Quiz 1_Solutions

(All the answers are listed in RED color)

1) Let f(x) be a function. Then when it is said to be the PDF? * 1 point

$$1)\ f(x) \geq 0 \text{ for any value of } x$$
$$2)\ \int_{-\infty}^{\infty} f(t)dt = 1$$

2) For a random variable X, which of these expressions will represent the variance? * 2 points

Option 1 $E\left[(X - E(X))^2\right]$

Option 2 $(E(X))^2 - E(X^2)$

Option 3 $E(X^2) - (E(X))^2$

Option 4 $E(X) - (E(X))^2$

Required

3) Let X ~ N(3,4). What does this tell us about the distribution of X?* 2 points

X has standard normal distribution
X has normal distribution with mean 3 and variance 2.
X has normal distribution with mean 3 and standard deviation 2.
None of these

4) In the course Statistical Techniques, CGPA's are normally distributed with a mean of 2.9 and standard deviation of 0.6. What percentage of students in the class have a CGPA between 2.3 and 3.5? *2 points

68%
84%
95%
99.7%

5) Using t-table, find an interval, which contain P(X_6 > 1.5) * 2 points

(0, 0.05)
(0.05, 0.10)
(0.10, 1)
(0.25, 1)

6) The mean life of a tire is 30,000 km with the standard deviation of 2000 km. Then, 68% of all tires will have a life between _____ km and _____ km. * 2 points

28,000 km and 32,000 km
24,000 km and 34,000 km
26,000 km and 34,000 km
27,000 km and 31,000 km

7) On an IQ test with a mean of 100 and a standard deviation of 15, Ram scored 85. What is Ram's z-score? * 2 points

-2
-1
1
2

8) Let X be a chi-squared RV with dof 8. Then, standard deviation of X should be * 2 points

 Standard Deviation (X)=4