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### Statistics MCQs – Discrete Distributions Part 7

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121. The local police department must write, on average, 5 tickets a day to keep department revenues at budgeted level. Suppose the number of tickets written per day follows a Poisson distribution with a mean of 7 tickets per day. What is the probability that exactly 5 tickets are written on a randomly selected day?

- a. 0.109
- b. 0.146
- c. 0.137
- d. 0.149
- e. 0.128

Answer: E

122. Seventy (70) accidents are reported on a particular stretch of highway over a 90-day period. Assume that this trend continues and that the accidents occur at random with an average rate of 70 accidents per 90 days. What is the probability that there will be no accidents reported for a whole week (assume a seven-day week) ?

- a. 0.0043
- b. 0.0020
- c. 0.0074
- d. 0.0037
- e. 0.0022

Answer: A

123. Eighty (80) accidents are reported on a particular stretch of highway over a 90-day period. Assume that this trend continues and that the accidents occur at random with an average rate of 80 accidents per 90 days. What is the probability that there will be no accidents reported for a whole week (assume a seven-day week) ?

- a. 0.0043
- b. 0.0020
- c. 0.0074
- d. 0.0037
- e. 0.0022

Answer: B

124. Seventy (70) accidents are reported on a particular stretch of highway over a 100-day period. Assume that this trend continues and that the accidents occur at random with an average rate of 70 accidents per 100 days. What is the probability that there will be no accidents reported for a whole week (assume a seven-day week) ?

- a. 0.0043
- b. 0.0020
- c. 0.0074
- d. 0.0037
- e. 0.0022

Answer: C

125. Eighty (80) accidents are reported on a particular stretch of highway over a 100-day period. Assume that this trend continues and that the accidents occur at random with an average rate of 80 accidents per 100 days. What is the probability that there will be no accidents reported for a whole week (assume a seven-day week) ?

- a. 0.0043
- b. 0.0020
- c. 0.0074
- d. 0.0037
- e. 0.0022

Answer: D

126. Seventy (70) accidents are reported on a particular stretch of highway over a 80-day period. Assume that this trend continues and that the accidents occur at random with an average rate of 70 accidents per 80 days. What is the probability that there will be no accidents reported for a whole week (assume a seven-day week) ?

- a. 0.0043
- b. 0.0020

- c. 0.0074
- d. 0.0037
- e. 0.0022

Answer: E

127. In checking river water samples for bacteria, water is placed in a culture medium in order to grow colonies of bacteria. The number of colonies seen in a dish is a random variable,  $X$ . Scientists know that on average there are four colonies per dish. What is the probability that the next dish studied will contain exactly four colonies?

- a. 0.195
- b. 0.156
- c. 0.175
- d. 0.146
- e. 0.161

Answer: A

128. In checking river water samples for bacteria, water is placed in a culture medium in order to grow colonies of bacteria. The number of colonies seen in a dish is a random variable,  $X$ . Scientists know that on average there are four colonies per dish. What is the probability that the next dish studied will contain exactly five colonies?

- a. 0.195
- b. 0.156
- c. 0.175
- d. 0.146
- e. 0.161

Answer: B

129. In checking river water samples for bacteria, water is placed in a culture medium in order to grow colonies of bacteria. The number of colonies seen in a dish is a random variable,  $X$ . Scientists know that on average there are five colonies per dish. What is the probability that the next dish studied will contain exactly five colonies?

- a. 0.195
- b. 0.156
- c. 0.175
- d. 0.146

e. 0.161

Answer: C

130. In checking river water samples for bacteria, water is placed in a culture medium in order to grow colonies of bacteria. The number of colonies seen in a dish is a random variable,  $X$ . Scientists know that on average there are five colonies per dish. What is the probability that the next dish studied will contain exactly six colonies?

a. 0.195

b. 0.156

c. 0.175

d. 0.146

e. 0.161

Answer: D

131. In checking river water samples for bacteria, water is placed in a culture medium in order to grow colonies of bacteria. The number of colonies seen in a dish is a random variable,  $X$ . Scientists know that on average there are six colonies per dish. What is the probability that the next dish studied will contain exactly six colonies?

a. 0.195

b. 0.156

c. 0.175

d. 0.146

e. 0.161

Answer: E

132. If  $X$  is a random variable such that  $X \sim P(3.5)$ , what is  $P(X = 5)$ ?

a. 0.133

b. 0.185

c. 0.161

d. 0.045

e. 0.171

Answer: A

133. If  $X$  is a random variable such that  $X \sim P(3.5)$ , what is  $P(X = 2)$ ?

a. 0.133

- b. 0.185
- c. 0.161
- d. 0.045
- e. 0.171

Answer: B

134. If  $X$  is a random variable such that  $X \sim P(6)$ , what is  $P(X = 5)$  ?

- a. 0.133
- b. 0.185
- c. 0.161
- d. 0.045
- e. 0.171

Answer: C

135. If  $X$  is a random variable such that  $X \sim P(6)$ , what is  $P(X = 2)$  ?

- a. 0.133
- b. 0.185
- c. 0.161
- d. 0.045
- e. 0.171

Answer: D

136. If  $X$  is a random variable such that  $X \sim P(5.5)$ , what is  $P(X = 5)$  ?

- a. 0.133
- b. 0.185
- c. 0.161
- d. 0.045
- e. 0.171

Answer: E

137. Meticulous record keeping over a long period of time shows that doctors in a busy community medical practice encounter a patient infected with Ebola virus once every year on average. This practice is suddenly confronted with three patients infected with

Ebola virus over a period of six months. What is the probability of this happening if there has been no change in the incidence of Ebola virus in the community?

- a. 0.012
- b. 0.061
- c. 0.076
- d. 0.184
- e. 0.016

Answer: A

138. Meticulous record keeping over a long period of time shows that doctors in a busy community medical practice encounter a patient infected with Ebola virus twice every year on average. This practice is suddenly confronted with three patients infected with Ebola virus over a period of six months. What is the probability of this happening if there has been no change in the incidence of Ebola virus in the community?

- a. 0.012
- b. 0.061
- c. 0.076
- d. 0.184
- e. 0.016

Answer: B

139. Meticulous record keeping over a long period of time shows that doctors in a busy community medical practice encounter a patient infected with Ebola virus once every year on average. This practice is suddenly confronted with two patients infected with Ebola virus over a period of six months. What is the probability of this happening if there has been no change in the incidence of Ebola virus in the community?

- a. 0.012
- b. 0.061
- c. 0.076
- d. 0.184
- e. 0.016

Answer: C

140. Meticulous record keeping over a long period of time shows that doctors in a busy community medical practice encounter a patient infected with Ebola virus twice every

year on average. This practice is suddenly confronted with two patients infected with Ebola virus over a period of six months. What is the probability of this happening if there has been no change in the incidence of Ebola virus in the community?

- a. 0.012
- b. 0.061
- c. 0.076
- d. 0.184
- e. 0.016

Answer: D

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