UNIVERSITI TEKNOLOGI MARA
ASSESSMENT 1
(INDIVIDUAL ASSIGNMENT)

COURSE	:	**INTRODUCTION TO STATISTICS**
COURSE CODE	:	**QMT181/STA104**
DATE	:	**20TH MAY 2022**
TIME	:	**9.00 – 11.00 AM (120 MINUTES)**

Please read these instructions:

1) This assessment paper consists of **FIVE (5)** questions.
2) Answer **ALL** questions.
3) The assessment must be taken completely **alone**. Showing it or discussion with anyone is forbidden.
4) Please write your answer on your own papers using **pen**.
5) Student must ensure that their test papers are **readable**. Ensure that your answers are **written clearly** with your name, group and student ID are provided.
6) Student must prepare their answer in **pdf format** and submit via **Google Classroom** or any other platform used by the lecturer. **(FULLNAME_GROUP.pdf)**
7) Keep close track of your allocated time. Due to internet connectivity, students are given no more than 20 minutes (11.00 - 11.20 am) to submit their works electronically.
8) **Late submission (after 11.20 am) will not be accepted.**

ALL THE BEST

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

This assessment paper consists of 5 pages

QUESTION 1

Determine the measurement scale (nominal, ordinal, interval or ratio) of the following statements.

a)   Number of people entering the Sakura Bank.

b)   Social status of respondents in a survey.

c)   Ranking of the bestseller movies ticket in a HBBO Cinema.

d)   Customer satisfaction level of a restaurant services.

e)   The properties in XYZ Company are given as single storey, double storey, single storey semi-D and double storey semi-D.

(5 marks)

QUESTION 2

A group of researchers want to determine the average income of fresh graduates in City X. It is assumed that the city has 3500 households. The researchers divided the city into 14 sections and interviewed every house in Section 6 and Section 13 randomly chosen sections.

a)   State the population of this study.

(1 Mark)

b)   State the sampling technique used in this study and explain how to select the two sections from 14 sections by using systematic sampling.

(4 Marks)

c)   Identify the variable of interest of this study. State its type and the scale of measurement.

(3 Marks)

d)   State the sampling frame used for this study.

(1 Mark)

e)   Recommend the suitable data collection method used in this study.

(1 Mark)

QUESTION 3

A group of lecturers in one of local university are interested to study the academic performance of student based on different teaching method in Language course. The study compared the effectiveness between online and traditional approach. A total of 548 students were involved in this study. From the 700 students, 360 students enrolled in traditional class. The results shows that 30% of the student in traditional class have average grade in academic performance and 20% have low grade performance. Majority of the students in online class, 40% shows an average performance while only 25% of the student have a high grade performance.

Developed a contingency table to summarize the above information.

(5 marks)

QUESTION 4

The following data give the number of mask chain order received by an online accessories shop in 14 weeks.

20	15	34	29	10	50	32
18	32	25	27	16	30	35

a) Calculate the first, second and third quartile of the above data.

(6 marks)

b) Determine the shape of distribution using appropriate graph.

(4 marks)

QUESTION 5

The height of 75 chili plants were measured (correct to nearest cm) after two months is shown in the following table.

Height (cm)	Frequency
8 – 10	5
11 – 13	15
14 – 16	26
17 – 19	21
20 - 22	8

a) Determine the average heights of chili plants and its standard deviation.

(5 marks)

b) Construct a less than ogive for the above data.

(3 marks)

c)   If 25% of the plants were of heights x cm or more, estimate the value of x from the ogive.

(2 marks)

END OF QUESTION PAPER

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FORMULA LIST

Sample Measurements

1. Mean, $\bar{x} = \dfrac{\sum x}{n}$ or $\dfrac{\sum fx}{n}$

2. Median, $\tilde{x} = L_m + \left[\dfrac{\dfrac{n}{2} - \sum f_{m-1}}{fm} \right] \times C$

3. Mode, $\hat{x} = L_{mo} + \left\{ \dfrac{\Delta_1}{\Delta_1 + \Delta_2} \right\} \times C$

4. Standard Deviation, $s = \sqrt{\dfrac{1}{n-1}\left[\sum (x - \bar{x})^2 \right]}$ or $\sqrt{\dfrac{1}{n-1}\left[\sum x^2 - \dfrac{\left(\sum x \right)^2}{n} \right]}$

$\sqrt{\dfrac{1}{n-1}\left[\sum f(x - \bar{x})^2 \right]}$ or $\sqrt{\dfrac{1}{n-1}\left[\sum fx^2 - \dfrac{\left(\sum fx \right)^2}{n} \right]}$

5. Coefficient of Variation, $CV = \dfrac{s}{\bar{x}} \times 100$

6. Pearson's Measure of Skewness $= \dfrac{\text{Mean} - \text{Mode}}{\text{Standard Deviation}}$ or $\dfrac{3(\text{Mean} - \text{Median})}{\text{Standard Deviation}}$

where

n	:	total frequency
L_m		lower median class boundary
L_{mo}	:	lower modal class boundary
$\sum f_{m-1}$	:	cumulative frequencies for the classes before the median class
f_m	:	median class frequency
Δ_1	:	(modal class frequency) − (frequency for the class before the modal class)
Δ_2	:	(modal class frequency) − (frequency for the class after the modal class)
C	:	class size

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