

College of Computer Science & Engineering at Yanbu	جامعة طيبة TAIBAH UNIVERSITY	كلية علوم وهندسة الحاسبات ببنبع
Department of Computer Science.		قسم علوم الحاسبات

Midterm. Exam

Academic Year 1445 - First Semester

Exam Information معلومات الامتحان		
Course name	الإحتمالات والإحصاء للمهندسين - الاحتمالات والإحصاء الهندسي	اسم المقرر
Course Code	STAT 301 – STAT 305	رمز المقرر
Exam Date	7 / 10 / 2024	تاريخ الامتحان
Exam Time		وقت الامتحان
Exam Duration	1 Hour	مدة الامتحان
Classroom No.		رقم قاعة الاختبار
Instructor Name	Prof. Mostafa Elhosseini	اسم استاذ المقرر
Student Information معلومات الطالب		
Student's Name		اسم الطالب
ID number		الرقم الجامعي
Section No.		رقم الشعبة
Serial Number		الرقم التسلسلي

General Instructions:

تعليمات عامة:

- Your Exam consists of **3 PAGES** (except this paper) (بإستثناء هذه الورقة) عدد صفحات الامتحان **3 صفحة**.
- Phones and smart devices are forbidden inside the hall. يمنع استخدام الهواتف والأجهزة الذكية داخل القاعة.

هذا الجزء خاص بأستاذ المادة

This section is ONLY for instructor

#	Course Learning Outcomes (CLOs)	Related Question (s)	Points	Final Score
1	Present data in charts and tables	Q1 – Part A	2	
2	Compute measures of location and measures of variability	Q1 – Part B	4	
3	Acquire basic concepts of probability theory	Q2	6	
4				
5				
6	Analyze measures of location and measures of variability	Q3	2	
7				
8	Compute probability models for a given problem.	Q4 – Part A	3	
9	Implement probability methods to solve real-world problems.	Q4 – Part B	3	

Question 1: Points: 6

CLO #1,2

(A) Points: 2

CLO #1

A survey was conducted to record the number of **cups of coffee** consumed daily by **25 employees** in an office. The data are as follows:

2, 3, 1, 4, 2, 3, 2, 1, 3, 2, 4, 3, 2, 1, 3, 2, 2, 3, 4, 2, 1, 2, 3, 2, 1

Construct a **frequency table** for the data.

(B) Points: 4

CLO #2

(i) Which number of cups was the **most consumed**?

(ii) Calculate the **mean** number of cups of coffee consumed daily

(iii) Determine the **median number** of cups of coffee consumed.

(iv) Compute the **range** of the data.

CLO #3

- (a) 0.6828
(b) 0.7158
(c) 0.7019
(d) 0.8099

CLO #6

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(ii) Construct a box plot to represent the data.



Question 4: Points: 6

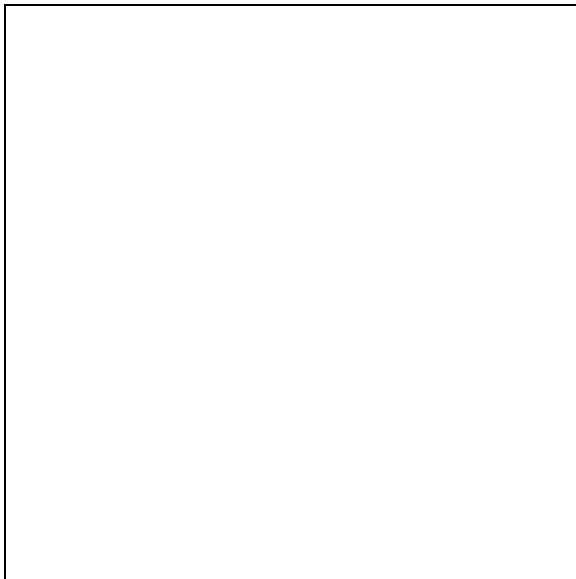
CLO #8,9

A **small batch contains 3** electronic components. Historically, **25%** of the components produced are **defective**. A quality control inspector tests all 3 components.

(A) Points: 3

CLO #8

List **all possible combinations** of defective (D) and non-defective (N) components in the batch.



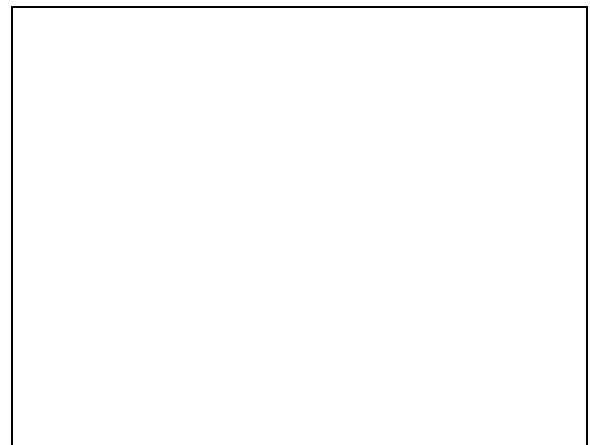
(B) Points: 3

CLO #9

- What is the probability that **exactly two components are defective**?



- What is the probability that **at least one component is defective**?



Best Wishes

Dr. Mostafa Elhosseini

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