

Roll No:

Date:

Formative assessment 3

ME-781, Aug 8, 2023

Max Marks: 10, Total time: 15 minutes

- No explanation for any question would be provided.
- Please make any assumptions as you see fit and solve the questions.
- This is an open-notes exam.
- You need not derive anything from scratch if it was derived in the class.
- You are not allowed to use a computer or calculator.

1. Which data *Data Scale*(*Ratio, Interval, Ordinal, Nominal*) do the following variables belong to:

1x4

a. Last name of a person

Nominal

b. Bank account Number

Nominal

c. Bank balance at the start of a month

Ratio

d. Rate of change of fever of a hospitalized patient (in deg C per minute)

Ratio

2. Show (very briefly) whether the following are dissimilarity measures (or not) for two points (x1, y1) and (x2,y2) in a 2D space:

3x2

| | $d(x, y) = d(y, x)$ | $d(x, y) = 0 \Leftrightarrow x = y$ | $d(x, z) \leq d(x, y) + d(y, z)$ |
|---|---------------------|-------------------------------------|----------------------------------|
| a. $\sqrt{ (x_1 - x_2) + (y_1 - y_2) }$ | Yes | Yes | Yes |
| b. $\sqrt{ (x_1 - x_2) \cdot (y_1 - y_2) }$ | Yes | No | No |
| c. $\sqrt{ (x_1 - x_2)^3 + (y_1 - y_2)^3 }$ | Yes | No | No |