1) Explain
probability density function and cumulative distribution function of a continuous random variable with example.

2) From
a box containing 4 dimes and 2 nickels, 3 coins are selected at random without replacement. Find the probability distribution for the total T of the 3 coins. Express the probability distribution graphically as a probability histogram.

3) A
coin is tossed twice. Let *Z* denote the number of heads on the first toss and *W* the total number of heads on the 2 tosses. If the coin is unbalanced and a head has a 40% chance of occurring, find (a) the joint probability distribution of *W* and *Z*;

(b)
the marginal distribution of *W*;

(c)
the marginal distribution of *Z*;

(d)
the probability that at least 1 head occurs.

4) Explain
probability mass function and cumulative distribution function of a discrete random variable with example.

5) A
shipment of 7 television sets contains 2 defective sets. A hotel makes a random purchase of 3 of the sets. If x is the number of defective sets purchased by the hotel, find the probability distribution

of
X. Express the results graphically as a probability histogram.

6)Let
X denote the number of times a certain numerical control machine will malfunction: 1, 2, or 3 times on any given day. Let *Y* denote the number of times a technician is called on an emergency call. Their joint probability distribution is given as---- find complete question in Walpole book.