



Daffodil International University
Department of Computing and Information System
Faculty of Science & Information Technology

Midterm Examination, Fall2024

Course Code: CIS123 Course Title: Discrete Mathematics

Level: 1 Term: 2; Section: All; Duration: 1hr 30 minutes Mark: 25

Teacher's Initial: SN

****Answer all of the following questions. Figures in the right-hand margin indicate full marks.**

Q. No	Questions	Mark	CLO, Level
1.	<p>Answer the following questions:</p> <p>i Prove that if A, B, and C are sets, then</p> $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ <p>ii Let, $A = \{0, 2, 4, 6, 8\}$, $B = \{0, 1, 2, 3, 4\}$, and $A \cap B = \{0, 2, 4\}$. What is the result of $A \cup B$</p> <p>iii Explain your knowledge of cardinality of a set. Also find out, the cardinality of the set of English Alphabet.</p>	<p>5</p> <p>+2 +2</p> <p>=9</p>	<p>CLO1,</p> <p>Level</p> <p>02</p>
2.	<p>Consider these relations on the set of integers:</p> <p>$R1 = \{(a, b) \mid a \leq b\}$</p> <p>$R2 = \{(a, b) \mid a > b\}$</p> <p>$R3 = \{(a, b) \mid a = b \text{ or } a = -b\}$</p> <p>$R4 = \{(a, b) \mid a = b\}$</p> <p>$R5 = \{(a, b) \mid a = b+1\}$</p> <p>$R6 = \{(a, b) \mid a + b \leq 3\}$.</p>	4	<p>CLO2,</p> <p>Level</p> <p>03</p>

	Which of these relations contain each of the pairs $(3, 1)$, $(-3, 3)$, $(1, 1)$, $(1, 2)$, $(2, 1)$, $(1, -1)$, and $(2, 2)$?		
3.	Identify the given function $f(x) = x^2 + 1$, from Z to Z , are either one to one, onto, bijective. Examine with proper justification.	3	CLO2, Level 03
4.	<p>i Explain the knowledge of: complete graph, regular graph, Pendant graph, isolated Graph</p> <p>ii How many ways are there to represent a graph (Explain) with example.</p>	6 3	CLO2, Level 03

Best of Luck. Allah Hafez



Daffodil International University

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Mid-Term Examination, Fall-2024

Course Code: STA 101, Course Title: Statistics I

Level: 1 Term:2

Time: 1.5 Hours

Marks: 25

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	a)	Suppose, DIU authority wants to know how much time the students of CIS department spent in coding practice. So, they randomly selected 50 students from the department of CIS and collected data on their weekly coding practice time in hours. Find population, sample, variable (qualitative or quantitative) from the above scenario.	[3]	CO1
	b)	Define parameter and statistic with example.	[2]	
2.	a)	Suppose, following data represents number of pages in 15 books in a shelf: 250, 320, 280, 310, 400, 290, 300, 330, 180, 290, 480, 285, 275, 260, 295 Calculate mean median and mode from this data.	[3]	CO2
	b)	Identify Q_2 , D_7 and P_{80} from the above data. Also show that $Q_2 = D_5$.	[2]	
3.	a)	The Final exam score of 30 students are given- 61, 63, 64, 66, 68, 69, 71, 71.5, 72, 72.5, 73, 73.5, 74, 74.5, 76, 76.2, 76.5, 77, 77.5, 78, 78.5, 79, 79.2, 80, 81, 82, 83, 84, 85, 87. Construct a frequency distribution table using appropriate class interval.	[5]	CO3
	b)	Draw a Histogram using above data from the frequency distribution table.	[5]	

84th
mode, median = 290

$\sum x = 4545$
 $\bar{x} = 303$
 $Q_2 = 8th = 290$
 $D_7 = 12th = 320$
 $P_{80} = 18th = 330$

class - 5

60 - 66 - 3
66 - 72 - 5
72 - 78 - 11
78 - 84 - 8
84 - 90 - 7



Daffodil International University
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Department of Computing and Information System
Mid-Term Examination, Fall-2024
Course Code: ENG102, Course Title: English II
Level: 1 Term: 2

Exam Duration: 1.5 Hour

Marks: 25

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	a)	Listening: Listen to the audio and apply it to answer questions 1 to 10 (Selecting and interpreting ideas; will be taken separately)	[Marks 5]	CLO 2
	b)	Speaking: A face to face interview with the course tutor (Discuss 2 ideas for topics and explain answer of the questions; will be taken separately)	[Marks 5]	
2.	a)	<p>Read the following passage, Identify the errors, and Correct them.</p> <p>My little sister Lisa was practising how to riding a bicycle yestarday. Suddenly I hear a loud crash and ran to see what had happen. I saw that she was lying in the ground. I quickly pull her up and bought her home. She was crying out loud. I quikly go inside the house and bought the first aid box. After cleaning the wound, I apply antiseptic to the wound. Lisa has scratches on her hand and knee. To calm her down, I took her to the nearby shop and brought her a big chocolate. Seeing her favourite chocolate, she immedietely stop crying. Within two day, her wounds healed, and she went to play again.</p>	[Marks 2.5]	CLO 1
	b)	<ol style="list-style-type: none"> 1. They _____ (finish) the project by the time we arrived. (Past Perfect) <i>had finished</i> 2. I _____ (study) for two hours before the exam. (Present Perfect Continuous) <i>have been studying</i> 3. The baby _____ (sleep) when the phone rang. (Past Continuous) <i>was sleeping</i> 4. She _____ (be) to Paris three times. (Present Perfect) <i>has been</i> 5. We _____ (start) our work as soon as the teacher arrives. (Future Continuous) <i>will be starting</i> 6. The cake _____ (bake) when I walked into the kitchen. (Past Continuous) <i>had was baking</i> 	[Marks 2.5]	

7. By next year, I _____ (live) in this city for five years.
 (Future Perfect) will have lived
8. He always _____ (forget) his keys at home. (Simple Present)
forgets
9. I wish I _____ (know) the answer. (Simple Past) know
10. They _____ (prepare) dinner when we _____ their house. (Past Continuous) were preparing

3. Read the passage and answer the following questions.

The Benefits of Walking Daily

Walking is one of the simplest and most accessible forms of exercise. Not only does it improve physical health, but it also provides mental and emotional benefits. Studies show that walking for just 30 minutes a day can significantly lower the risk of chronic diseases such as heart disease, diabetes, and certain cancers. Walking also strengthens muscles, improves cardiovascular fitness, and helps maintain a healthy weight.

In addition to the physical benefits, walking is known to boost mood and alleviate symptoms of depression and anxiety. A daily walk can be a form of mindfulness, allowing people to connect with their surroundings and relieve stress. Walking outdoors, especially in natural settings like parks, can have even greater effects on mental well-being.

Another advantage of walking is that it requires no special equipment or gym membership. It can be done almost anywhere, whether it's around your neighborhood, at a local park, or even at work during breaks. Walking is also a social activity; it can be done with friends or family, making it an enjoyable way to spend time together. Overall, incorporating a daily walk into your routine is a simple yet effective way to enhance both your physical and mental health.

The History of Tea

Tea has been enjoyed for thousands of years and holds a special place in many cultures around the world. The history of tea begins in China, where it was first discovered around 2737 BC. According to legend, Emperor Shen Nong accidentally discovered tea when leaves from a nearby tree blew into his pot of boiling water. The emperor found the drink refreshing, and tea soon became a popular beverage throughout China.

By the 9th century, tea was introduced to Japan by Buddhist monks who visited China. It became deeply embedded in Japanese culture, leading to the development of tea ceremonies, which are still practiced today. In the 17th century, tea made its way to Europe, where it quickly became fashionable.

CLO
3

among the upper classes. In England, tea drinking became a social activity, leading to the creation of "afternoon tea," a tradition that continues today.

Today, tea is the second most consumed beverage in the world, after water. It is enjoyed in various forms—green, black, white, and oolong—each offering unique flavors and health benefits. Whether it's a calming herbal blend or a strong cup of black tea, tea continues to be a beloved drink around the globe.

The Rise of Online Shopping

The advent of the internet has transformed many aspects of daily life, including the way we shop. Online shopping, once a novel concept, has become an integral part of modern consumer culture. People can now buy products from the comfort of their homes with just a few clicks, and the rise of e-commerce platforms has made shopping easier and more convenient than ever before.

Online shopping offers a variety of advantages. For one, it provides consumers with access to a global marketplace, allowing them to purchase items from anywhere in the world. Moreover, it saves time and effort, as shoppers no longer need to visit physical stores. Many online retailers also offer competitive prices and discounts, which can be attractive to budget-conscious shoppers.

However, there are some downsides to online shopping. One major concern is security. With the rise of cybercrime, many consumers are wary of sharing personal and financial information online. Additionally, online shopping lacks the tactile experience of in-store shopping, where customers can see and feel products before purchasing. Despite these concerns, the convenience of online shopping continues to drive its popularity. As technology evolves and e-commerce platforms improve, online shopping is expected to grow even more in the coming years.

a) Choose the correct letter, A, B, C or D. Write the correct letter on your answer sheet.

[Marks
2.5]

1. Which of the following is not mentioned as a physical benefit of daily walking?

- a) Strengthens muscles
- b) Enhances lung capacity
- c) Helps maintain a healthy weight
- d) Reduces the risk of diabetes

2. What aspect of mental health does the passage suggest is most influenced by walking in natural settings?

- a) Enhanced creativity
- b) Alleviation of anxiety and depression
- c) Improved social connections

	<p>a) Development of problem-solving skills</p> <p>3. The legend of the discovery of tea involves:</p> <p>a) A monk meditating near a tea tree. b) Leaves accidentally falling into boiling water. c) A merchant selling exotic herbs to the emperor. d) A farmer cultivating the first tea plants in the mountains.</p> <p>4. How did tea's introduction to European society most influence its consumption habits?</p> <p>a) Tea became part of religious rituals. b) It replaced coffee as the most popular drink. c) The tradition of afternoon tea emerged. d) Tea was used primarily as a medicinal beverage.</p> <p>5. According to the passage, what is one challenge consumers face with online shopping?</p> <p>a) Difficulty in finding international products. b) Unavailability of sales and discounts. c) Concerns about data privacy and security. d) Lack of convenient payment methods.</p>		
<p>b)</p>	<p>Answer the following questions.</p> <p>1. How did Emperor Shen Nong's accidental discovery of tea contribute to its widespread use in China?</p> <p>2. What cultural impact did tea have on Europe, as noted in the text?</p> <p>3. According to the passage on walking, how can this simple exercise help in alleviating symptoms of depression?</p> <p>4. According to the text, what concerns might consumers have regarding the security of online shopping?</p> <p>5. What distinguishes tea ceremonies in Japan from ordinary tea drinking, based on the passage?</p>	<p>[Marks 2.5]</p>	
<p>4.</p>	<p>Write an email to your internet service provider to complain about frequent disruptions in service. Detail the issues you have been experiencing, any steps you have already taken, and what resolution you are seeking.</p>	<p>[Marks 5]</p>	<p>CLO 4</p>