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(2066)

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**B. Tech 4th Semester Examination**

**System Software (NS)**

**CS-221**

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt one question each from Section A, B, C, and D. Section E is compulsory. Write suitable comments wherever necessary. Assume Data wherever necessary.

**SECTION - A**

1. What is system software? Explain in detail layered organization of system software. (20)

OR

2. Explain in detail all components of system software. (20)

**SECTION - B**

3. Describe general design procedure for assemblers. Differentiate between one pass and two pass assembler. (20)

OR

4. Describe the macro processor. Also, specify its advantages and shortcomings. (20)

**SECTION - C**

5. Describe absolute loader. Compare and contrast it with direct linking loader. (20)

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OR

6. What is loader? Explain in detail loader schema with one example. (20)

**SECTION - D**

7. Write and explain the algorithm for Radix exchange sort. Also, calculate its complexity. (20)

OR

8. (a) What are various types of errors? Explain how debugger is helpful in case of error by taking example. (10)  
(b) Explain the editor structure with one suitable example. (10)

**SECTION - E**

9. Short answer type questions:

- (i) What is file organization?  
(ii) Define record.  
(iii) Differentiate between assembly and machine language.  
(iv) Write one example of conditional macro expansion.  
(v) What is meant by relocating loader?  
(vi) Write one advantage and one disadvantage of dynamic linking.  
(vii) What is the advantage of hardware independent features of system software?  
(viii) Define system administration.  
(ix) What is the necessary condition for binary search?  
(x) Write any four operating systems. (2×10=20)