Answers of Tutorial 2 of Probability and Random Processes

2. k=6, b=0.5

3. Difference=|No. of Heads – No. of Tails|

a) PMF

X	1	3	Otherwise
P(x)	3/4	1/4	0

b)CDF= $\begin{cases} 0 & ,x<1 \\ 3/4 & ,1\le x<3 \\ 1 & ,x\ge 3 \end{cases}$

4. a) ½
   b) 41/52
   c) 26/63

5. Not PDF

6. a) A=1

   b) CDF= $\begin{cases} 0 & ,x<-1 \\ \dfrac{2x+x^2+1}{2} & ,-1\le x<0 \\ \dfrac{2x-x^2+1}{2} & ,0\le x<1 \\ 1 & ,x\ge 1 \end{cases}$

   c) c $=1\pm\sqrt{\frac{2}{3}}$, but $c \in [0,1]$,Hence, $c = 1-\sqrt{\frac{2}{3}}$

7. a = 3.6, b = -2.4
   a) 0.35, b) 0.06

8. a) $1 - e^{-18}$, b) e^{-2}

9. 500

10. 6/5

11. C = ¼, P(X>5) = $\frac{7}{2}e^{-5/2}$