Candidate Reg Number [redacted]

THE UNIVERSITY OF DODOMA

OFFICE OF THE DEPUTY VICE CHANCELLOR
ACADEMIC, RESEARCH AND CONSULTANCY

COLLEGE OF INFORMATICS AND VIRTUAL EDUCATION

Department of Computer Science and Engineering
End of Semester ONE University Examination for the 2022/2023 Academic Year

Course Name: Distributed Computing

Duration: *1Hour 15 Minutes*

Question one

a) Write short notes on the following **[0.5 Mark each]**

i. Broadcast based Name Resolution

ii. Distributed Hash Tables

b) Consider the following ring in DHT for the P2P address resolution in a DCE.

i. Suggest the appropriate m-bit for the designation of the chord **[0.5 Marks]**

ii. Assume all the ring nodes in Fig. 1-1 are present but only the nodes with the finger table (FT) are indicated. The nodes in the ring keep information of the predecessor and the successor. When it happens node 18 is asked for the key k=65. Explain what

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will be the drawback if the system does not use the shortcut.

[1 Marks]

iii. Suggest how you will construct the finger table FT. **[0.5 Marks]**

iv. By showing your work precisely, develop a finger table FT for the node 18

[1.5 Marks]

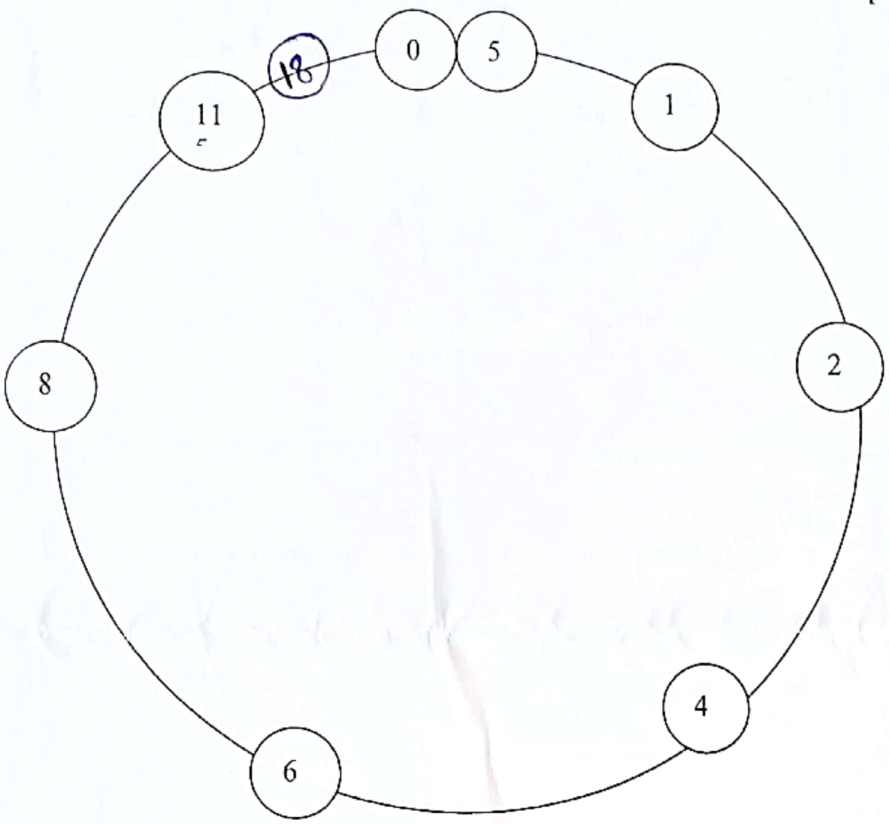


Fig. 1-1: DHT Organized as a Ring

Question two

a) Write short notes on **[0.5 marks each]**

i. Remote Procedure Call

ii. Differed synchronous

iii. Middleware

b) Using Fig. 1-2, suggest what type of synchronicity is applied in the communication

[0.5 marks]

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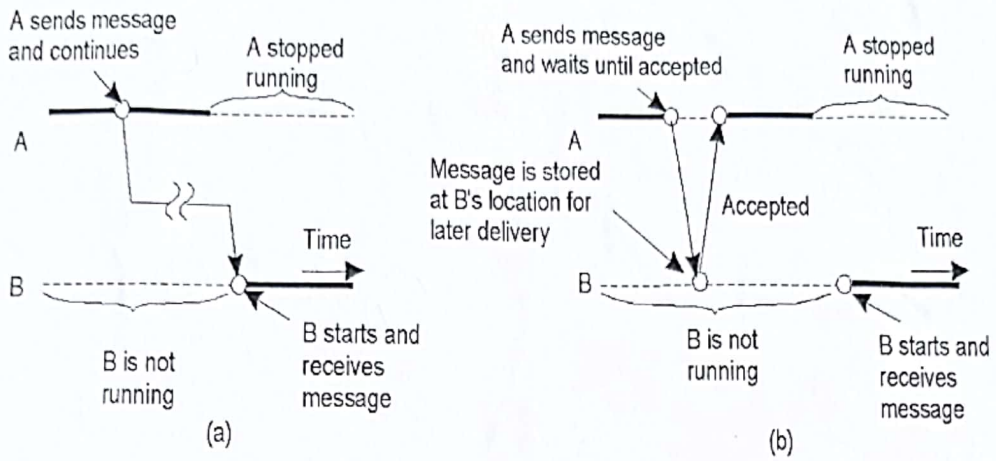


Fig. 1-2 Synchronous Communication

Question Three

a) Establish why threads are preferable for the Inter-process communication (IPC) in comparison to processes **[1 marks]**

b) Establish the difference between Concurrent server and Iterative server **[1 Marks]**

c) Outline the three different levels at which the virtualization interfaces can be implemented **[1.5 Marks]**

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