MATH10282: INTRODUCTION TO STATISTICS
SEMESTER 2
QUIZ PROBLEM 4
(Deadline: Thursday 11 March 2021, 10:00am)

Suppose that a random variable X has the cumulative distribution function

$$F_X(x) = \exp\left[-\exp\left(-\frac{x-\mu}{\sigma}\right)\right]$$

for $-\infty < x < \infty$, $-\infty < \mu < \infty$ and $\sigma > 0$. The quantile function, $Q(p)$, and the inter quartile range (IQR) are

a) $Q(p) = \mu + \sigma \log(-\log p)$, $\text{IQR} = \sigma\left[\log(-\log 0.75) - \log(-\log 0.25)\right]$.

b) $Q(p) = \mu - \sigma \log(-\log p)$, $\text{IQR} = \sigma\left[\log(-\log 0.75) - \log(-\log 0.25)\right]$.

c) $Q(p) = \mu + \sigma \log(-\log p)$, $\text{IQR} = \sigma\left[\log(-\log 0.25) - \log(-\log 0.75)\right]$.

d) $Q(p) = \mu - \sigma \log(-\log p)$, $\text{IQR} = \sigma\left[\log(-\log 0.25) - \log(-\log 0.75)\right]$.

This problem is worth 1 mark. Marking scheme: 1 mark if the answer is correct, 0 mark if the answer is incorrect.

Please use Blackboard to enter your answer.