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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR
THIRD YEAR, FIRST SEMESTER EXAMINATION
FOR THE BACHELOR OF BUSINESS & INFORMATION TECHNOLOGY
KB1 2310 – DISTRIBUTED INFORMATION SYSTEMS AND DATA PROTECTION

Date: 09TH April 2024
Time: 2:30PM – 4:30PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Explain the term distributed information systems (2 Marks)
- b) Elucidate the four main goals for a distributed system (4 Marks)
- c) With the help of a real-life example, relate the meaning of “Industrial Espionage” (4 Marks)
- d) Differentiate between private and confidential data. (4 Marks)
- e) Compare and contrast the Client-Server and Peer-Peer types of networks (4 Marks)
- f) Compute Intensity of a typical work unit reflects the relative percentage of time spent moving data to and from the Desktop Grid Client compared to the time spent performing calculations on that data typical work unit executes in 15 minutes (900 seconds) on a hypothetical “average” grid client, consumes 2MB (2,000 KB) of input data, and produces 0.4MB (400 KB) of output data. Calculate the CI. (6 Marks)
- g) Most data protection strategies have three key focuses, cite the three. (6 Marks)

QUESTION TWO (20 MARKS)

- a) Using appropriate examples, explain any four types of transparencies associated with a distributed system (8 Marks)
- b) With the aid of an illustration, discuss the three Tier Client-Server Architecture (8 Marks)
- c) Differentiate between cluster computing systems and Grid computing systems (4 Marks)

QUESTION THREE (20 MARKS)

- a) Illustrate the issues of Open systems as seen in Distributed systems (6 Marks)
- b) State and discuss four causes of data loss in a computer system. (8 Marks)
- c) Summarize six environmental problems affecting the operation of computers. (6 Marks)

QUESTION FOUR (20 MARKS)

- a) Sometimes, asynchronous communication is not feasible like in Web application when a user is just waiting for the response. One of the alternative techniques that are needed is shipping code as a scaling technique. Use a diagram to illustrate code shipping showing the difference between letting a server or a client check forms as they are being filled. (8 Marks)
- b) Explain five sources of computer viruses (5 Marks)
- c) Demonstrate four ways on how piracy can be prevented in regard to data and information (4 Marks)
- d) Differentiate the thick and thin models of Client -server architecture (3 Marks)

QUESTION FIVE (20 MARKS)

- a) With the aid of illustrations, discuss the three main classes of distributed systems (6 Marks)
- b) Articulate the five components of a data workflow diagram with an illustration (10 Marks)
- c) With the help of a flow diagram, discuss what is meant by data encryption in Data protection.(4 Marks)