

SY PSOT IT E-24-25-A-B

Started on Tuesday, 28 January 2025, 7:34 PM

State Finished

Completed on Tuesday, 28 January 2025, 8:06 PM

Time taken 32 mins 10 secs

Grade 25 out of 25 (100%)

Question 1

Complete

Mark 2 out of 2

Two dice are rolled, if it is known that atleast one of the dice always shows 6, find the probability that the numbers appeared on the dice have a sum 11.

Select one:

- ☐ 5/11
- ☐ 3/11
- ☐ 1/11
- ☒ 2/11

Question 2

Complete

Mark 5 out of 5

The following function is a probability density function

$$f(x) = \begin{cases} kx(1-x) & 0 \leq x \leq 1 \\ 0 & \text{otherwise} \end{cases}$$

1. What is the value of k?

- ☒ 6 ☐ 3 ☐ 5 ☐ 4

2. E(X) ?

- ☐ 1/4 ☐ 1/3 ☒ 1/2 ☐ 1/5

3. Var(X) ?

- ☐ 1/2 ☐ 1/5 ☐ 1/4 ☒ 1/20

Question 3

Complete

Mark 3 out of 3

The chances of a defective screw in three boxes A, B, and C are 1/5, 1/6 and 1/7 respectively. A box is selected at random and a screw drawn from it at random is found to be defective. Find the probability that it came from box A.

Select one:

- ☐ 43/107
- ☐ 41/107
- ☒ 42/107
- ☐ 40/107

Question 4

Complete

Mark 3 out of 3

A bike manufacturing company has two plants P and Q. Plant P manufactures 60 percent of the bikes and plant Q manufactures 40 percent. 80 percent of the bikes at plant P and 90 percent of the bikes at plant Q are rated of standard quality. A bike is chosen randomly and found to be of standard quality, what is the probability that it has come from plant P?

Select one:

- ☐ 3/7
- ☒ 4/7
- ☐ 2/7
- ☐ 6/7

Question 5

Complete

Mark 5 out of 5

A discrete random variable has the following probability distribution

X	0	10	15
P(X=x)	$\frac{k-6}{5}$	$\frac{2}{k}$	$\frac{14}{5k}$

1. What is the value of k?

- ☒ 8 ☐ 4 ☐ 3/5 ☐ 6

2. What is the mean?

- ☒ 31/4 ☐ 35/4 ☐ 15/2 ☐ 33/4

3. What is variance?

- ☐ 650/16 ☒ 699/16 ☐ 700/16 ☐ 690/16

Question 6

Complete

Mark 2 out of 2

Two dice are rolled, if it is known that atleast one of the dice always shows 4, find the probability that the numbers appeared on the dice have a sum 8.

Select one:

- ☒ 1/11
- ☐ 3/11
- ☐ 2/11
- ☐ 5/11

Question 7

Complete

Mark 3 out of 3

Box A contains 2 white and 3 red balls. Box B contains 4 white and 5 red balls. one ball is drawn at random from one of the boxes and is found to be red then the probability that it was from box A is

Select one:

- ☐ 21/52
- ☒ 27/52
- ☐ 25/52
- ☐ 15/52

Question 8

Complete

Mark 2 out of 2

Pedro observed what customers ordered at his ice cream shop and found the following probabilities:

$$P(\text{vanilla})=0.3 \quad \& \quad P(\text{sundae})=0.2 \quad \& \quad P(\text{vanilla and sundae})=0.15$$

what is the probability that a customer ordered vanilla ice cream given they ordered a sundae

Select one:

- ☒ 3/4
- ☐ 2/3
- ☐ 1/2
- ☐ 1/4

◀ Model-2 Online lecture

Tutorial-3: Correlation, Regression and Probability distribution using Python ▶