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Time taken	1 hour 24 mins
Marks	20.0/30.0
Grade	**6.7** out of 10.0 (**67**%)

Question **1**

Correct

Mark 1.0 out of 1.0

[3-07] An office has three telephone lines. At any given time, the probability that at least one line is in use is 0.8. Find the probability that, at any given time, all three are in use.

Select one:

- 0.0557
- None of the others
- 0.0957
- 0.0715 ✔

The correct answer is: 0.0715

Question **2**

Incorrect

Mark 0.0 out of 1.0

[3-19] From past experience it is known that 3% of accounts in a large accounting population are in error. What is the standard deviation of the number of accounts audited until 3 accounts in error occur?

Select one:

- 0.9 ✖
- 3
- 56.86
- 0.03

The correct answer is: 56.86

Question **3**

Incorrect

Mark 0.0 out of 1.0

[4-12] Let X be a uniformly distributed random variable. Given two probabilites as follow. Find standard deviation of X.

$P(X<30)= ¼; P(X>50) = ¼.$

Select one:

- 1500
- 40
- 11.547
- None of the others ✖

The correct answer is: 11.547

Question **4**

Correct

Mark 1.0 out of 1.0

[3-23] The following probability distribution has been assessed for the number of accidents that occur in a mid western city each day:Based on the data given below, find the probability that there are at least two accidents per day.

Accidents	Probability
0	0.25
1	0.20
2	0.30
3	0.15
4	0.10

Select one:

- None of the others
- 0.55 ✔
- 0.3
- 0.75

The correct answer is: 0.55

Question **5**

Correct

Mark 1.0 out of 1.0

[2-07] If an aircraft is present in a certain area, a radar correctly registers its presence with probability 0.99. If it is not present, the radar falsely registers an aircraft presence with probability 0.10. We assume that an aircraft is present with probability 0.05. What is the probability of false alarm (a false indication of aircraft presence), and the probability of missed detecation (nothing registers, even though an aircraft is present)?

Select one:

- The probability of false alarm is 0.0005 and the probability of missed detecation is 0.095
- The probability of false alarm is 0.095 and the probability of missed detecation is 0.005
- The probability of false alarm is 0.075 and the probability of missed detecation is 0.0005
- The probability of false alarm is 0.095 and the probability of missed detecation is 0.0005 ✔

The correct answer is: The probability of false alarm is 0.095 and the probability of missed detecation is 0.0005

Question **6**

Correct

Mark 1.0 out of 1.0

[1-06] Which of the following is a discrete quantitative variable?

Select one:

- None of the others
- The volume of gasoline that is lost to evaporation during the filling of a gas tank.
- The number of times a transistor in a computer memory changes state in one operation. ✔
- The color of a student's eyes

The correct answer is: The number of times a transistor in a computer memory changes state in one operation.

Question **7**

Incorrect

Mark 0.0 out of 1.0

[4-09] Let be a cumulative distribution function of a continuous random variable X. Find P(X < 0.7). $F(x)=\begin{cases}0 & x<0\\ x^4 & 0\le x<1\\ 1 & x\ge 1\end{cases}$

Select one:

- 0.2401
- 0.3560 ✖
- None of the others.
- 0.1207

The correct answer is: 0.2401

Question **8**

Correct

Mark 1.0 out of 1.0

[2-09] A test for a certain rare disease is assumed to be correct 95% of the time. If a person has the disease, the test results are positive with probability 0.95 and if the person does not have the disease, the test results are negative with probability 0.95. A random person drawn from a certain population has probability 0.001 of having the disease. Given that the person just tested positive, what is the probability of having the disease?

Select one:

- 0.00095
- 0.0014
- 0.98134
- 0.01866 ✔

The correct answer is: 0.01866

Question **9**

Correct

Mark 1.0 out of 1.0

[2-06] Suppose that P(A|B) = 0.6, P(A) = 0.5 and P(B) = 0.1. Find the value of P(B|A).

Select one:

- 0.06
- 0.30
- 0.20
- 0.12 ✔

The correct answer is: 0.12

Question **10**

Incorrect

Mark 0.0 out of 1.0

[2-10] Which of the following is always true?

Select one:

- If P(A and B) = P(A or B), then A and B are independent.
- If A and B are disjoint, then they cannot be independent.
- If A and B are disjoint, P(A) + P(B) = 1
- If P(A and B) = 0, then A and B are independent. ✖

The correct answer is: If A and B are disjoint, then they cannot be independent.

Question **11**

Correct

Mark 1.0 out of 1.0

[4-01] The time it takes to assemble a children's bicycle by a parent has been shown to be normally distributed with a mean equal to 295 minutes with a standard deviation equal to 45 minutes. Given this information, what is the probability that it will take a randomly selected parent between 300 and 340 minutes? Let P(Z < 0) = 0.5000, P(Z < 0.11) = 0.5438, P(Z < 1) = 0.8413.

Select one:

- 0.18
- None
- 0.62
- 0.2975 ✔

The correct answer is: 0.2975

Question **12**

Correct

Mark 1.0 out of 1.0

[3-05] The phone lines to an airline reservation system are occupied 40% of the time. Assume that the events that the lines are occupied on successive calls are independent. Assume that 10 calls are placed to the airline. What is the probability that for exactly three calls the lines are occupied?

Select one:

- 0.1
- 0.215 ✔
- None of the others
- 0.4

The correct answer is: 0.215

Question **13**

Incorrect

Mark 0.0 out of 1.0

[4-17] The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.32 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.297 inches?

Select one:

- None of the others ✖
- 0.33
- 0.307
- 0.0107

The correct answer is: 0.0107

Question **14**

Correct

Mark 1.0 out of 1.0

[2-23] In a pet store, there are 6 puppies, 9 kittens, 4 gerbils and 7 parakeets. If a pet is chosen at random, what is the probability of choosing a puppy or a parakeet?

Select one:

- 0.5 ✔
- None of the others
- 11 / 26
- 0.25

The correct answer is: 0.5

Question **15**

Correct

Mark 1.0 out of 1.0

[2-11] If two balanced die are rolled, the possible outcomes can be represented as follows.Determine the probability that the sum of the dice is 7.

$$\begin{matrix}(1,1)&(2,1)&(3,1)&(4,1)&(5,1)&(6,1)\\(1,2)&(2,2)&(3,2)&(4,2)&(5,2)&(6,2)\\(1,3)&(2,3)&(3,3)&(4,3)&(5,3)&(6,3)\\(1,4)&(2,4)&(3,4)&(4,4)&(5,4)&(6,4)\\(1,5)&(2,5)&(3,5)&(4,5)&(5,5)&(6,5)\\(1,6)&(2,6)&(3,6)&(4,6)&(5,6)&(6,6)\end{matrix}$$

Select one:

- 2/9
- 3/12
- 5/36
- 1/6 ✔

The correct answer is: 1/6

Question **16**

Incorrect

Mark 0.0 out of 1.0

[4-22] Let X be a continuous random variable with the probability density functionFind F(0.5). $f(x)=\begin{cases}a+x & \text{if } -1<x<0\\ a-x & \text{if } 0\le x<1\end{cases}$.

Select one:

- 3/8
- 7/8
- 1/2 ✖
- None of the others

The correct answer is: 7/8

Question **17**

Correct

Mark 1.0 out of 1.0

[4-24] Letbe a cumulative distribution function of a continuous random variable X. Find P(0.2 < X < 0.5) $F(x) = \begin{cases} 0 & x < 0 \\ x^4 & 0 \le x < 1 \\ 1 & x \ge 1 \end{cases}$

Select one:

- 0.35
- 0.697
- 0.609 ✔
- 0.7

The correct answer is: 0.609

Question **18**

Correct

Mark 1.0 out of 1.0

[3-22] The following probability distribution has been assessed for the number of accidents that occur in a mid western city each day:Based on this probability distribution, the standard deviation in the number of accidents per day is:

Accidents	Probability
0	0.25
1	0.20
2	0.30
3	0.15
4	0.10

Select one:

- 2.65
- 1.65 ✔
- 2
- 0.12

The correct answer is: 1.65

Question **19**

Incorrect

Mark 0.0 out of 1.0

[3-15] The number of misprints on a page of the Daily Mercury has Poisson distribution with mean 1.2. Find the probability that the number of errors on all forty pages adds up to at least 3

Select one:

- Approximately 1
- Approximately 0
- Approximately 0.5 ✖
- None of the others

The correct answer is: Approximately 1

Question **20**

Correct

Mark 1.0 out of 1.0

[4-13] Let X be a uniformly distributed random variable. Given two probabilites as follow. Find P(20

Select one:

- 0.5 x 10^-11
- 1.3 x 10^-11 ✔
- 0.5
- 1.3 x 10^11

The correct answer is: 1.3 x 10^-11

Question **21**

Correct

Mark 1.0 out of 1.0

[3-20] From past experience it is known that 3% of accounts in a large accounting population are in error. Find the mean of the number of account audited before two accounts in error are found.

Select one:

- 77.76
- 66.67 ✔
- 67.67
- 76.76

The correct answer is: 66.67

Question **22**

Correct

Mark 1.0 out of 1.0

[3-09] Compute the probability of obtaining three defectives in a sample of size 10 taken without replacement from a box of twenty components containing four defectives.

Select one:

- 0.2
- 0.2477 ✔
- 0.1477
- 0.1

The correct answer is: 0.2477

Question **23**

Correct

Mark 1.0 out of 1.0

[1-07] Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using?

Select one:

- Surveying
- Retrospective study ✔
- Observation
- Experimentation

The correct answer is: Retrospective study

Question **24**

Correct

Mark 1.0 out of 1.0

[4-05] If the time it takes for a customer to be served at a fast-food chain business is thought to be uniformly distributed between 3 and 8 minutes, what is the probability that the time it takes for a randomly selected customer will be less than 5 minutes?

Select one:

- 0.40 ✔
- 0.30
- 0.20
- 0.80

The correct answer is: 0.40

Question **25**

Correct

Mark 1.0 out of 1.0

[2-21] In the United States, 43% of people wear a seat belt while driving. If two people are chosen at random, what is the probability that both of them wear a seat belt?

Select one:

- 57%
- 18% ✔
- None of the others
- 86%

The correct answer is: 18%

Question **26**

Correct

Mark 1.0 out of 1.0

[3-18] From past experience it is known that 3% of accounts in a large accounting population are in error. What is the probability that 5 accounts are audited before two accounts in error are found?

Select one:

- 0.0303
- 0.33
- 0.3030
- 0.0033 ✔

The correct answer is: 0.0033

Question **27**

Incorrect

Mark 0.0 out of 1.0

[1-02] You want to know the mean income of the subscribers to a particular magazine. You draw a random sample of 100 subscribers and determine that their mean income is $27,500. Then, we have: a) subscribers to the magazine, b) the sample is 100 subscribers of the sample.

Select one:

- a) only
- b) only ✖
- None of the other
- a) and b)

The correct answer is: a) and b)

Question **28**

Incorrect

Mark 0.0 out of 1.0

[4-21] Suppose the probability density function of the length of computer cables is f(x) = 0.5 from 10 to 12 millimeters. Determine the standard deviation of the cable length.

Select one:

- 37.24 ✖
- 37.94
- 1320
- 100

The correct answer is: 37.94

Question **29**

Incorrect

Mark 0.0 out of 1.0

[1-12] Find the median of the following sample: 2, 3, 5, 3, 6, 8, 9, 20, 11, 4, 6.

Select one:

- 5
- 6
- 7 ✖
- 8

The correct answer is: 6

Question **30**

Correct

Mark 1.0 out of 1.0

[2-08] You enter a chess tournament where your probability of winning a game is 0.3 against half the players (call them type 1), 0.4 against a quarter of the players (call them type 2), and 0.5 against the remaining quarter of the players (call them type 3). You play a game against a randomly chosen opponent. What is the probability of winning?

Select one:

- 0.375 ✔
- 0.925
- 0.775
- 0.837

The correct answer is: 0.375