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ANNA UNIVERSITY :: CHENNAI

(UNIVERSITY DEPARTMENTS)

**B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY
2013**

COMPUTER SCIENCE and ENGINEERING

Semester II

CS 8202 Principles of Computer Engineering

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Name the first electronic digital computer and the first stored program computer invented.
2. What are the characteristics of a good algorithm?
3. Is Java code compiled or interpreted? Justify your answer.
4. State any two properties that characterize scripting languages and list down few scripting languages.
5. Differentiate between multi tasking and single tasking operating systems.
6. Define system call with an example.
7. Write the impact of rollback in DDL and DML commands.
8. Write down the rationale behind replacing the traditional file-based system with the database system.
9. What is the benefit networking the computing and communication elements in a system?
10. What is the difference between symmetric key and asymmetric key cryptosystems?

Part – B (5 x 16 = 80 marks)

11. (i) Write an algorithm to search for an element in a given array of n elements. Perform time complexity analysis for the best case and worst case. (8)
- (ii) Explain the significance of physical address and logical address of the components that are part of the computer network. (4)
- (iii) What are the major goals of operating systems? (4)
12. a) (i) Explain the classification of Instruction set architectures based on internal storage type of operands and complexity of instructions
- (ii) Explain the instruction execution cycle with the registers involved.

OR

- b) (i) Write about the various components of Von Neumann computer model with a neat sketch (10)
- (ii) Explain computer bus architecture highlighting types and functions of buses (6)
13. a) (i) Explain the components of DBMS architecture with a neat sketch
- (ii) What are the four structural types of database management systems? Differentiate between network and hierarchical systems

OR

- b). (i) What are database languages and how are they classified ? Explain with the sample queries
- (ii) Explain the levels of abstraction in database management systems.
14. a) (i) What are the advantages of virtual memory? Explain various non contiguous memory allocation methods used related to virtual memory.
- (ii) Give a brief comparative note on MS DOS, Windows and UNIX operating systems

OR

b) (i) State the conditions that lead to deadlock of processes and explain the mechanisms for handling deadlocks

(ii) Distinguish between preemptive and non preemptive CPU scheduling algorithms and discuss on any two algorithms in each category.

15 a) (i) Give a detailed description on the various switching techniques used in forwarding data between network entities

(ii) Write about the purpose and functions of layer1, layer 2 and layer 3 network devices

OR

b) (i) What are the advantages of layered approach in communication protocol? (6)

(ii) Detail the functions of each layer in OSI reference model. (10)