ECHELON INSTITUTE OF TECHNOLOGY

First Sessional Test, September 2023

Branch: BCA(DATA SCIENCE) | Sem: 3rd
Course Code: BSC (201) | Subject: Probability & Statistics
Date: 25.09.23 | Max Marks: 25
Duration: 1 hr.

Note: Attempt any five parts from *Question No. 1. It is compulsory.*
Answer any two questions from PART-B.

PART-A

1. (a) Define Distribution function . [CO-1][BTL-1] (1)
(b) Explain Probability density function . [CO-1][BTL-2](1)
(c) If F is distribution function of a random variable X then prove that
P(a<X< b) F(b)-F(a) . [CO-1][BTL-4] (1)
(d) Define correlation and its types. [CO-2][BTL-2] (1)
(e) Explain Regression . [CO-2][BTL-1] (1)
(f) find mean for the following data:

X	1	2	3	4
Y	3	4	2	1

[CO- 2][BTL-5] (1)

PART-B

2. (a) The diameter of an electric cable , say X is assumed to be a continuous random variable with p.d.f

f(x) = 6x(1-x) , 0< x<1 , check the function is p.d.f [CO-1][BTL-3](4)

(b) A random variable X has the following probability function :

Value of X, x	0	1	2	3	4	5	6	7
P(x)	0	k	2k	2k	3k	k^2	$2k^2$	$7k^2+k$

Find (i) value of k
(ii) P(x<6)
(iii) P(x≥6) [CO-1][BTL-4](6)

3 (a) Fit a straight line to the following data :

X	3	7	9	10
Y	168	120	72	63

[CO-2][BTL-3](4)

(b) Find the correlation coefficients for the following heights(in inches) of fathers(X) and their sons(Y):

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

[CO-2][BTL-5](6)

(a) Fit a Power curve of the form $Y=ax^b$ to the following data :

1	2	3	4	5	6
1.0	1.2	1.3	1.8	2.1	7.1

[CO-2][BTL-3](5)

(b) Prove that if F is distribution function of one dimensional random variable X, then

$F(-\infty) = F(x) = 0$

$F(\infty) = F(x) = 1$

[CO-1][BTL-2] (5)

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Dipika Dept

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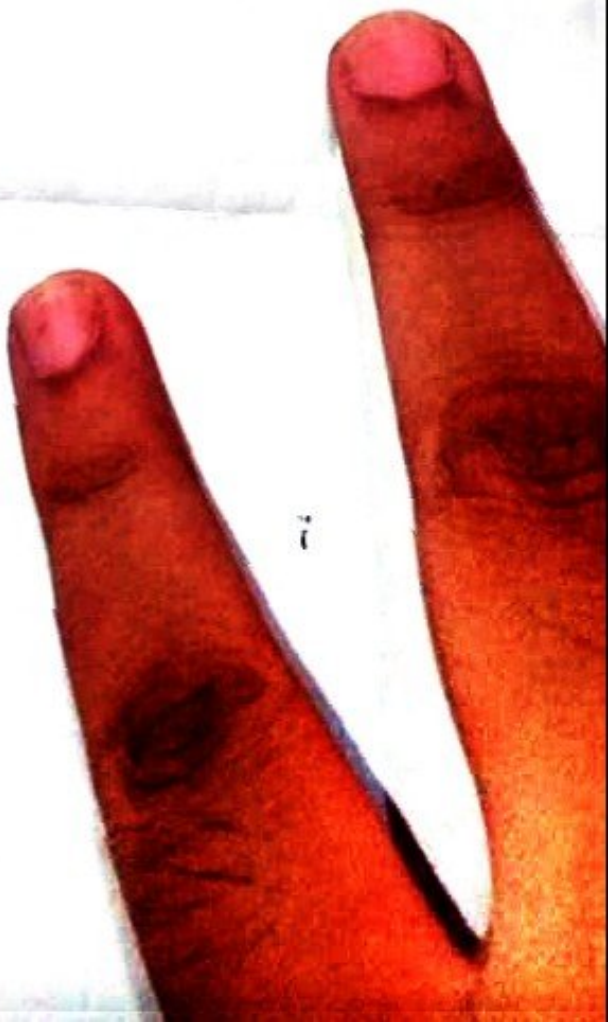

ECHELON INSTITUTE OF TECHNOLOGY

First Sessional Test, September 2023

Pr... Name: BCA | Branch: CSE | Sem: 3rd
Co... Code: BCA-DS-204 | Subject: Data Warehouse and data mining
Dat... 15/09/2023 | Duration: 1 hr | Max Marks: 25

No... Attempt any five parts from *Question No. 1. It is compulsory.*
Answer any two questions from PART-B.

PART-A

1. (a) Difference between DBMA and Data Warehouse ? [CO-1][BTL-2](1)
   (b) Difference between OLAP and OLTP ? [CO- 1][BTL- 4](1)
   (c) Explain different type of OLAP servers [CO- 1][BTL- 3](1)
   (d) Differences between Knowledge discovery and data mining ? [CO- 2][BTL- 2](1)
   (e) What is the relation between data warehousing and data mining? [CO-1,2][BTL-2](1)
   (f) Explain data warehouse back end tools ? [CO- 2][BTL- 1](1)

PART-B

2. (a) What do you mean by data warehouse ? Explain 3-tier data warehouse architecture with diagram ? [CO- 1][BTL- 5] (6)
   (b) What is data marts and metadata? [CO- 1][BTL- 1](4)

3. (a) What do you mean by data mining ?Explain *data mining* techniques? [CO- 2][BTL-4](4)
   (b) Explain different type of multidimensional database schemas ? [CO- 1][BTL- 3](6)

4. (a) Explain data warehouse implementation ? [CO-2][BTL- 2](6)
   (b) What are the application areas of data Mining? [CO-2][BTL-5](4)

clustring
web mining
graph mining

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ECHELON INSTITUTE OF TECHNOLOGY

First Sessional Test, September 2023

Programme: BCA | **Branch**: Data Science | **Sem**: 3rd
Date: 26-09-23 | **Duration**: 1 hour | **Max Marks**: 25
Subject: Principles of Operating Systems | **Course Code**: BCA-05-203

Note: Attempt any five parts from Question No. 1. It is compulsory. Answer any two questions from PART-B

PART-A

1. (a) Defend timesharing differ from multiprogramming? If so, how? [CO-1][BTL-5] (1)
(b) Distinguish between batch systems and time-sharing systems. [CO-1][BTL-4] (1)
(c) What is the real-time system? [CO-2][BTL-2] (1)
(d) What is the use of job queues, ready queues, and device queues? [CO-2][BTL-1] (1)
(e) What is meant by Batch Systems? [CO-1][BTL-1] (1)
(f) List two differences between logical and physical addresses. [CO-2][BTL-4] (1)

PART-B

2-a. List out the various process states and briefly explain all of them with a state diagram. [CO-1] BTL-2 05

2-b. Using Banker's algorithm, answer the following questions:- [CO-2] BTL-2 05

- How many resources of type A, B, C, and D are there?
- What are the contents of the need matrix?
- Find if the system is in a safe state. If it is, find the safe sequente.

Process	Max				Allocation				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	6	0	1	2	4	0	0	1	3	2	1	1
P1	2	7	5	0	1	1	0	0				
P2	2	3	5	6	1	2	5	4				
P3	1	6	5	3	0	6	3	3				
P4	1	6	5	6	0	2	1	2				

3- Consider the set of 6 processes whose arrival time and burst time are given below- [CO-2] BTL-4 10

Process Id	Arrival time	Burst time
P1	5	5
P2	4	6
P3	3	7
P4	1	9
P5	2	2
P6	6	3

If the CPU scheduling policy is Round Robin with time quantum = 3, calculate the average waiting time and average turnaround time.

4. Given page reference string: **1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6** [CO-2] BTL-4 10
Compare the number of page faults for LRU and FIFO page replacement algorithms.

Mohammad Danish
(Assoct. Prof.)

ECHELON INSTITUTE OF TECHNOLOGY

First Sessional Test, Sep, 2023

Programme: BCA
Course Code: GEC-DS-2

Branch: BCA- DS
Subject: Software Engineering
Duration: 1 hr

Sem: III
Date: 27-09-2023
Max Marks: 25

Note: Attempt any five parts from *Question No. 1. It is compulsory.*
Answer any two questions from PART-B.

PART-A

1. (a) What is Software project Management? [CO- 2][BTL-1](1)
   (b) Explain Data Dictionaries. [CO-1][BTL-2](1)
   (c) What is Requirement elicitation? [CO- 1][BTL-1](1)
   (d) What is DFD? Data Flow diagram. [CO-1][BTL-2](1)
   (e) Diagram of Software Project Planning. [CO-2][BTL-2](1)
   (f) What is FAST? [CO- 1][BTL-2](1)

PART-B

2. (a) Explain Software life cycle model. [CO-1][BTL- 4](6)
   (b) What are 4 P's of Software Management Spectrum? People Project Product Process [CO-2][BTL-4](4)

3. (a) What are the Characteristics of a good SRS? [CO-1][BTL-2](6)
   (b) Explain FAST. [CO-1][BTL-2](4)

4. (a) Explain Spiral Model with diagram. [CO-1][BTL-2](5)
   (b) What are ER diagrams? Explain with an Example. [CO-1][BTL-4](5)

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ECHELON INSTITUTE OF TECHNOLOGY

First Sessional Test, September 2023

Programme: BCA | Branch: Gen(B) and DS | Sem: 3rd
Course Code: BCA-17-204(B) | Subject: Environment Science
Date:27.09.2023 | Duration: 1 hr | Max Marks: 25

Note: Attempt any five parts from *Question No. 1. It is compulsory.*
Answer any two questions from PART-B.

PART-A

1. (a) Chipko movement is related to which natural resource? [CO-1][BTL-1](1)
(b) What is meant by renewable resources? [CO-1][BTL-2](1)
(c) What portion of water is present as surface water? [CO-1][BTL-1](1)
(d) Terrace farming is practiced in which type of area? [CO-1][BTL-2](1)
(e) Define the term ecosystem. [CO-2][BTL-4](1)
(f) What are herbivores? [CO-2][BTL-1](1)

PART-B

2. (a) Write briefly about the pros and cons of Dams [CO-1][BTL-4,5] (4)

(b) What are the efforts that can be made by an individual to conserve water and energy resources? [CO-1][BTL-3,6] (6)

3 (a) Discuss the distribution of water resources and the impact of overuse of water resources. [CO-1][BTL-1,3] (5)
(b) What is mining and discuss about the impact of mining on environment [CO-1][BTL-2,5] (5)

4. (a) Write about the various structural features of any ecosystem. [CO-2][BTL-2] (5)
(b) What are ecological pyramids? Discuss in detail the pyramid of numbers [CO-2][BTL-4] (5)

- Environment education
- not Dumping waste
- Rainwater harvesting
- waste water reserve

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ECHELON INSTITUTE OF TECHNOLOGY

First Sessional Test, Sept, 2023

Programme: BCA | Branch: BCA(DS) | Sem: 3rd
Course Code: BCA-DS-201 | Subject: Python Programming
Date: 25/9/2023 | Duration: 1 hr | Max Marks: 25

Note: Attempt any five parts from *Question No. 1. It is compulsory.*
Answer any two questions from PART-B.

PART-A

1. (a) Define iterators in Python. [CO-1,3][BTL- 1](1)
(b) How to remove values from Python array? [CO-1,4][BTL- 2](1)
(c) What are Sets in and Not in operator [CO-1,4][BTL-1](1)
(d) Write a brief note on the scope of variables. [CO-1,3][BTL-1](1)
(e) What are datatypes in Python? [CO-1, 3][BTL-1](1)
(f) What is Slicing in Python? [CO-1,4][BTL- 1](1)

PART-B

2. (a) What are key features of Python? Describe [CO-1][BTL-1](4)
(b) What is Lambda in Python? [CO-3][BTL-1]
(c) What are pass, continue and break statements in Python? [CO-3][BTL-1](6)

3. (a) Differentiate between List and Dictionary with example [CO-3][BTL-2](4)
(b) What are functions? Explain all types of function arguments with example [CO-2][BTL- 2](6)

4. (a) Write a program for finding factorial of a number. Explain its working. [CO1,2][BTL- 3](5)
(b) What are tuples? What are inbuilt functions of Tuples. Explain with suitable example. [CO-1,4][BTL-2](5)

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