Tribhuvan University
Institute of Science and Technology

Bachelor Level/ Fourth Year/ Seventh Semester/ Science

Computer Science and Information Technology (CSc. 403)

Full Marks: 60  Pass Marks: 24

Time: 3 hours.

Candidates are required to give their answers in their own words as far as practicable.

Group A

Attempt any two questions (2x10=20)

1. Define inheritance. Discuss the benefits of using inheritance. Discuss multiple inheritance with suitable example. (1+2+7)

2. What do we need event handling? Discuss the process of handling events with example. Differentiate event listener interface with adapter class. (3+4+3)

3. Write a program swing components to find simple interest. Use text fields for inputs and output. Your program should display output if the user clicks a button. (10)

Group B

Attempt any eight questions. (8x5=40)

4. Write an object oriented program to find area and perimeter of rectangle. (5)

5. Write a simple java program that reads data from one file and writes the data to another file (5)

6. Discuss grid layout with example. What is action event? Discuss. (5)

7. What is action event? Discuss (5)

8. How do you execute SQL statement in JDBC? (5)

9. What is socket? How can you write java programs that communicate with each other using TCP sockets? (1+4)

10. Write a Java program using servlet to display "Tribhuvan University". (5)

11. Discuss property design patterns for Java Beans. (5)

12. What is CORBA? How is it different from RMI? (2+3)

13. Write short notes on: (2.5+2.5)
   a) Multithreading
   b) JSP

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Attempt all questions.

1. Explain the following terms:

   a) Data replication
   b) UMI
   c) SOL: 2003
   d) XPath
   e) SOAP
   f) Clustering

2. What is mobile computing? Explain its architecture.

3. Explain the process of EER to relational mapping with example.

4. Discuss the concept of encapsulation, and tell how it is used to create abstract data types.

5. What are the differences between structured and unstructured complex objects?

6. What is temporal database? Explain the terms date, time, timestamp, interval and period?

7. What is data warehouse? Explain the architecture for the functionality of data warehouse.

8. What is multimedia database? What are the nature of multimedia database and applications?

9. What is data mining? Discuss association rule mining with example.

10. What is GIS? What are GIS data operations?
Attempt all questions.

1. What are teleports and terrestrial links? What are the components of satellite communication?

2. In internet protocol suite, what are the basic functions performed by the Internet Protocol? Discuss about the TCP header structure.

3. What are the advantages of using tiered technology? Describe the possible data transfer modes that FTP can use.

4. How universal naming is done with URI? Given a URI string "foo://password@username.com/index.php?type=sure#test". Now, identify schema name, hierarchical part, query, and fragment in the string.

5. How XMLHttpRequest sends a request to a server? How responseText property differs from responseXML?

6. What are the proxy servers? Differentiate each of open, forward and reverse proxy servers.

7. What is the role of Mail User Agent (MUA) in mail servers? How webmail differ from POP3 mails.

8. What is the use of proxy arrays in load balancing? Discuss about the load balancing approaches.

9. Describe the key features of e-commerce over traditional commerce?

10. What do you mean by multimedia broadcasting? How Gopher differs from HTTP?