PES UNIVERSITY, Bangalore

(Established under Karnataka Act No. 16 of 2013)

Department of Computer Science & Engineering

Statistics for Data Science

Assignment – Continuous Random Variables

1. Suppose that the repair time X (in hours) of a certain motor bike is a random variable with the probability density function.

$$f(x) = \begin{cases} c(x^2 - x^3) & 0 < x < 1 \\ 0 & otherwise \end{cases}$$

a. Find the value of c.
b. Find the mean repair time.
c. Find the standard deviation of the repair time.
d. Find the probability that it will take less than 40 minutes to be repaired.
e. Find the probability that it will take more than 50 minutes to be repaired.
f. Find the cumulative distribution function.