MIDTERM EXAM EVEN SEMESTER ACADEMIC YEAR 2021/2022
STUDY PROGRAM OF INFORMATION SYSTEMS
FACULTY OF ENGINEERING AND INFORMATICS
UNIVERSITAS MULTIMEDIA NUSANTARA

Subject	**:**	**IS 240 Probability and Statistics**	**Date**	**:**	
Lecturer(s)	**:**	**Ir Raymond S Oetama, MCIS Fransiscus Ati Halim , Skom,MM Ahmad Faza, S.Kom., M.T.I.**	**Time**	**:**	**90 minutes**
Form	**:**	**Essay**	**Type**	**:**	**Onsite 2A**

EXAM CONDITIONS / INSTRUCTIONS:

1. Read the questions carefully
2. Your answer must be saved to a Microsoft document named MidIS240ProbStat_Name_NIM.docx
3. Your answer file must be submitted through eLearning before the time is due.

COURSE SUB LEARNING OUTCOMES (SUB-CLO):

SUB LEARNING OUTCOMES (SUB-CLO)		ELO
Code	**Description**	
SUB-CLO-2	Students are able to find primary data using the correct methods (C3).	3
SUB-CLO-3	Students are able to calculate the size of the concentration, the size of the distribution, the size of the shape and the size of the association for numerical data (C3).	3
SUB-CLO-4	Students are able to make graphs that match the data type and analyze existing graphs (C3).	3

PROBLEM/QUESTIONS:

1. **Question 1: Sub-CLO-3 Students are able to calculate the size of the concentration, the size of the distribution, the size of the shape and the size of the association for numerical data (C3). Weight 30%.**

   The tables below show students' grades from classes A and B. Which class has more disperse? Please give proof using the descriptive statistics approach!

Class A
Students Grade
Anne 91
Belle 65
Charlie 85

Class B
Students Grade
Alex 95
Bonney 85
Cindy 89

ASSESSMENT RUBRIC (per question):

Rated aspect	Assessment criteria				
	Very Poor	**Poor**	**Satisfactory**	**Good**	**Excellent**
	0-10	**11-15**	**16-20**	**21-25**	**26-30**
1 answer is fixed	Students cannot answer the question or inappropriate answer found	Students cannot get the correct answer and lack calculation process support.	Students manage to get the correct answer with a lack of calculation process support.	Students manage to get the correct answer supported by the right formula which results in small mistakes found.	Students manage to get the correct answer supported by the right formula and result.

2. **Question 2: Sub-CLO-3 Students are able to calculate the size of the concentration, the size of the distribution, the size of the shape and the size of the association for numerical data (C3). Weight (30%)**

   About 20 percent of patients with positive cases of Covid-19 will require treatment medical. If in a quarantine center there are 15 people who are positive for Covid-19, then compute:
   a. What is the probability that exactly 5 people will need medical treatment? **Weight 10%.**
   b. The Probability of ten or more people need medical care? **Weight 10%.**
   c. Calculate the mean and variance of the probability of the binomial distribution **Weight 10%.**

ASSESSMENT RUBRIC (per question):

Rated aspect	Assessment criteria				
	Very Poor	Poor	Satisfactory	Good	Excellent
	0-2	3-4	5-6	7-8	9-10
2A answer is fixed	Students cannot answer the question or inappropriate answer found	Students cannot get the correct answer and lack calculation process support.	Students manage to get the correct answer with a lack of calculation process support.	Students manage to get the correct answer supported by the right formula which results in small mistakes found.	Students manage to get the correct answer supported by the right formula and result.
2B answer is fixed	Students cannot answer the question or inappropriate answer found	Students cannot get the correct answer and lack calculation process support.	Students manage to get the correct answer with a lack of calculation process support.	Students manage to get the correct answer supported by the right formula which results in small mistakes found.	Students manage to get the correct answer supported by the right formula and result.
2C answer is fixed	Students cannot answer the question or inappropriate answer found	Students cannot get the correct answer and lack calculation process support.	Students manage to get the correct answer with a lack of calculation process support.	Students manage to get the correct answer supported by the right formula which results in small mistakes found.	Students manage to get the correct answer supported by the right formula and result.

3. **Question 3: SUB-CLO-2 Students are able to find primary data using the correct methods (C3) and SUB-CLO-4 Students are able to make graphs that match the data type and analyze existing graphs (C3). Weight (40%)**

   Answer these following questions using your own individual project data:
   a. Explain the population and the sample technique you take! **Weight 10%.**
   b. Choose one numeric data that is normally distributed. Prove it is normally distributed using QQplot. **Weight 10%.**
   c. Compute a 90% confidence interval for your population mean from the data you choose at point 3b. **Weight 20%.**

ASSESSMENT RUBRIC (per question):

Rated aspect	Assessment criteria				
	Very Poor	**Poor**	**Satisfactory**	**Good**	**Excellent**
	0-2	**3-4**	**5-6**	**7-8**	**9-10**
3A answer may vary depends on student's project result	Students cannot answer the question or inappropriate answer found	Population and sample taken are explained insufficiently	Population and sample taken are explained sufficiently but shows some mistakes	Population and sample taken are explained sufficiently with minor mistakes	Population and sample taken are explained correctly and completely.
3B answer may vary depends on student's project result	Students cannot answer the question or data is not normally distributed	Data is normally distributed and QQplot is drawn incorrectly	Data is normally distributed and QQplot is drawn correctly but lack of explanation	Data is normally distributed and QQplot is drawn correctly but explanation is not clear enough	Data is normally distributed and QQplot is drawn correctly and explained clearly
Rated aspect	**Assessment criteria**				
	Very Poor	**Poor**	**Satisfactory**	**Good**	**Excellent**
	0-5	**6-9**	**10-13**	**14-17**	**18-20**
3C answer may vary depend on student' s project result	Students cannot answer the question or inappropriate answer found	Students cannot get the correct answer and lack calculation process support.	Students manage to get the correct answer with a lack of calculation process support.	Students manage to get the correct answer supported by the right formula which results in small mistakes found.	Students manage to get the correct answer supported by the right formula and result.

References:	Created by:	Approved by:
Week 1 to week 7	**on behalf of the Lecturer Team** 22.02.2022 **(Ir. Raymond S Oetama, MCIS)** **Course Coordinator**	 **(Ririn Ikana Desanti, S.Kom, M.Kom)** **Head of Study Program**