## Choose the best answer from a, b, c, d

1) Which of the following approaches to probability bases its outcomes on observed data?					
a) Classical approach	b) Relative frequency distribution				
c) subjective probability	d) all of the above				
2) Which of the following best expresses the General Addition Rule?					
a) $P(A \text{ or } B) = P(A) + P(B) + P(A \text{ and } B)$	b) $P(A \text{ or } B) = P(A) + P(B)$				
c) $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$	d) None of the above.				
3) The probability of a price increase is 0.24 (24%) whereas the probability of a price decrease is 0.05 (5%). What is the probability that there will be either a price increase or a decrease?					
a) 0.19	b) 0.012				
c) 0.29	d) 0.2083				
If we are selecting only one card from a standard deck of 52 playing cards, for q4, q5 4) The probability of picking either a club or a diamond would be:					
a) $30/52 = 0.58$	b) $26/52 = 0.50$				
c) $13/52 = 0.25$	d) None of the above.				
5) The probability of picking a red queen would be					
a) $2/52 = 0.038$	b) $2/26 = 0.077$				
c) $1/52 = 0.019$	d) $4/26 = 0.154$				
6) Probability of failure in binomial distribution is denoted by					
a) $p = q + 1$	b) $p = q - 1$				
c) $q = 1 + p$	d) q = 1 - p				
<ul><li>7) Mean of binomial probability distribution is 857.6 and the probability is 64% then the number of values of binomial distribution (n)is</li></ul>					
a) 1040	b) 1340				
c) 1240	d) 1140				
8) Whenever $P(Success) = 0.50$ , the shape of a given binomial distribution will be:					
a) symmetrical, regardless of the number of trials	b) skewed to the right.				
c) symmetrical, but only if the number of trials is large.	d) skewed to the left.				

9) In question 8			
a) The mean is the same as mode	b) The mean is greater than the mode		
c) The mean is less than the mode	d) Cannot study the relation between the averages		
10) If the probability of a success is 0.80, an the binomial distribution is	d there is n=10 trials, the standard deviation of		
a) 8.00	b) 1.26		
c) 0.80	d) 1.60		
11) If the outcomes of a discrete random var	iable follow a Poisson distribution, then their		
a) mean equals the variance of that discrete random variable.	b) mean equals the standard deviation.		
c) median equals the standard deviation.	d) median equals the variance.		
12) Poisson distribution is applied for			
a) Continuous Random Variable	b) Discrete Random Variable		
c) Irregular Random Variable	d) Mixture Random Variable		
13) If 'm' is the mean of Poisson Distributio	n, the P(0) is given by		
a) e <sup>-m</sup>	b) e <sup>m</sup>		
c) e	d) m <sup>-e</sup>		
14) X is a binomial random variable with n=10 and p=0.9. Which of the following statements is false?			
a) $P(1 < X < 5) = P(2 \le X \le 4)$	b) $P(X \le 5) = 1 - P(X \ge 5)$		
c) $\mu = 9$	d) $\sigma = 0.9487$		
15) At Ingles Market is has been determined that customers arrive at the checkout section according to a Poisson distribution at an average rate of 12 customers per hour. What is the probability that at least 1 customer will arrive at the checkout section in the next hour?			
a) $\frac{e^{-12}12^1}{1!}$	b) $1 - \frac{e^{-12}12^0}{0!}$		
c) $\frac{e^{-12}12^0}{0!}$	d) $\frac{e^{-1}}{1!}$		
16) Suppose that on average, 5 students who are enrolled in a state university in Atlanta, GA have their cars stolen during the semester and the number of cars has a Poisson distribution. Determine the expected number of cars stolen per semester.			
a) $\sqrt{5}$ cars	b) 5 cars		

c) 25 cars	d) none of these			
17) A special coin has the probability of 0.65 of landing heads. What is the probability that it will land heads exactly 3 times in 7 tosses?				
a) $_{7}C_{3}(0.65)^{3}(0.35)^{4}$	b) $\frac{0.65^3 e^{-0.65}}{3!}$			
c) ${}_{7}C_{0}(0.65)^{0}(0.35)^{7} + {}_{7}C_{1}(0.65)^{1}$	$(0.35)^6 + {}_7C_2(0.65)^2(0.35)^3 + {}_7C_3(0.65)^2(0.35)^3 + {}_7C_3(0.65)^2(0.35)^2(0.35)^2(0.35)^2 + {}_7C_3(0.65)^2(0.35)$			
d) $\frac{0.65^{\circ}e^{-0.65}}{0!} + \frac{0.65^{1}e^{-0.65}}{1!}$	$+\frac{0.65^2e^{-0.65}}{2!}+\frac{0.65^3e^{-0.65}}{3!}$			
18) The time that it takes a Clemson student to find parking once they have arrived on campus is approximately normally distributed with a mean 25 minutes and standard deviation 5 minutes. If a student arrives on campus at 8:15 AM, what is the probability that the student will find parking before 8:45 AM?				
a) 0.1587	b) 0.7881			
c) 0.8413	d) 0.3413			
19) The height of an adult male is known to be normally distributed with mean of 175 cm and standard deviation 6 cm. What is the value of Q3 (third quartile) in this distribution of heights?				
a) 0.6745 cm	b) 170.95 cm			
c) 179.02 cm	d) 182.34 cm			
20) A machine that cuts corks for liquid bottles operates in such a way that the distribution of the diameter of the corks produced is well approximated by a normal distribution with mean 3 cm and standard deviation 0.1 cm. The specifications call for corks with diameters between 2.9 and 3.1 cm. A cork not meeting specifications is considered defective. What proportion of corks will be considered defective?				
a) 0.1587	b) 0.3173			
c) 0.3413	d) 0.6826			
21) What's the critical z-value for an 85% confidence interval?				
a) .8023	b) 1.44			
c) 1.04	d) Can't be determined without knowing the sample size			
female. A random sample of 72 statistics studinterval: (0.438, 0.642). Using the information				
22) This confidence interval was constructed	d using the following distribution			

a) Normal distribution	b) T distribution		
c) Binomial distribution	d) Poisson distribution		
3) The degrees of freedom for this distribution is			
a) 71	b) 70		
c) 100	d) Not applicable		
24) The value of the distribution which was	used in this interval is		
a) 1.664	b) 1.65		
c) 0.05	d) 0.1		
25) The pointestimate of the proportion in th	is case is		
a) 0.438	b) 0.642		
c) 0.54	d) None of the above		
the true proportion to within $\pm 0.08$ using 95			
a) 106	b) 107		
c) 151	d) None of the above		
27) what size sample would be necessary if we wanted to estimate the true proportion to within ±0.08 using 95% confidence and the above confidence interval?			
a) 597	b) 420		
c) 150	d) 149		
A sample of 50 students was taken from the loo of \$170 on books this semester, with a standard interval for the average spent on books for all s information.(For q28 to q35)	d deviation of \$25.50. A 95% confidence		
28) The distribution which is used in this est	imation is		
a) Binomial distribution			
c) Normal distribution	b) Poisson distribution		
, , , , , , , , , , , , , , , , , , ,	<ul><li>b) Poisson distribution</li><li>d) T distribution</li></ul>		
29) The degrees of freedom for this distribut	d) T distribution		
<ul><li>29) The degrees of freedom for this distribut</li><li>a) 49</li></ul>	d) T distribution		

30) The distribution value that will be used	d in this case is			
a) 1.65	b) 1.96			
c) 2.009	d) None of the above			
31) A point estimate for the population mean is				
a) 25.5	b) 50			
c) 170	d) None of the above			
32) What is the standard deviation of the s	ample mean?			
a) 25.5	b) 50			
c) 3.61	d) 650.25			
33) The margin of error of this estimate is				
a) ±7.07	b) ±3.61			
c) ±25.5	d) None of the above			
(24) The confidence interval for the even of energy	t on hooks for all students would be			
34)The confidence interval for the average spent on books for all students would bea)170 plus or minus 3.61b)170 plus or minus 25.5				
c) 170 plus or minus 8.42	d) None of the above.			
35) Suppose you compute a 99% confider of the following statements is correct?	nce interval using the same information. Which			
a) The intervals have the same width.	b) The 99% interval is shorter.			
c) The 99% interval is longer.	d) None of the above.			
36) To test a hypothesis involving proportions, both np and n(1-p) should				
a) Be at least 30	b) Be greater than 5			
c) Lie in the range from 0 to 1	d) There are no specific conditions surrounding the values of n and p			
For a two-tailed hypothesis test on a populati 20 and thepopulation standard deviation is kr	on mean when alpha is 5%, the sample size is nown, answer q37 to 39			
37) What is the distribution you use to find	this critical value?			
a) Binomial distribution	b) Poisson distribution			
c) Normal distribution	d) T distribution			

38) What are the degrees of freedom you use	to find this critical value in this case?			
a) n-1	b) n+1			
c) n-2	d) not applicable			
39) What is the critical value?				
a) 1.96	b) 1.65			
c) 2.093	d) 2.58			
40) Which of the following would be an appretest?	ropriate alternative hypothesis for a one-tail			
a) The sample proportion is not less than 0.65.	b) The population proportion is less than 0.65.			
c) The population proportion is not less than 0.65.	d) The sample proportion is less than 0.65.			
41) The quantity (1 - alpha) is called:				
a) the power of the test.	b) the probability of Type I error.			
c) the probability of Type II error.	d) the confidence level.			
42) In a hypothesis test involving a population mean, which of the following would be an acceptable formulation?				
a) $H_o: \bar{x} \le \$1,700$ $H_a: \bar{x} > \$1,700$	b) $H_o: \mu > \$1,700$ $H_a: \mu \ge \$1,700$			
c) $H_o: \mu \le \$1,700$ $H_a: \mu > \$1,700$	d) None of the above is a correct formulation			
43) If an economist wishes to determine whether there is evidence that average family income in a community exceeds \$25,000. The best null hypothesis is:				
a) $\mu \neq 25,000$	b) μ > 25,000			
c) $\mu \le 25,000$	d) $\mu \ge 25,000$			
44) The reason for using the t-distribution in is:	a hypothesis test about the population mean			
a) the population standard deviation is unknown	<ul><li>b) it results in a lower probability of a Type I error occurring.</li></ul>			
c) it provides a smaller critical value than the standard normal distribution for a given sample size.	d) the population is not normally distributed			
A company that makes shampoo wants to test v bottle is 16 ounces. The standard deviation for	• • •			

Assuming that the hypothesis test is to be perfe	ormed using 0,10 level of significance and a			
Assuming that the hypothesis test is to be performed using 0.10 level of significance and a random sample of $n = 24$ bottles (use this for q45: q48)				
45) What is the distribution which we use to get the critical value?				
a) binomial b) Poisson				
c) normal	d) t distribution			
46) The degrees of freedom in this case is	6) The degrees of freedom in this case is			
a) 23	b) 24			
c) 15	d) Not applicable			
47) which of the following would be the upp	per tail critical value?			
a) 1.319	b) 1.645			
c) 1.96	d) None of the above			
	rect formulation of the null and alternative			
hypotheses?				
a) $H_0: \overline{x} = 16$ $H_A: \overline{x} \neq 16$	b) $H_o: \mu = 16$ $H_A: \mu \neq 16$			
c) $H_0: \mu \ge 16$	d) $H_0: \overline{x} \ge 16$			
$H_A: \mu < 16$	$H_A: \overline{x} < 16$			
A statistician wishes to determine if there is a sample of 10 items from Population #1 yields a The sample of 12 items from Population #2 yie of 25. Assume that the values are normally disclevel 5%.(q49:q56)	$H_A: \bar{x} < 16$ difference between two population means. A a mean of 185 with a standard deviation of 20. elds a mean of 200 with a standard deviation tributed in each population. Use significant			
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c) 9.6			(P	524		[
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53) What is the alternate hypothesis?						
a) $H_1: \mu_1$ not	t equal to $\mu_2$		b)	$H_1: \mu_1 < \mu_2$		
c) $H_1: \mu_1 > \mu_2$			d)	$H_1: \mu_1 = \mu_2$		
54) $S_{\bar{x}_1 - \bar{x}_2} =$		·				
a) 9.8			b)	224.36		
c) 39.42			d)	None of the above	e	
55) The test stat	tistics is given by					
a) $\frac{\bar{x}_1 - \bar{x}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$			b	$\frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$		
c) $\frac{\bar{x}_1 + \bar{x}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$	c) $\frac{\bar{x}_1 + \bar{x}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$			d) $\frac{\bar{x}_1 + \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$		
56) The decision	n for this test is	I				
a) Reject the	null hypothesis		b)	Accept the null h	ypothesis	
c) Can't decide			d) None of the above			
· · · · · · · · · · · · · · · · · · ·	esting a hypothesis th of the following		pulation	n proportions are	the same, you	
a) Use a sam	ple proportion equal	to 0.5.	b)	Calculate a pool proportion.	ed value for the sar	nple
c) Use a 0.05 level of significance.			d) Average the two sample proportions.			
	paring two populat hesis is $p_1 > p_2$ ?	ion proportio	ons, wh	at is the null hyp	othesis if the	
a) $H_0: p_1 < p_2$			b) $H_0: p_1 = p_2$			
c) $H_0$ : $p_1$ not equal to $p_2$			d) $H_0: p_1 > p_2$			
The water diet rec until you go to be They are weighed	d but eat anything	; you want. F	Four ad	ult volunteers ag	greed to test this d	liet.
Person	1	2		3	4	7
Weight before	180	125		240	150	
Weight after	170	130		215	152	

We want to test if there is a different in weights before and after diet at 1% significant level. Use this information to answer questions q59:q65

59)	What is the alternate hypothesis?			
	a) $H_1$ : $\mu_1$ not equal to $\mu_2$	b) $H_1$ : $\mu_1$ equals $\mu_2$		
	c) $H_1: \mu_1 > \mu_2$	d) $H_1: \mu_1 < \mu_2$		
60)	What is the distribution which we use to get the critical value?			
	a) Binomial distribution	b) Poisson distribution		
	c) Normal distribution	d) T distribution		
61)	How many degrees of freedom are there for this test?			
	a) 3	b) 7		
	c) 4	d) Not applicable		
62)	2) What is the critical value?			
	a) 2.58	b) 2.086		
	c) 1.96	d) None of the above		
63)	3) The mean of differences in weights is			
	a) 173.75	b) 166.75		
	c) 10	d) 7		
64)	) The standard deviation for differences in weights is			
	a) 49.56	b) 36.09		
	c) 25	d) 13.64		
65)	The test statistics is calculated as	L		
	a) $\frac{\bar{x}_1 - \bar{x}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$	b) $\frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$		
	c) $\frac{\bar{a}}{S_n/\sqrt{n}}$	d) None of the above		