

SCHOOL OF DISTANCE EDUCATION

UNIVERSITY OF KERALA

M.Sc. Computer Science (2023 Admission)

Ist Semester Assignment

DCS 11 -COMPUTER ARCHITECTURE

- 1) What is the significance of multi-processor? Give a detailed note on its types.
- 2) Explain the following
 - a. Job sequencing
 - b. Pipeline chaining
 - c. Collision & Collision prevention in pipelining
- 3) With a neat diagram explain the components of asynchronous communication interface.
- 4) Explain in detail various data transfer in I/O Interface.
- 5) Define multicore processing .Describe the architecture of multicore processor in detail.

DCS12 –DATA STRUCTURES AND ALGORITHMS

- 1) Explain various methods for analyzing the performance of an algorithm.
- 2) Explain how Strassen's matrix multiplication outperforms standard matrix multiplication.
- 3) Write and explain for n queen problem using backtracking
- 4) Explain the general method of greedy technique with control abstraction.
- 5) Write notes on NP hard and NP Completeness. Write few examples for each.

**DCS 13–MATHEMATICAL FOUNDATIONS OF COMPUTER
SCIENCE**

1. Prove that $P \rightarrow (Q \rightarrow P) \Leftrightarrow \neg P \rightarrow (P \rightarrow Q)$
2. Show that $G = \{1, -1\}$ is an abelian group under multiplication.
3. Write notes of
 - a) Semi group
 - b) Monoids
 - c) Sub group

4. Let $S = \{x \geq 1 \mid x \text{ divides } 30\}$. Show that S is a partially ordered set. Is it a lattice? Justify your answer.
5. Six unbiased coins are tossed simultaneously. Find the probability of:
 - a) Probability that exactly two heads occur.
 - b) Probability of getting at least three heads
 - c) Probability of getting an even number of heads.
 - d) Probability of getting no heads.

DCS 14 - PROGRAMMING PARADIGMS

1. Elaborate on multithreading with an example.
2. Explain in detail about AWT event hierarchy and explain the features of JAVA Swing.
3. How to use graphics in Java. Specify any eight graphics methods.
4. Explain the basic Servlet Architecture and its Session Management in detail?
5. Explain
 - a) Exception handling in Java
 - b) JavaScript features and applications
 - c) Document Object Model

DCS 15- COMPUTER NETWORKS

1. Describe the congestion control mechanisms used by traditional Transmission Control Protocol.
2. Describe the elements of Bluetooth Protocol
3. Explain DHCP in detail.
4. Explain tunnelling and encapsulation in mobile IP.
5. Describe about GSM architecture with neat diagram.
