Marks**

1. Outline the algorithm for syntax analysis phase of compiler.
2. Describe elimination of common sub expression technique of optimization phase of compiler with suitable example.
3. Explain machine dependent optimization phase of compiler with example.
4. Differentiate between the use of productions and reductions for compiler.