Time: 15 minutes

Full Marks: 10

Answer all the questions.

1. Which one is a correct condition of a pdf?

   a. $\int_0^1 f(x)dx = 1$
   b. $P(X) \geq 0$
   c. $\int_a^b f(x)dx = 1; a \leq x \leq b$
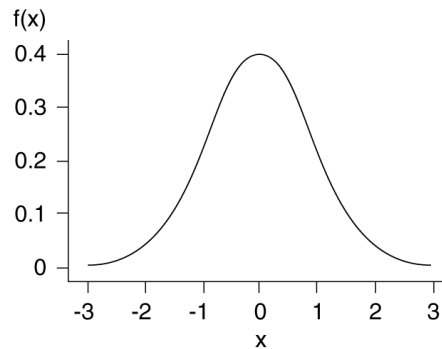   d. $\int_0^{Median} f(x)dx = 0.55$

2. What are the highest and lowest possible values of F(x)?

   a. $0, 1$ b. $-1, 1$
   b. $-\infty, +\infty$ d. $0, \infty$

3. How many types of random variables are there?
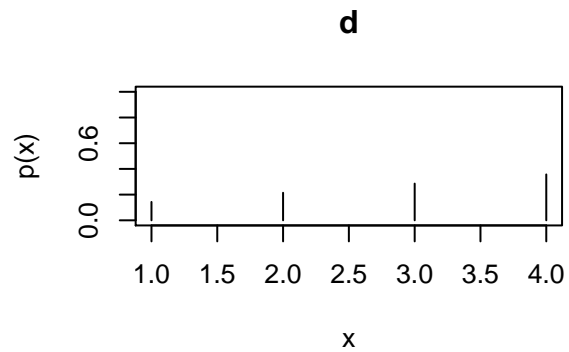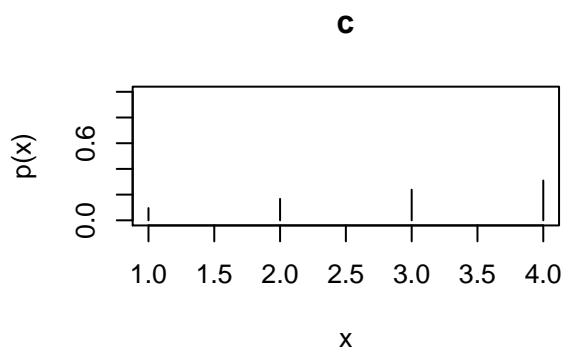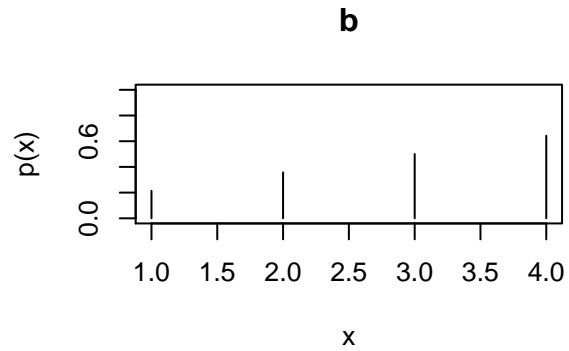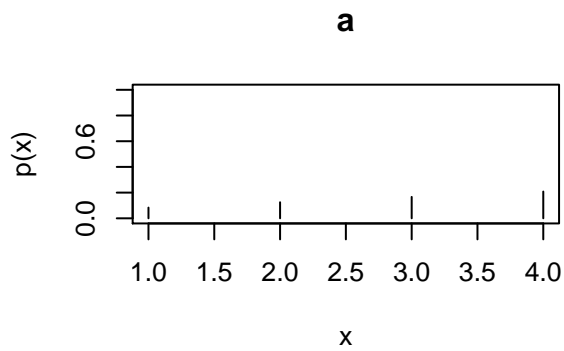
   a. 1   b. 2
   b. 3   d. 4

4.

The figure is an example of a

   a. probability density function
   b. probability mass function
   c. could be both
   d. none

Answer the questions 5-8 according the following information.

$f(x) = \frac{x+1}{14}; x = 1, 2, 3, 4$

5. Which plot represents the pmf?

a

b

c

d

6. What is P(X=2)?

a. $\frac{2}{13}$ b. $\frac{4}{14}$

b. $\frac{5}{14}$ d. $\frac{1}{7}$

7. What is P(X=5)

a. $\frac{5}{14}$ b. $\frac{1}{7}$ c. 0 d. 1

8. $P(2 \leq X \leq 5) =$?

a. $\frac{6}{7}$ b. $\frac{5}{7}$ c. 1 d. $\frac{14}{17}$

Answer the questions 9-10 according to the following information.

$P(x,y) = \frac{x+2y}{16}$

9. $P(X) =$?

a. $\frac{x+2y}{3}$ b. $\frac{2x+y}{3}$ c. $\frac{2x+3y}{3}$ d. $\frac{x+y}{3}$

10. $P(X|Y = 0) =$?

a. $\frac{x+2y}{4y+1}$ b. 1 c. x d. 0