National Textile University

Mid Term Exam - SPRING 2024

Section A

Student Name:	_____	**Registration No.:**	_____
Course Title:	**Introduction to Textiles**	**Course Code:**	**TE-1113**
Department:	**Bachelor of Science in Artificial Intelligence - Artificial Intelligence**	**Semester:**	**6th Semester**
Time Allowed:	**90 Minutes**	**Total Marks:**	**30**
Teacher:	**Dr. Muhammad Bilal Qadir**		

Question No.	CLO No.	Taxonomy Level	Marks
Question-1	**CLO-1**	**Remembering**	**10**

a) Give a brief overview of textiles and the major processes used to convert raw materials to end products. Also, explain the objectives of each process. (6)

b) Elaborate on the major properties of natural fibers and give reasons for using these fibers in summer wear. (4)

Question-2	**CLO-1**	**Remembering**	**10**

a) What are two major categories of yarn numbering? Explain both with examples. (3)

b) Draw flow charts of cotton combed ring-spun yarn and cotton carded rotor-spun yarn with process machines and input and output materials. (3)

c) Briefly explain the objectives of each process during yarn manufacturing. (4)

Question-3	**CLO-2**	**Remembering**	**10**

a) Briefly compare woven and knitted fabric, machine, and process. (4)

b) Explain the different bonding methods used in the nonwoven process. (3)

c) Differentiate the plain, twill, satin/sateen woven fabrics with drawings. (3)

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Section A

Student Name: _____ **Registration No.:** _____

Course Title:	**Parallel and Distributed Computing**	**Course Code:**	**CSC-3075**
Department:	**Bachelor of Science in Artificial Intelligence - Artificial Intelligence**	**Semester:**	**6th Semester**
Time Allowed:	**90 Minutes**	**Total Marks:**	**30**
Teacher:	**Nasir Mahmood**		

Question No. | **CLO No.** | **Taxonomy Level** | **Marks**

Question-1 | **CLO-1** | **Understanding** | **20**

A: (5) Define the following terms based on parallel computing,

- Parallel Computers
- Performance
- FLOPs
- Instruction Stream
- Data Stream

***B:** (5) Design the block diagram of different architecture based on Flynn's taxonomy.*

***C:** (5) How the Parallel and serial portion of program modified the overall performance according to Ahmad's law, show visual description.*

***D:** (5) Differentiate the shared memory parallel computer architectures based on memory access time.*

Question-2 | **CLO-3** | **Applying** | **10**

A: (6) Consider the following piece of code, running on 2 threads system,

```
#include <omp.h>

#include <stdio.h>

int main() {

int i;

const int N = 4;

int a = 5;

int b = 1;

#pragma omp parallel for default(none)    private(i) ????(a)    ????(b)

for (i=0; i<N; i++) {

b = a + i;
```

5+0 = 5
5+1 = 6
5+2 = 8
5+3 = 8

5+0 = 5
5+1 = 6
6+2 = 8
7+3 = 10

```
}
printf("a=%d b=%d \n", a, b);
}
```

What values of a and b will be displayed according to different scooping clause, fill the table below,

Scop clause	a	b
private		
first private		
last private		

For correct values of a and b , what will be the right clauses for a and b?

B: (4) How does a loop get split up? In OpenMP for dynamic and static scheduling, describe with example.

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Section A

Student Name: _____ **Registration No.:** 1414

Course Title:	**Machine Learning**	**Course Code:**	**AIC-3072**
Department:	**Bachelor of Science in Artificial Intelligence - Artificial Intelligence**	**Semester:**	**6th Semester**
Time Allowed:	**90 Minutes**	**Total Marks:**	**30**
Teacher:	**Dr. Rehan Ashraf**		

Question No.

Question-1

CLO No.	Taxonomy Level	Marks
CLO-1	Understanding	10

Briefly answer the following questions:

a) Compare Batch Gradient Descent with Stochastic Gradient Descent? Which technique should be used if training data 5000 instances?

b) If you want to decide a similarity measure then what type of properties you should have in this metric?

c) Compare between instance based and model-based learning? What steps we need to following in almost all model-based learners?

d) What are issues with simple k-NN and how these issues can be resolved?

Question-2 **CLO-1** **Understanding** **10**

a) What is role of training data in learning of model explain the effect of increase and decrease in training data toward the learning models?

b) Write the formula of linear cost function? And how hypothesis can be changed by applying linear regression and how to calculate the minimized cost in linear regression?

Question-3 **CLO-2** **Applying** **10**

a) Consider the following data? Using the k-NN algorithm predict the class of [9, 22] for k=1 and k=3. Use Euclidean distance for similarity measure.

X1 = [4, 5, 10, 4, 3, 11, 14, 8, 10, 12]

X2 = [21, 19, 24, 17, 16, 25, 24, 22, 21, 21]

y = [0, 0, 1, 0, 0, 1, 1, 0, 1, 1]

b) Make 3 Clusters of Given Data Using K-means Clustering Technique. Pick 2, 5, 7 Positions for centroids at start and then average value of each cluster.

{(1,9), (6,4), (3,7), (2,5), (8,2), (6,6), (3,9), (4,4), (8,4), (9,5)}

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Section A

Student Name: _____ Registration No.: _____

Course Title:	Web Application Development	Course Code:	CSE-4080
Department:	Bachelor of Science in Artificial Intelligence - Artificial Intelligence	Semester:	6th Semester
Time Allowed:	90 Minutes	Total Marks:	30
Teacher:	Muhammad Abdul Qayum		

Question No.	CLO No.	Taxonomy Level	Marks
Question-1	CLO-1	Remembering	10
Question-2	CLO-1	Remembering	10
Question-3	CLO-4	Applying	10

Question-1

a. Compare Tailwind CSS with other CSS frameworks?
b. What are the benefits of directives in Tailwinds. Explain with example?
c. How to add new colors to Tailwind-CSS and keep the originals ones?
d. What is the usage of Grid in Tailwind CSS?
e. What are markup languages? Explain with an example.

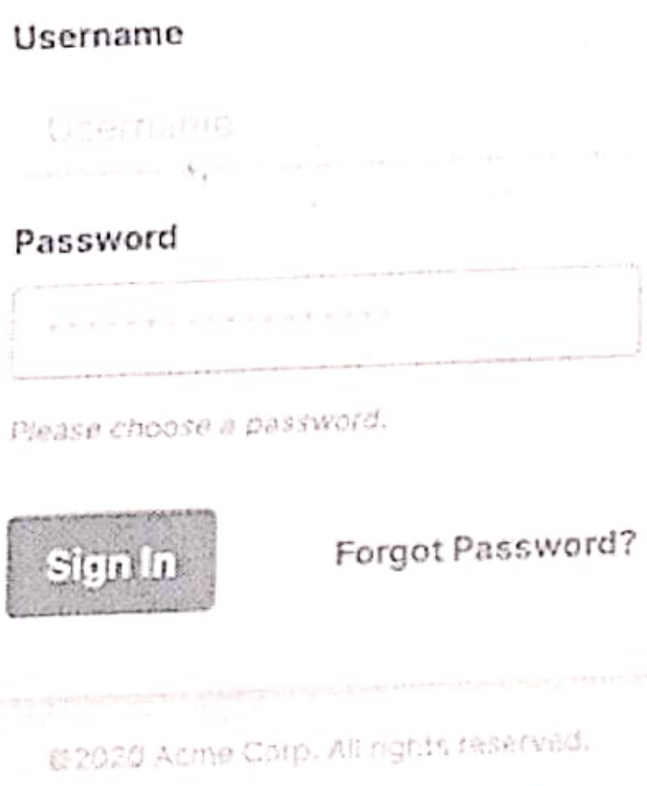
Question-2

5+5

a. What are the pattern attributes in HTML and how they help to control the input.?
b. How can make a website responsive using Tailwind CSS? Write an example.

Question-3

a. Write an HTML program for drawing the following form using Tailwind CSS framework.



b. Write an HTML program for drawing the following Table.

Time Table					
Hours	Mon	Tue	Wed	Thu	Fri
	Science	Maths	Science	Maths	Arts
	Social	History	English	Social	Sports
	Lunch				
	Science	Maths	Science	Maths	Project
	Social	History	English	Social	

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Section A

Student Name: _____ **Registration No.:** _____

Course Title:	**Knowledge Representation & Reasoning**	**Course Code:**	**AIC-3073**
Department:	**Bachelor of Science in Artificial Intelligence - Artificial Intelligence**	**Semester:**	**6th Semester**
Time Allowed:	**90 Minutes**	**Total Marks:**	**30**
Teacher:	**Isma Hamid**		

Question No.	CLO No.	Taxonomy Level	Marks
Question-1	**CLO-1**	**Understanding**	**10**

I. a) Differentiate between declarative and procedural representation of knowledge.

b) What is first-order logic used for in AI? What are the applications of first-order logic?

c) Explain the different issues in knowledge representation.

Question-2	**CLO-2**	**Analyzing**	**10**

a) Write a note on different approaches of knowledge representation.

b) Artificial Intelligent Systems usually consist of various components to display their intelligent behaviour. Enlist these components and explain these with diagram.

c) How semantic network representation is used in constructing the AI systems. Explain it with detail with diagram

Question-3	**CLO-3**	**Applying**	**10**

a) Consider a knowledge base containing just two sentences: P(a) and P(b) Does this knowledge base entail $\forall x$ P(x)? Explain your answer in terms of models

b) Transform the following statements from natural language into predicate formulas choosing the appropriate constants, function symbols and predicate symbols:

- Every student who makes good grades is brilliant or studies.
- Some of John's colleagues like to draw and some like to dance.
- All birds have wings but only penguins do not fly.
- Every investor who bought something that falls is not happy.
- Anyone who has any cats will not have any mice.