Started on	Wednesday, 21 July 2021, 4:46 PM
State	Finished
Completed on	Wednesday, 21 July 2021, 5:59 PM
Time taken	1 hour 13 mins
Marks	34.00/50.00
Grade	**6.80** out of 10.00 (**68**%)

Question **1**

Correct

Mark 1.00 out of 1.00

[5-02] If the true proportion of voters who support candidate A is p = 0.6, what is the probability that a sample of size 200 yields a sample proportion between 60% and 65%?

Select one:

○ 0.50

○ 0.48

○ 0.07

◉ 0.42 ✔

The correct answer is: 0.42

Question **2**

Not answered

Marked out of 1.00

[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:

○ 0.55

○ None of the others

○ 0.75

○ 0.3

The correct answer is: 0.55

Question **3**

Correct

Mark 1.00 out of 1.00

[6-58] In a survey of 5100 T.V viewers, 2040 viewers said they watch network news programs. How large must the sample be if we wish to be at least 93% confident that the error in estimating the true value of p is less than 0.02, regardless of the true values of p?

Select one:

○ 5100

◉ 1970 ✔

○ 2170

○ 3970

The correct answer is: 1970

Question **4**

Correct

Mark 1.00 out of 1.00

[6-05] The·life in hours of a 75-watt light bulb is known to be normally distributed with the standard deviation is 20 hours. Suppose that we wanted to be 95% two-sided confident that the error in estimating the mean life is less than five hours. What sample size should be used? Given

$$z_{0.05} = 1.645, \quad z_{0.025} = 1.96$$

Select one:

◉ 62 ✔

○ 64

○ 66

○ 60

The correct answer is: 62

Question **5**

Correct

Mark 1.00 out of 1.00

A survey of 865 voters in one state reveals that 408 favor approval of an issue before the legislature. Construct the 95% confidence interval for the true proportion of all voters in the state who favor approval.

[6-20]

A) $0.444 < p < 0.500$ B) $0.435 < p < 0.508$

C) $0.438 < p < 0.505$ D) $0.471 < p < 0.472$

Select one:

○ A)

○ B)

○ D)

◉ C)   ✔

The correct answer is: C)

Question **6**

Correct

Mark 1.00 out of 1.00

[3-39] A test consists of 25 multiple choice questions with four choices for each question. You will get 0.4 mark for each correct answer. As an experiment, you guess on each and every answer without even reading the questions. Find the mean of the marks you can get on this test.

◉ a. 2.5   ✔

○ b. 2.25

○ c. 6.5

○ d. 6.25

The correct answer is:
2.5

Question **7**

Not answered

Marked out of 1.00

[7-35] Consider the dissolved oxygen concentration at TVA dams. An sample of n = 8 observations has sample standard deviation 1.45. We want to test the following hypotheses with significance level alpha of 0.1.Compute the power of the test if the true mean is 3.

$$H_0: \mu = 4; H_1: \mu \neq 4.$$

Select one:

○ 0.51

○ 0.53

○ 0.62

○ 0.48

The correct answer is: 0.53

Question **8**

Not answered

Marked out of 1.00

[7-09] An assembly line produces widgets with a standard deviation of 0.2. A new process supposedly will produce widgets with a smaller standard deviation. In fact, a sample of 20 widgets produced by the new method has a sample standard deviation of 0.126. At a significance level of 10%, what is the value of the test statistic?

Select one:

○ 5.47

○ 5.77

○ 0.23

○ 7.54

The correct answer is: 7.54

Question **9**

Correct

Mark 1.00 out of 1.00

[6-23] Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in the United States revealed the following endowments (in millions of dollars) yields the sample mean is 180.975 and sample standard sample deviation is 143.042. Calculate a 95% confidence interval for the mean endowment of all the private colleges in the United

States assuming a normal distribution for the endowment.

a) $\$180.975 \pm \$94.066$
b) $\$180.975 \pm \$99.123$
c) $\$180.975 \pm \$116.621$
d) $\$180.975 \pm \$119.586$

Select one:

○ a)

○ b)

◉ d)   ✔

○ c)

The correct answer is: d)

Question **10**

Incorrect

Mark 0.00 out of 1.00

[1-05] Which of the following is a continuous quantitative variable?

Select one:

○ The volume of gasoline that is lost to evaporation during the filling of a gas tank.

○ The number of gallons of milk sold at the local grocery store yesterday

○ None of the others

◉ The color of a student's eyes   ✘

The correct answer is: The volume of gasoline that is lost to evaporation during the filling of a gas tank.

Question **11**

Incorrect

Mark 0.00 out of 1.00

[7-12] **A melting point test of n = 10 samples of a binder used in manufacturing a rocket propellant resulted in sample mean is 154.2. Assume that melting point is normally distributed with σ = 1.5. Test H_0: μ = 155; H_1: μ ≠ 155 using α = 0.05.**

Select one:

○ There is sufficient evidence to conclude that the mean is different 155.　　　　　　✗

○ Fail to reject the null hypothesis

○ None of them

○ Reject the null hypothesis

The correct answer is: Fail to reject the null hypothesis

Question **12**

Correct

Mark 1.00 out of 1.00

[2-16] The alarm system at a nuclear power plant is not completely reliable. If there is something wrong with the reactor, the probability that the alarm goes off is 0.99. On the other hand, the alarm goes off on 0.01 of the days when nothing is actually wrong. Suppose that something is wrong with the reactor only one day out of 100. What is the probability that something is actually wrong if the alarm goes off?

Select one:

○ 0.25

◉ 0.5　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　✔

○ 0.4

○ 0.6

The correct answer is: 0.5

Question **13**

Not answered

Marked out of 1.00

[6-31] A quality control engineer is interested in the mean length of sheet insulation being cut automatically by machine. It is known that the standard deviation in the cutting length is 0.15 feet. Suppose the engineer had decided to estimate the mean length to within 0.03, then the sample size would be _____.

Select one:

○ 196

○ 296

○ 166

○ 266

The correct answer is: 166

Question **14**

Not answered

Marked out of 1.00

[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 **15**

Not answered

Marked out of 1.00

[6-29] Let: (A)The t distribution is used to develop a confidence interval estimate of the population mean when the population standard deviation is unknown; (B) The standardized normal distribution is used to develop a confidence interval estimate of the population proportion when the sample size is sufficiently large. Then,

Select one:

○ (A) is false and (B) is true.

○ Both of (A) and (B) is true.

○ (A) is false and (B) is false.

○ (A) is true and (B) is false.

The correct answer is: Both of (A) and (B) is true.

Question **16**

Correct

Mark 1.00 out of 1.00

[5-17] Suppose that a random variable X has a continuous uniform distribution as follows. We get 20 random numbers in the segment [4; 6]

and call X' be the average of them. Find the variance of X'. $f(x) = \begin{cases} 1/2, & 4 \le x \le 6 \\ 0, & \text{otherwise} \end{cases}$

Select one:

○ 0.5770

○ 0.5167

○ 0.0129

◉ **0.0167**   ✔

The correct answer is: **0.0167**

Question **17**

Correct

Mark 1.00 out of 1.00

[5-19] A cell phone company finds those who go over their data limit, go over by on average of 3 GB with a standard deviation of 0.5 GB. You conduct a survey of 50 customers. Find the standard deviation of the average overage distribution.

Select one:

○ 0.005

◉ 0.071 ✔

○ 0.500

○ 0.051

The correct answer is: 0.071

Question **18**

Incorrect

Mark 0.00 out of 1.00

[1-16] Find the lower whisker and upper whisker of the following sample: 2, 3, 5, 3, 6, 8, 9, 20, 11, 4, 6.

Select one:

○ None of them

○ 3, 20

○ 2, 20

◉ 2, 11 ✘

The correct answer is: 2, 20

Question **19**

Correct

Mark 1.00 out of 1.00

[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) Discrete, 2) Discrete

○ 1) Continuous, 2) Discrete

◉ 1) Discrete, 2) Continuous ✔

○ 1) Continuous, 2) Continuous

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

Question **20**

Incorrect

Mark 0.00 out of 1.00

[2-29] A car salesman has noted that the probability that the dealership sells a car on a Saturday morning is 0.30. Then the probability of the dealership not selling a car on Saturday morning is .....

○ a. 0.21

○ b. 0.7

○ c. 0.18

◉ d. 0.15 ✘

The correct answer is:
0.7

Question **21**

Correct

Mark 1.00 out of 1.00

[5-22] The manager of a computer help desk operation has collected enough data to conclude that the distribution of time per call is normally distributed with a mean equal to 8.21 minutes and a standard deviation of 2.14 minutes. Find the probability that 3 random calls completed in 10 minutes or greater than.

Select one:

○ 0.926

◉ 0.074 ✔

○ 0.033

○ 0.997

The correct answer is: 0.074

Question **22**

Correct

Mark 1.00 out of 1.00

[7-43] Test the claim that for the population of female college students, the mean weight is given by 132 lb. Sample data are summarized as n = 20, sample mean = 126, and sample standard deviation s = 14.2 lb. Assume that sample has been selected from a normally distributed population. The alternative hypothesis is that the mean weight is smaller than 132 lb. What is the P-value?

Select one:

○ 0.037   ✔

○ 0.039

○ 0.035

○ 0.053

The correct answer is: 0.037

Question **23**

Correct

Mark 1.00 out of 1.00

[3-16] The number of misprints on a page of the Daily Mercury has Poisson distribution with mean 1.2. Find the standard deviation of the number of error in thirty pages.

Select one:

○ 7

○ 5

○ 4

○ 6   ✔

The correct answer is: 6

Question **24**

Correct

Mark 1.00 out of 1.00

[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:

○ 0.123

◉ 0.223 ✔

○ 0.332

○ 0.233

The correct answer is: 0.223

Question **25**

Correct

Mark 1.00 out of 1.00

[7-48] The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form.

(A) H_0: μ, the average attendance at games, is equal to 67,800
H_1: μ, the average attendance at games, is greater than 67,800

(B) H_0: μ, the average attendance at games, is greater than 79,000
H_1: μ, the average attendance at games, is less than or equal to 79,000

(C) H_0: μ, the average attendance at games, is equal to 79,000
H_1: μ, the average attendance at games, is greater than 79,000

Select one:

◉ (C) ✔

○ None of them

○ (B)

○ (A)

The correct answer is: (C)

Question **26**

Not answered

Marked out of 1.00

[6-15] What sample size is needed to estimate the mean white blood cell count for the population of adults in the United States? Assume that you want 99% confidence that the sample mean is within 0.2 of the population mean. The population standard ...

Select one:

○ 1073

○ 3017

○ 3071

○ 1037

The correct answer is: 1037

Question **27**

Correct

Mark 1.00 out of 1.00

[7-04] Assume that the data has a normal distribution and the number of observations is greater than 50. Find the critical z value used to test a null hypothesis with significance level of 0.02 for a upper-tailed test. Let P(Z < -2.05) = 0.02; P(Z < -2.33) = 0.01. Choose the best answer. A. -2.05   B. -2.33   C. 2.05   D. 2.33

Select one:

○ D.

○ A.

◉ C.   ✔

○ B.

The correct answer is: C.

Question **28**

Correct

Mark 1.00 out of 1.00

[7-62] The test statistic in a two-tailed test is z=1.55. Let $P(Z<1.55)$ = 0.940. Then the P-value is _____

○ a. 0.060

○ b. 0.062

○ c. 0.940

◉ d. 0.121 ✔

The correct answer is:
0.121

Question **29**

Correct

Mark 1.00 out of 1.00

[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:

○ 0.3

◉ 0.9 ✔

○ None of the others

○ 0.4

The correct answer is: 0.9

Question **30**

Correct

Mark 1.00 out of 1.00

[1-03] The pH of a solution is measured eight times by one operator using the same instrument. She obtains the following data: 7.15, 7.20, 7.18, 7.19, 7.21, 7.20, 7.16, and 7.18. Calculate the sample mean and sample standard deviation.

Select one:

○ 0.02066 and 7.18375

○ 7.20 and 0.02066

◉ 7.18375 and 0.02066   ✔

○ 7.18375 and 0.05

The correct answer is: 7.18375 and 0.02066

Question **31**

Correct

Mark 1.00 out of 1.00

[2-25] If P(A) = 0.72, P(B) = 0.11, and A and B are independent, find P(A|B).

Select one:

○ 0.0792

○ 0.83

○ 0.11

◉ 0.72   ✔

The correct answer is: 0.72

Question **32**

Correct

Mark 1.00 out of 1.00

[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:

○ {HH, TT, HT, TH, aa, bb, cc, dd, ee, ff}

◉ {Ha, Hb, Hc, Hd, He, Hf, Ta, Tb, Tc, Td, Te, Tf}   ✔

○ {Ha, Tb, Hc, Td, He, Tf}

○ None

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

Question **33**

Correct

Mark 1.00 out of 1.00

[7-56] A machine which manufactures black polythene dustbin bags is known to produce 22% defective bags. Following a major breakdown of the machine, extensive repair work is carried out which may result in a change in the percentage of defective bags produced. To investigate this possibility, a random sample of 50 bags is taken from the machine's production and a count reveals 7 defective bags. You suspective that the proportion is smaller than 22%. What is the P-value?

Select one:

○ 0.086 ✔

○ 0.088

○ 0.084

○ 0.068

The correct answer is: 0.086

Question **34**

Correct

Mark 1.00 out of 1.00

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

Select one:

○ None of the others

○ 0.4986 ✔

○ 0.3882

○ 0.5986

The correct answer is: 0.4986

Question **35**

Not answered

Marked out of 1.00

[4-20] Suppose the probability density function of the length of computer cables is f(x) = 0.5 from 10 to 12 millimeters. Determine the variance of the cable length.

Select one:

○ 1240

○ 1220

○ 1440

○ 1420

The correct answer is: 1440

Question **36**

Correct

Mark 1.00 out of 1.00

[2-12] At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French?

Select one:

◉ 0.22   ✔

○ 0.24

○ 0.19

○ 0.17

The correct answer is: 0.22

Question **37**

Correct

Mark 1.00 out of 1.00

[4-13] Let X be a uniformly distributed random variable. Given two probabilites as follow. Find P(20<X<40).

$P(X<30)= \frac{1}{4}; P(X>50) = \frac{1}{4}.$

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 **38**

Incorrect

Mark 0.00 out of 1.00

[5-04] You are given the following data: 23; 34; 11; 40; 25; and 47. Assuming that the data reflect a sample from a larger population, what is the sample mean and sample variance?

Select one:

○ 30 and 168

○ 6 and 168

⦿ 30 and 12.96 ✗

○ 6 and 12.96

The correct answer is: 30 and 168

Question **39**

Not answered

Marked out of 1.00

[4-28] A study of the time spent shopping in a supermarket for a basket of 20 specific items showed an approximately uniform distribution between 20 minutes and 40 minutes. Find the probability that the shopping time will be less than 35 minutes.

○ a. 0.25

○ b. 0.20

○ c. 0.75

○ d. 0.70

The correct answer is:
0.75

Question **40**

Correct

Mark 1.00 out of 1.00

[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:

○ 0.30

○ 0.80

○ 0.20

◉ 0.40 ✔

The correct answer is: 0.40

Question **41**

Correct

Mark 1.00 out of 1.00

[3-26] A jar contains 6 red balls, 3 green balls, 5 white balls and 7 yellow balls. Two balls are chosen from the jar, with replacement. What is the probability that both balls chosen are green?

Select one:

◉ 1/49 ✔

○ 6/441

○ 2/49

○ None of the others

The correct answer is: 1/49

Question **42**

Correct

Mark 1.00 out of 1.00

[7-36] A textile fiber manufacturer is investigating a new drapery yarn, which the company claims has a mean thread elongation of 12 kilograms with a standard deviation of 0.5 kilograms. The company wishes to test the hypothesis H_0: $\mu = 12$ against H_1: $\mu < 12$, using a random sample of four specimens. What is the type I error probability if the critical region is defined as $\bar{x} < 11.5$ kilograms?

Select one:

○ 0.977

◉ 0.023 ✔

○ 0.046

○ 0.954

The correct answer is: 0.023

Question **43**

Correct

Mark 1.00 out of 1.00

[1-22] The time it takes to download a video from the Internet is _____

○ a. a numerical variable

○ b. a discrete numerical variable

◉ c. a continuous numerical variable ✔

○ d. a categorical variable

The correct answer is:
a continuous numerical variable

Question **44**

Correct

Mark 1.00 out of 1.00

	Male (51%)	Female (49%)
Smoke cigars	9.5%	1.7%
No smoke cigars	90.5%	98.3%

[2-02]

Find P(Male|No smoke cigars)?

Select one:

◉ 0.489 ✔

○ 0.389

○ 0.589

○ 0.689

The correct answer is: 0.489

Question **45**

Correct

Mark 1.00 out of 1.00

[6-47] To determine the average weight of bags of flour, packed with the automatic machine, 15 bags were randomly selected and the mean was 39.8 kg and the variance was 0.144. Find a confidence interval for the mean weight of flour bags with 99% confidence.

Select one:

○ (39.50; 40.09) ✔

○ (39.09; 40.50)

○ (39.09; 40.09)

○ (39.50; 40.50)

The correct answer is: (39.50; 40.09)

Question **46**

Correct

Mark 1.00 out of 1.00

[7-40] In tests of a computer component, it is found that the mean time between failures is 520 hours. A modification is made which is supposed to increase the time between failures. Test on a random sample of 10 modified components resulted the sample mean of 537.1 and sample standard deviation of 20.7. At the 0.05 significance level, test the claim that for the modified components, the mean time between failures is greater than 520 hours.

Select one:

○ Reject the claim that the mean time between failures is 520 hours ✔

○ Reject the claim that the mean time between failures is greater than 520 hours

○ Fail to reject the claim that the mean time between failures is 520 hours

○ None of them

The correct answer is: Reject the claim that the mean time between failures is 520 hours

Question **47**

Correct

Mark 1.00 out of 1.00

[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 **48**

Incorrect

Mark 0.00 out of 1.00

[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 0.095 and the probability of missed detecation is 0.0005

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

Question **49**

Incorrect

Mark 0.00 out of 1.00

[7-08] When a new drug is created, the pharmaceutical company must subject it to testing before receiving the necessary permission from the Food and Drug Administration (FDA) to market the drug. Suppose the null hypothesis is "the drug is unsafe." What is the Type II Error?

Select one:

○ To claim the drug is safe when, in fact, it is safe

○ To claim the drug is unsafe when, in fact, it is safe.

○ To claim the drug is unsafe when, in fact, it is unsafe

◉ To claim the drug is safe when, in fact, it is unsafe ✗

The correct answer is: To claim the drug is unsafe when, in fact, it is safe.

Question **50**

Correct

Mark 1.00 out of 1.00

[5-09] Two different box-filling machines are used to fill cereal boxes on an assembly line. The critical measurement influenced by these machines is the weight of the product in the boxes. Engineers are quite certain that the variance of the weight of product is 1 ounce. Both of two means are the same. Experiments are conducted using both machines with sample sizes of 36 each. Engineers are surprised that the two sample averages for the filling machines are so different. Find the probability that the difference of two sample means is greater than 0.2

Select one:

○ 0.8019

○ 0.84845

◉ 0.1981 ✔

○ 0.5

The correct answer is: 0.1981