Rules for evaluation of the exam in TMA4275 Lifetime analysis June 7th 2022

This document specifies how the solutions to the exam are evaluated. This document should be read together with the problem text and the solution sketch. The solutions are evaluated by assigning points for the answer in each item of the solution. These points for each item are added together and therafter scaled so that the maximum possible score on the exam becomes 80 points. The exam points are thereafter added with the project points to get a total number of points. Finally the total number of points is converted to a letter grade according to the conversion rule specified at the end of this document.

In the following we specify rules used to assign points to each of the items in the problem text. For each item the maximum number of points possible is ten.

1. Three points are given for computing the Nelson-Aalen estimates correctly. Two points are given for computing correctly the variance estimates and two points are given for computing correctly the confidence intervals. Three points are given to plot correctly the Nelson-Aalen curve with associated confidence interval. If the plot do not show staircases the maximum number of points given for the plot is one.

   If including also censored times in the sum for the Nelson-Aalen estimator and the associated variance estimates, maximum 4 points in total. If using variances in stead of standard deviations when forming the confidence intervals, subtracts 1 point. If using wrong numbers (systematically) for $Y(T_j)$, subtract 3 points.

2. Five points are given for finding correctly $S(t)$, and five points are given for finding $f(t)$ correctly.

3. Three points are given for writing down the estimated relative risk function, and three points are given for ech of the two confidence intervals. An extra one point is given is at least one of the three sub-problems is answered completely correct. If using values for exp(coeff) in stead of coeff when writing the estimated relative risk function, only 1 point is given for the estimated relative risk function question.

4. Two points are given for having identified the correct expression in ABG to start from, including explaining why this is the expression of interest here. Four points are given for deriving correct simplified likelihood and log-likelihood functions that are useful for further calculations. Four points are given for deriving a correct expression for the maximum likelihood estimator.

5a) Five points are given for showing correctly the expression for the Laplace transform, and five points are giving for a correct induction proof.

5b) Two points are given for having identified the correct expression in ABG to start from, including explaining why this is the expression of interest here. Three points are given for deriving correct simpified log-likelihood function. Five points are given for correct discussing how to find the maximum likelihood estimates.

6. Three points for explaining correctly why $X(t)$ is a sub-martingale. Four points for deriving a correct expression for $dX^\star(t)$. Three points for deriving an expression for the compensator $X^\star(t)$.

The aggragated number of points given for the exam and the project is converted to a letter grade according to the following table.

Points	Letter grade
$(87, 100]$	A
$(75, 87]$	B
$(63, 75]$	C
$(51, 63]$	D
$(39, 51]$	E
$[0, 39]$	F