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Time taken	56 mins 27 secs
Marks	30.0/32.0
Grade	**9.4** out of 10.0 (**94**%)

Question **1**

Correct

Mark 1.0 out of 1.0

[2-05] A research group asked the students if they carry a credit card. The responses are listed in the following table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places.

Class	Credit Card Carrier	Not a Credit Card Carrier	Total
Freshman	50	10	60
Sophomore	30	10	40
Total	80	20	100

Select one:

- 0.167
- 0.833 ✔
- 0.625
- 0.500

The correct answer is: 0.833

Question **2**

Correct

Mark 1.0 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:

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

The correct answer is: 11.547

Question **3**

Correct

Mark 1.0 out of 1.0

[1-09] Classify each set of data as discrete or continuous: 1) The number of suitcases lost by an airline. 2) The height of corn plants.

Select one:

- 1) Continuous, 2) Discrete
- 1) Discrete, 2) Continuous ✔
- 1) Discrete, 2) Discrete
- 1) Continuous, 2) Continuous

The correct answer is: 1) Discrete, 2) Continuous

Question **4**

Correct

Mark 1.0 out of 1.0

[1-19] The population is _____

Select one:

- A sub-collection of members drawn from a larger group.
- A collection of observations.
- A collection of observations.
- The complete collection of all elements. ✔

The correct answer is: The complete collection of all elements.

Question **5**

Correct

Mark 1.0 out of 1.0

[2-01]

Disks of polycarbonate plastic from a supplier are analyzed for scratch and shock resistance. The results from 100 disks are summarized as follows:

		shock resistance: high	shock resistance: low
scratch resistance	high	70	9
	low	16	5

If a disk is selected at random, what is the probability that its scratch resistance is high or its shock resistance is high?

Select one:

- 1.0
- 0.85
- 0.95 ✔
- 0.9

The correct answer is: 0.95

Question **6**

Correct

Mark 1.0 out of 1.0

[3-04] Let X be a discrete uniform random variable on the interval [2; 20]. Find the mean and standard deviation of X.

Select one:

- None of the others
- 11 & 5.477 ✔
- 0 & 30
- 11 & 30

The correct answer is: 11 & 5.477

Question **7**

Incorrect

Mark 0.0 out of 1.0

[1-04] Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration.

Select one:

- location of the parking spot
- parking times of the 130 students
- parking time of a student ✖
- type of car (import or domestic)

The correct answer is: parking times of the 130 students

Question **8**

Correct

Mark 1.0 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:

- 6 ✔
- 8
- 5
- 7

The correct answer is: 6

Question **9**

Correct

Mark 1.0 out of 1.0

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

Select one:

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

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

Question **10**

Correct

Mark 1.0 out of 1.0

[3-21] The Ski Patrol at Criner Mountain Ski Resort has determined the following probability distribution for the number of skiers that are injured each weekend:Based on this information, what is the expected number of injuries per weekend?

Injured Skiers	Probability
0	0.05
1	0.15
2	0.40
3	0.30
4	0.10

Select one:

- 2.25 ✔
- 1.00
- 0.500
- 3.50

The correct answer is: 2.25

Question **11**

Correct

Mark 1.0 out of 1.0

[2-17] The probability of a New York teenager owning a skateboard is 0.37, of owning a bicycle is 0.81 and of owning both is 0.36. If a New York teenager is chosen at random, what is the probability that the teenager owns a skateboard or a bicycle?

Select one:

- 0.7
- 1.18
- None of the others
- 0.82 ✔

The correct answer is: 0.82

Question **12**

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
- 67.67
- 76.76
- 66.67 ✔

The correct answer is: 66.67

Question **13**

Correct

Mark 1.0 out of 1.0

[4-19] Suppose the probability density function of the length of computer cables is f(x) = 0.5 from 10 to 12 millimeters. Determine the mean of the cable length.

Select one:

- 11 ✔
- 5.5
- 10.5
- 11.5

The correct answer is: 11

Question **14**

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
- 0.98134
- 0.0014
- 0.01866 ✔

The correct answer is: 0.01866

Question **15**

Correct

Mark 1.0 out of 1.0

[3-25] Let X be a discrete uniform random variable on the interval [2; 20]. Find P(X < 13)

Select one:

- 2 / 20
- 0.666665
- None of the others
- 0.555556 ✔

The correct answer is: 0.555556

Question **16**

Correct

Mark 1.0 out of 1.0

[3-14] The number of industrial injuries per working week in a particular factory is known to follow a Poisson distribution with variance is 0.5. Find the probability that there will be no accidents in a three-week period.

Select one:

- 0.233
- 0.332
- 0.223 ✔
- 0.123

The correct answer is: 0.223

Question **17**

Correct

Mark 1.0 out of 1.0

[3-12] The number of messages that arrive at a Web site is a Poisson random variable with a mean of five messages per hour. What is the probability that 10 messages are received in 1.5 hours?

Select one:

- 0.0858 ✔
- 0.0758
- 0.0958
- 0.0658

The correct answer is: 0.0858

Question **18**

Correct

Mark 1.0 out of 1.0

[4-08] Suppose that a continuous random variable X has probability density function f(x) = 4x3 (0 < x < 1). Find E(X) & V(X)

Select one:

- 0.2 & 0.16
- None of the others
- 0.8 & 0.027 ✔
- 0.45 & 0.307

The correct answer is: 0.8 & 0.027

Question **19**

Correct

Mark 1.0 out of 1.0

[1-18] A city engineering wants to estimate the average weekly water consumption for single-family dwelling units in the city. 50 single-families are chosen randomly. And it is found that 25 families consumpt 30m^3 water per month. What is the sample and the statistics?

Select one:

- None
- The sample is "all families in the city" and the statistics is "50 families are chosen randomly"
- The sample is "50 families" and the statistics is "25 families consumpt 30m^3 water per month" ✔
- The sample is "50 families are chosen randomly" and the statistics is "all families in the city"

The correct answer is: The sample is "50 families" and the statistics is "25 families consumpt 30m^3 water per month"

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<X<40).

$P(X<30)= ¼; P(X>50) = ¼.$

Select one:

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

The correct answer is: 1.3 x 10^-11

Question **21**

Correct

Mark 1.0 out of 1.0

[3-30] The Ski Patrol at Criner Mountain Ski Resort has determined the following probability distribution for the number of skiers that are injured each weekend:What is the probability that the number of injuries per week is at most 3?

Injured Skiers	Probability
0	0.05
1	0.15
2	0.40
3	0.30
4	0.10

Select one:

- None of the others
- 0.3
- 0.9 ✔
- 0.4

The correct answer is: 0.9

Question **22**

Correct

Mark 1.0 out of 1.0

[4-04] Suppose X is an uniform continuous random variable over the interval [30, 80]. Find the mean (expected value) and standard deviation of X.

Select one:

- The mean is 14.43 and the standard deviation is 55
- The mean is 55 and the standard deviation is 14.43 ✔
- The mean is 25 and the standard deviation is 14.43
- None of the others

The correct answer is: The mean is 55 and the standard deviation is 14.43

Question **23**

Correct

Mark 1.0 out of 1.0

[2-15] Let P(A) = 0.5; P(B) = 0.4; P(AB) = 0. Which of the following statements are true? ∩

Select one:

- A and B are disjoint but not independent. ✔
- A and B are independent but not disjoint
- A and B are both independent and disjoint.
- A and B are neither independent nor disjoint

The correct answer is: A and B are disjoint but not independent.

Question **24**

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

The correct answer is: 0.5

Question **25**

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:

- 0.7
- 0.609 ✔
- 0.35
- 0.697

The correct answer is: 0.609

Question **26**

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:

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

The correct answer is: 18%

Question **27**

Incorrect

Mark 0.0 out of 1.0

[3-28] On a math test, 5 out of 20 students got an A. If three students are chosen at random without replacement, what is the probability that all three got an A on the test?

Select one:

- 0.0877
- 25/1368
- 2/114 ✖
- 3/400

The correct answer is: 0.0877

Question **28**

Correct

Mark 1.0 out of 1.0

[1-21] Tossing a six-sided (of a, b, c, d, e and f) dice and a coin (of head and tail). What is the sample space?

Select one:

- {Ha, Hb, Hc, Hd, He, Hf, Ta, Tb, Tc, Td, Te, Tf} ✔
- {HH, TT, HT, TH, aa, bb, cc, dd, ee, ff}
- {Ha, Tb, Hc, Td, He, Tf}
- None

The correct answer is: {Ha, Hb, Hc, Hd, He, Hf, Ta, Tb, Tc, Td, Te, Tf}

Question **29**

Correct

Mark 1.0 out of 1.0

[4-18] Let is a standard normal variable, find the the probability that Z lies between 0 and 3.01.

Select one:

- 0.5986
- 0.3882
- 0.4986 ✔
- None of the others

The correct answer is: 0.4986

Question **30**

Correct

Mark 1.0 out of 1.0

[4-07] Let X be a continuous random variable with the probability density functionFind a. $f(x)=\begin{cases} a+x & \text{if } -1<x<0 \\ a-x & \text{if } 0\le x<1 \end{cases}$.

Select one:

- 2
- None of the others
- A half
- 1 ✔

The correct answer is: 1

Question **31**

Correct

Mark 1.0 out of 1.0

[1-01] A study was conducted at a local high school to analyze the average cumulative GPAs of students who graduated last year. 30 students who graduated from the high school last year are randomly selected and found that the average cumulative GPAs of them is 2.9. Then, we have:a) The population is all students who graduated from the high school last year, b) The sample is 30 students who graduated from the high school last year randomly selected.Choose the fact.

Select one:

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

The correct answer is: a) and b)

Question **32**

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:

- 5/36
- 1/6 ✔
- 3/12
- 2/9

The correct answer is: 1/6