



S.E. (sem-IV) (CBSGS) COMP.

Sub: Analysis of Algorithm.

QP Code : 3542

(3 Hours)

[Total Marks : 80

- N.B.** (1) Question No. 1 is compulsory.
(2) Attempt any three from the remaining five question.
(3) Assume suitable data if required.

1. (a) Write abstract algorithm for greedy design method. 5
(b) Which are different factors considered for sorting elements. 5
(c) Explain flow shop scheduling technique. 5
(d) Explain three cases of master theorem. 5
2. (a) Write and explain sum of subset algorithm for $n = 5, W = \{2, 7, 8, 9, 15\} M = 17$ 10
(b) Explain randomized version of Quick sort and derive its complexity 10
3. (a) Implement the bubble sort Algorithm and derive its best case and worst case complexity. 10
(b) Find the Huffman code for the following message. 10
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4. (a) What is Hamiltonian cycle ? Write an algorithm to find all Hamiltonian cycles. 10
(b) Suppose you are given n number of coins, in that one coin is faulty, its weight is less than standard coin weight. To find the faulty coin in a list using proper searching method. What will be the complexity of searching method. 10
5. (a) Explain Job sequencing with deadliner for the given instance. 10
 $n = 5, \{P_1, P_2, P_3, P_4, P_5\} = \{20, 15, 10, 5, 3\}$
& $\{d_1, d_2, d_3, d_4, d_5\} = \{2, 2, 1, 3, 3\}$
(b) Explain naive string matching algorithm with example. 10
6. Write note on : (any two) 20
(a) Rabin karp algorithm
(b) 15-puzzle problem
(c) Travelling sales person problem
(d) Strassen's matrix multiplication.

JP-Con. : 9993-15.

S.E. (Sem-IV) (CBS45) (Comp. & I.T.)



Sub: Computer Organization & Architecture
QP Code : 3546

(3 Hours)

Total Marks: 80

- N.B.:- (1) Question no.1 is compulsory.
(2) Solve any three questions out of remaining five questions.
(3) Assume suitable data if necessary.

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| 1. (a) What are applications of Microprogramming? | 3 |
| (b) What is stored program concept in digital computer? | 3 |
| (c) List the Flynn's Classification of Parallel Processing Systems. | 3 |
| (d) Draw flowchart for Booth's Algorithm for Twos Complement Multiplication. | 3 |
| (e) What is Associative memory? | 4 |
| (f) Explain in brief Programmed I/O. | 4 |
| 2. (a) Explain with diagram functioning of Hardwired Control Unit. | 8 |
| (b) Using Unsigned Binary Division method, divide 7 by 3. | 6 |
| (c) Explain IEEE 754 standards for Floating Point number representation. | 6 |
| 3. (a) Describe what are the features of cache design? | 8 |
| (b) What are the differences between RISC and CISC processors? | 6 |
| (c) Explain concepts of Nano programming. | 6 |
| 4. (a) What are major requirements for an I/O module? | 6 |
| (b) Explain in details Virtual Memory, Segmentation and Paging. | 7 |
| (c) Explain in details Cache Coherency. | 7 |
| 5. (a) What is instruction pipelining? What are advantages of pipelining? | 6 |
| (b) Explain DMA based data transfer technique for I/O devices. | 7 |
| (c) Explain Microinstruction sequencing and execution. | 7 |
| 6. Write short note on: | |
| (a) Pipeline Hazards. | 7 |
| (b) Scanner. | 7 |
| (c) Interrupt driven I/O. | 6 |

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