



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: BCS 3863
COURSE	: DISTRIBUTED SYSTEM
SEMESTER/SESSION	: 1 - 2022/2023
DURATION	: 3 HOURS

Instruction:

1. This booklet contains 5 questions. Answer **ALL** questions
2. All answers should be written in the answer booklet.
3. Write legibly and draw the sketches required.
4. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING THE COVER PAGE

QUESTION 1

- a) Why Distributed System is weighty to the network usage? (2 marks)
- b) List **THREE (3)** exclusivity of the distributed system. (3 marks)
- c) Express the scalability of the distributed system. (3 marks)
- d) Why use the middleware instead of a database in a distributed system? (4 marks)
- e) Specify the intranet formation on the distributed system. (2 marks)
- f) Provide **TWO (2)** groups of hardware resources and **TWO (2)** groups of data or software resources that can usefully be shared. (4 marks)

QUESTION 2

- a) Express on each description below:
 - i. Clock Skew (2 marks)
 - ii. Clock Drifting (2 marks)
 - iii. Logical Clock (2 marks)
- b) What supports a proxy server in a distributed system? Give a rigidity of where a proxy is consumed by the distributed system. (3 marks)

QUESTION 3

- a) Classify **THREE (3)** complications of Remote Procedure Call (RPC) inside the distributed system. (3 marks)
- b) Draw a diagram of the deployment World Wide Web in the distributed system. (2 marks)
- c) Why are web services involved in Distributed Systems? List **TWO (2)** web service designs on it. (4 marks)
- d) Declare **TWO (2)** verification services offer on the distributed system. (2 marks)
- e) Express **THREE (3)** types of Faults in a distributed system (3 marks)
- f) Explain the Kerberos authentication procedure in the distributed system. (4 marks)

QUESTION 4

a) Provide **TWO (2)** samples of the applications model below:

- i. Distributed web-based system (2 marks)
- ii. Distributed file system (2 marks)

b) Expand the load balance activity in the distributed system. (6 marks)

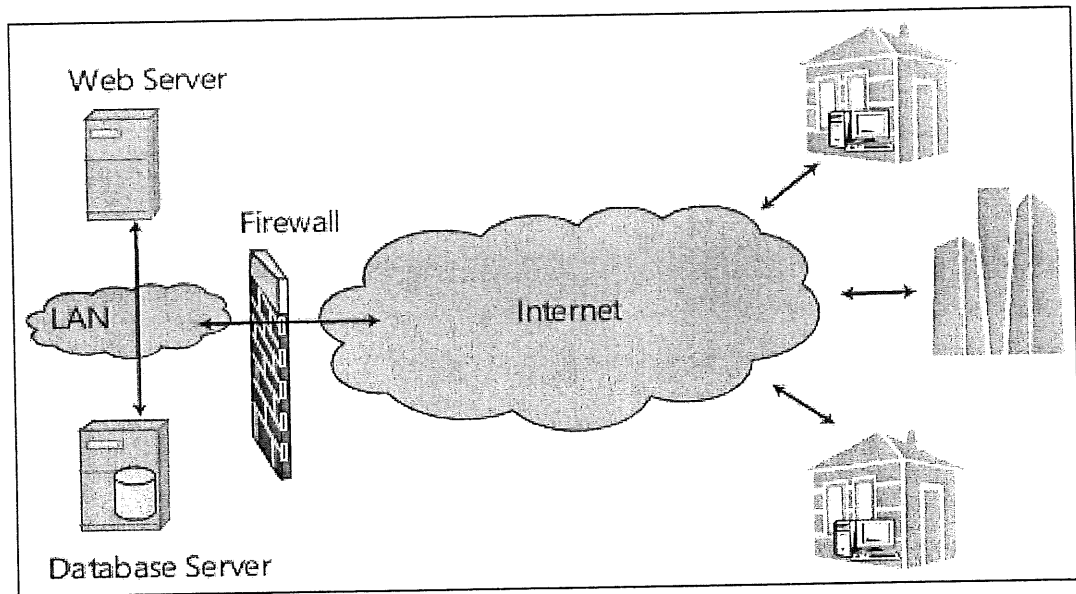


FIGURE 1: Distributed Firewall

c) From Figure 1 above, justify the firewall views on the distributed system that tracks the Web Server and the Database Server. (8 marks)

d) State only **ONE (1)** type of failure in a server environment. (1 mark)

QUESTION 5

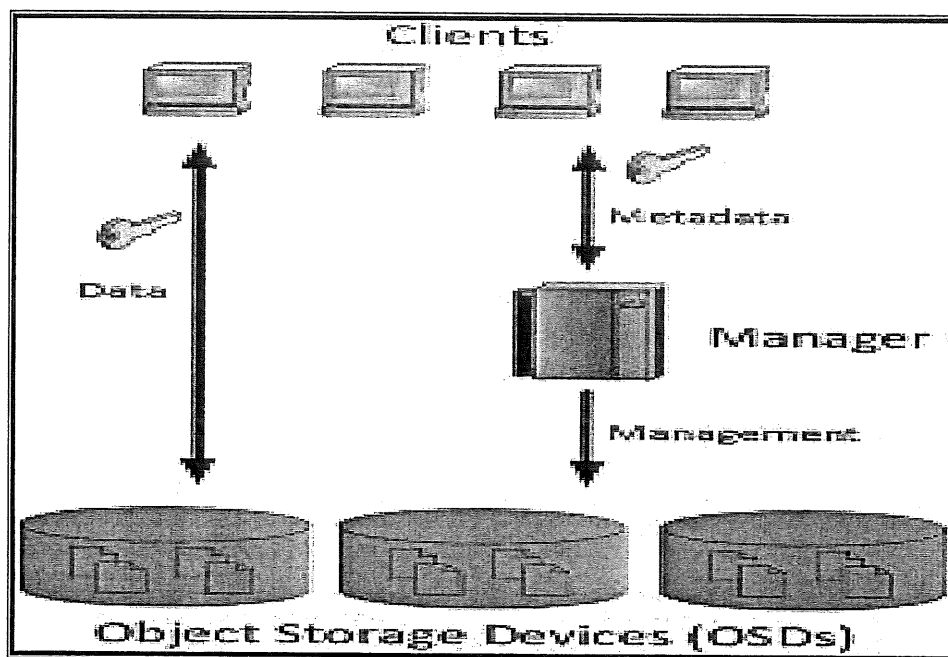


FIGURE 2: Object Storage Devices

- a) Based on Figure 2 above, in what techniques the files are distributed from the clients to the storage devices? (6 marks)
- b) Identify **TWO (2)** design issues in the distributed system. (2 marks)
- c) Several technologies have been devoted to the distributed system. Justify **FIVE (5)** approaches how the technology on the IoT system to the distributed system. (10 marks)
- d) What is CDN? Describe CDN methods in a distributed system environment. (10 marks)
- e) Sketch a distributed sensor on the distributed system. Detailed your answer rendering to the illustration that includes the features on the sensor environment. (8 marks)

-----END OF QUESTIONS-----

