Chapter 15

Chapter 15 Audit Sampling for Tests of Controls and Substantive Tests of Transactions â†� Review Questions 15-1 A representative sample is one in which the characteristics of interest for the sample are approximately the same as for the population (that is, the sample accurately represents the total population). If the population contains significant misstatements, but the sample is practically free of misstatements, the sample is nonrepresentative, which is likely to result in an improper audit decision. The auditor can never know for sure whether he or she has a representative sample because the entire population is ordinarily not tested, but certain things, such as the use of random selection, can increase the likelihood of a representative sample. 15-2 Statistical sampling is the use of mathematical measurement techniques to calculate formal statistical results. The auditor therefore quantifies sampling risk when statistical sampling is used. In nonstatistical sampling, the auditor does not quantify sampling risk. Instead, conclusions are reached about populations on a more judgmental basis. For both statistical and nonstatistical methods, the three main parts are: 1. Plan the sample 2. Select the sample and perform the tests 3. Evaluate the results 15-3 In replacement sampling, an element in the population can be included in the sample more than once if the random number corresponding to that element is selected more than once. In nonreplacement sampling, an element can be included only once. If the random number corresponding to an element is selected more than once, it is simply treated as a discard the second time. Although both selection approaches are consistent with sound statistical theory, auditors rarely use replacement sampling; it seems more intuitively satisfying to auditors to include an item only once. 15-4 A simple random sample is one in which every possible combination of elements in

the population has an equal chance of selection. Two methods of simple random selection are use of a random number table, and use of the computer to generate random numbers. Auditors most often use the computer to generate random numbers because it saves time, reduces the likelihood of error, and provides automatic documentation of the sample selected. 15-5 In systematic sampling, the auditor calculates an interval and then methodically selects the items for the sample based on the size of the interval. The interval is set by dividing the population size by the number of sample items desired. To select 35 numbers from a population of 1, 750, the auditor divides 35 into 1, 750 and gets an interval of 50. He or she then selects a random number between 0 and 49. Assume the auditor chooses 17. The first item is the number 17. The next is 67, then 117, 167, and so on. The advantage of systematic sampling is its ease of use. In most populations a systematic sample can be drawn quickly, the approach automatically puts the numbers in sequential order and documentation is easy. A major problem with the use of systematic sampling is the possibility of bias. Because of the way systematic samples are selected, once the first item in the sample is selected, other items are chosen automatically. This causes no problems if the characteristics of interest, such as control deviations, are distributed randomly throughout the population; however, in many cases they are not. If all items of a certain type are processed at certain times of the month or with the use of certain document numbers, a systematically drawn sample has a higher likelihood of failing to obtain a representative sample. This shortcoming is sufficiently serious that some CPA firms prohibit the use of systematic sampling. 15-6 The purpose of using nonstatistical sampling for tests of controls and substantive tests of transactions is to

estimate the proportion of items in a population containing a characteristic or attribute of interest. The auditor is ordinarily interested in determining internal control deviations or monetary misstatements for tests of controls and substantive tests of transactions. 15-7 A block sample is the selection of several items in sequence. Once the first item in the block is selected, the remainder of the block is chosen automatically. Thus, to select 5 blocks of 20 sales invoices, one would select one invoice and the block would be that invoice plus the next 19 entries. This procedure would be repeated 4 other times. 8. The terms below are defined as follows: | TERM | DEFINITION | | a. Acceptable risk of assessing | The risk the auditor is willing to take of accepting a control as effective or a rate of | | control risk too low (ARACR) | monetary misstatements as tolerable, when the true population exception rate is greater than the| | | tolerable exception rate. | | b. Computed upper exception rate | The highest estimated exception rate in the population at a given ARACR. | |(CUER) | | | c. Estimated population exception | The exception rate the auditor expects to find in the population before testing begins. It is | | rate (EPER) | necessary to plan the appropriate sample size. | | d. Sample exception rate (SER) | The actual rate of exception discovered in the sample. It is calculated by dividing the actual | | | number of exceptions in the sample by the sample size. | | e. Tolerable exception rate (TER) | The exception rate the auditor will permit in the population and still be willing to use the | | | assessed control risk and/or the amount of monetary misstatements in the transactions | | | established during planning. | 15-9 The sampling unit is the population item from which the auditor selects sample items. The major consideration in defining the sampling unit is making it consistent with the objectives of the audit tests. Thus, the

definition of the population and the planned audit procedures usually dictate the appropriate sampling unit. The sampling unit for verifying the existence of recorded sales would be the entries in the sales journal since this is the document the auditor wishes to validate. The sampling unit for testing the possibility of omitted sales is the shipping document from which sales are recorded because the failure to bill a shipment is the exception condition of interest to the auditor. 15-10 The tolerable exception rate (TER) represents the exception rate that the auditor will permit in the population and still be willing to use the assessed control risk and/or the amount of monetary misstatements in the transactions established during planning. TER is determined by choice of the auditor on the basis of his or her professional judgment. The computed upper exception rate (CUER) is the highest estimated exception rate in the population, at a given ARACR. For nonstatistical sampling, CUER is determined by adding an estimate of sampling error to the SER (sample exception rate). For statistical sampling, CUER is determined by using a statistical sampling table after the auditor has completed the audit testing and therefore knows the number of exceptions in the sample. 15-11 Sampling error is an inherent part of sampling that results from testing less than the entire population. Sampling error simply means that the sample is not perfectly representative of the entire population. Nonsampling error occurs when audit tests do not uncover errors that exist in the sample. Nonsampling error can result from: 1. The auditor's failure to recognize exceptions, or 2. Inappropriate or ineffective audit procedures. There are two ways to reduce sampling risk: 1. Increase sample size. 2. Use an appropriate method of selecting sample items from the population. Careful design of audit procedures and proper supervision

and review are ways to reduce nonsampling risk. 15-12 An attribute is the definition of the characteristic being tested and the exception conditions whenever audit sampling is used. The attributes of interest are determined directly from the audit program. 15-13 An attribute is the characteristic being tested for in a population. An exception occurs when the attribute being tested for is absent. The exception for the audit procedure, the duplicate sales invoice has been initialed indicating the performance of internal verification, is the lack of initials on duplicate sales invoices. 15-14 Tolerable exception rate is the result of an auditor's judgment. The suitable TER is a question of materiality and is therefore affected by both the definition and the importance of the attribute in the audit plan. The sample size for a TER of 6% would be smaller than that for a TER of 3%, all other factors being equal. 15-15 The appropriate ARACR is a decision the auditor must make using professional judgment. The degree to which the auditor wishes to reduce assessed control risk below the maximum is the major factor determining the auditor's ARACR. The auditor will choose a smaller sample size for an ARACR of 10% than would be used if the risk were 5%, all other factors being equal. 15-16 The relationship between sample size and the four factors determining sample size are as follows: a. As the ARACR increases, the required sample size decreases. b. As the population size increases, the required sample size is normally unchanged, or may increase slightly. c. As the TER increases, the sample size decreases. d. As the EPER increases, the required sample size increases. 15-17 In this situation, the SER is 3%, the sample size is 100 and the ARACR is 5%. From the 5% ARACR table (Table 15-9) then, the CUER is 7. 6%. This means that the auditor can state with a 5% risk of being wrong that the true population exception rate

does not exceed 7. 6%. 15-18 Analysis of exceptions is the investigation of individual exceptions to determine the cause of the breakdown in internal control. Such analysis is important because by discovering the nature and causes of individual exceptions, the auditor can more effectively evaluate the effectiveness of internal control. The analysis attempts to tell the " why" and " how" of the exceptions after the auditor already knows how many and what types of exceptions have occurred. 15-19 When the CUER exceeds the TER, the auditor may do one or more of the following: 1. Revise the TER or the ARACR. This alternative should be followed only when the auditor has concluded that the original specifications were too conservative, and when he or she is willing to accept the risk associated with the higher specifications. 2. Expand the sample size. This alternative should be followed when the auditor expects the additional benefits to exceed the additional costs, that is, the auditor believes that the sample tested was not representative of the population. 3. Revise assessed control risk upward. This is likely to increase substantive procedures. Revising assessed control risk may be done if 1 or 2 is not practical and additional substantive procedures are possible. 15-19 (continued) 4. Write a letter to management. This action should be done in conjunction with each of the three alternatives above. Management should always be informed when its internal controls are not operating effectively. If a deficiency in internal control is considered to be a significant deficiency in the design or operation of internal control, professional standards require the auditor to communicate the significant deficiency to the audit committee or its equivalent in writing. If the client is a publicly traded company, the auditor must evaluate the deficiency to determine the impact on the auditor's report on internal control over

financial reporting. If the deficiency is deemed to be a material weakness, the auditor's report on internal control would contain an adverse opinion. 15-20 Random (probabilistic) selection is a part of statistical sampling, but it is not, by itself, statistical measurement. To have statistical measurement, it is necessary to mathematically generalize from the sample to the population. Probabilistic selection must be used if the sample is to be evaluated statistically, although it is also acceptable to use probabilistic selection with a nonstatistical evaluation. If nonprobabilistic selection is used, nonstatistical evaluation must be used. 15-21 The decisions the auditor must make in using attributes sampling are: â†� What are the objectives of the audit test? â†� Does audit sampling apply? â†� What attributes are to be tested and what exception conditions are identified? â†� What is the population? â†� What is the sampling unit? â†� What should the TER be? â†� What should the ARACR be? â†� What is the EPER? â†� What generalizations can be made from the sample to the population? â†� What are the causes of the individual exceptions? â†� Is the population acceptable? In making the above decisions, the following should be considered: â†� The individual situation. â†� Time and budget constraints. â†� The availability of additional substantive procedures. â†� The professional judgment of the auditor. â†� Multiple Choice Questions From CPA Examinations 15-22 a. (1) b. (3) c. (2) d. (4) 15-23 a. (1) b. (3) c. (4) 15-24 a. (4) b. (2) c. (3) â†� Discussion Questions and Problems [pic] 15-25 a. | | NUMBERING SYSTEM | EXCEL SELECTION | | SAMPLING UNIT | FOR THE POPULATION | FORMULA | | Sales invoice | All invoices numbered 0001 to 6211 |= RANDBETWEEN(1, 6211) | | Bill of lading | All bills of lading numbered 21926 through 28511 |= RANDBETWEEN(21926, | | |(if a random number table is used, the left-most |

28511) | | | digit " 2" can be dropped) | | | Customer | A pair of random numbers, where the first random |= RANDBETWEEN(1, 10) | | | number is the page number (1-10), and the second | | | | random number is the line number on the page | and | | |(1-60) | | | | |= RANDBETWEEN(1, 60) | | Line numbers on the sales | A pair of random numbers, where the first random |= RANDBETWEEN(1, 185) | | journal that have a sales | number is the page number (1-185), and the second| | | invoice recorded on them | random number is the invoice as counted down from| and | | | the top of the page (1-75) | | | | |= RANDBETWEEN(1, 75) | An example random sampling plan prepared in Excel (P1525. xls) is available on the Companion Website and on the Instructor's Resource CD-ROM, which is available upon request. The command for selecting the random number can be entered directly onto the spreadsheet, or can be selected from the function menu (math & trig) functions. It may be necessary to add the analysis tool pack to access the RANDBETWEEN function. Once the formula is entered, it can be copied down to select additional random numbers. When a pair of random numbers is required, the formula for the first random number can be entered in the first column, and the formula for the second random number can be entered in the second column. 15-25 (continued) a. First five numbers using systematic selection: | | | RANDOM | FIRST 5 | | SAMPLING | | STARTING | SAMPLE | | UNIT | INTERVAL | POINT | ITEMS | | Sales invoice | 124 | 67 | 67 | | |(6211/50) | | 191 | | | | | 315 | | | | | 439 | | | | | 563 | | Bill of lading | 132 | 22011 | 22011 | | |[(28511-21926) = | | 22143 | | | 6585/50] | | 22275 | | | | | 22407 | | | | | 22539 | | Customer | 11 | Page 1, line #8 | Page Line | | |(576 lines/50) | | 1 8 | | | | | 1 19 | | | | | 1 30 | | | | | 1 41 | | | | | 1 52 | Using systematic selection, the definition of the sampling unit for determining the selection interval for

population 3 is the total number of lines in the population. The length of the interval is rounded down to ensure that all line numbers selected are within the defined population. 15-26 a. To test whether shipments have been billed, a sample of warehouse removal slips should be selected and examined to see if they have the proper sales invoice attached. The sampling unit will therefore be the warehouse removal slip. b. Attributes sampling method: Assuming the auditor is willing to accept a TER of 3% at a 10% ARACR, expecting no exceptions in the sample, the appropriate sample size would be 76, determined from Table 15-8. Nonstatistical sampling method: There is no one right answer to this question because the sample size is determined using professional judgment. Due to the relatively small TER (3%), the sample size should not be small. It will most likely be similar in size to the sample chosen by the statistical method. c. Systematic sample selection: â†� 22839 = Population size of warehouse removal slips (37521-14682). â†� 76 = Sample size using statistical sampling (students' answers will vary if nonstatistical sampling was used in part b. â†� 300 = Interval (22839/76) if statistical sampling is used (students' answers will vary if nonstatistical sampling was used in part b). â†� 14825 = Random starting point. Select warehouse removal slip 14825 and every 300th warehouse removal slip after (15125, 15425, etc.) [pic] Computer generation of random numbers using Excel (P1526. xls): = RANDBETWEEN(14682, 37521) The command for selecting the random number can be entered directly onto the spreadsheet, or can be selected from the function menu (math & trig) functions. It may be necessary to add the analysis tool pack to access the RANDBETWEEN function. Once the formula is entered, it can be copied down to select additional random numbers. d. Other audit procedures that could be

performed are: 1. Test extensions on attached sales invoices for clerical accuracy. (Accuracy) 2. Test time delay between warehouse removal slip date and billing date for timeliness of billing. (Timing) 3. Trace entries into perpetual inventory records to determine that inventory is properly relieved for shipments. (Posting and summarization) 15-26 (continued) e. The test performed in part c cannot be used to test the existence of sales because the auditor already knows that inventory was shipped for these sales. To test the existence of sales, the sales invoice entry in the sales journal is the sampling unit. Since the sales invoice numbers are not identical to the warehouse removal slips it would be improper to use the same sample. 15-27 a. It would be appropriate to use attributes sampling for all audit procedures except audit procedure 1. Procedure 1 is an analytical procedure for which the auditor is doing a 100% review of the entire cash receipts journal. b. The appropriate sampling unit for audit procedures 2-5 is a line item, or the date the prelisting of cash receipts is prepared. The primary emphasis in the test is the completeness objective and audit procedure 2 indicates there is a prelisting of cash receipts. All other procedures can be performed efficiently and effectively by using the prelisting. c. The attributes for testing are as follows: | AUDIT PROCEDURE | ATTRIBUTE | | 2 | Cash receipts in the prelisting are recorded in the cash receipts journal. | | | | | | Customer name, date, and amount are equal on the prelisting and cash receipts journal. | | 3 | | | | Cash discounts were approved on the related remittance advice. | | | | | 4 | Cash included in the prelisting has been included on the deposit slip. | | | | | | | | 5 | | d. The sample sizes for each attribute are as follows: | | | | | | | TEST OF CONTROL OR | SAMPLE SIZE | | | | SUBSTANTIVE TEST OF TRANS- | | | | | ACTIONS | | SAMPLE SIZE | | | | | | |

AUDIT PROCEDURE | | | | | | | | | | | | | | ARACR | TER | EPER | | | 2 | S T of T | 5% | 6% | 1% | 78 | | | | | | | | | 3 | S T of T | 5% | 6% | 1% | 78 | | | | | | | | | 4 | T of C | 5% | 8% | 2% | 77 | | | | | | | | | 5 | S T of T | 5% | 6% | 1% | 78 | 15-28 a. Because the sample sizes under nonstatistical sampling are determined using auditor judgment, students' answers to this question will vary. They will most likely be similar to the sample sizes chosen using attributes sampling in part b. The important point to remember is that the sample sizes chosen should reflect the changes in the four factors (ARACR, TER, EPER, and population size). The sample sizes should have fairly predictable relationships, given the changes in the four factors. The following reflects some of the relationships that should exist in student's sample size decisions: SAMPLE SIZE EXPLANATION 1. 90 Given 2. > Column 1 Decrease in ARACR 3. > Column 2 Decrease in TER 4. > Column 1 Decrease in ARACR (column 4 is the same as column 2, with a smaller population size) 5. < Column 1 Increase in TER-EPER 6. < Column 5 Decrease in EPER 7. > Columns 3 & 4 Decrease in TER-EPER b. Using the attributes sampling table in Table 15-8, the sample sizes for columns 1-7 are: 1. 88 2. 127 3. 181 4. 127 5. 25 6. 18 7. 149 c. | | CHANGE IN | EFFECT ON | ILLUSTRATION IN | | | FACTORS | SAMPLE SIZE | PART a or b | | 1 | Increase in ARACR. | Decrease | Compare columns 4 and 1 | | | | | | 2 | Increase in TER. | Decrease | Compare columns 3 and 2 (population sizes are | | | | | not consistent, but this has little effect on | | | | | sample size) | | | | | | | | | Compare columns 6 and 5 | | 3 | Increase in EPER. | Increase | | | | | | Compare columns 4 and 2 | | 4 | Increase in population size. | No effect or slight increase | | 15-28 (continued) d. The difference in the sample size for columns 3 and 6 result from the larger ARACR and larger TER in column 6. The extremely large TER is the major

factor causing the difference. e. The greatest effect on the sample size is the difference between TER and EPER. For columns 3 and 7, the differences between the TER and EPER were 3% and 2% respectively. Those two also had the highest sample size. Where the difference between TER and EPER was great, such as columns 5 and 6, the required sample size was extremely small. Population size had a relatively small effect on sample size. The difference in population size in columns 2 and 4 was 99, 000 items, but the increase in sample size for the larger population was marginal (actually the sample sizes were the same using the attributes sampling table). f. The sample size is referred to as the initial sample size because it is based on an estimate of the SER. The actual sample must be evaluated before it is possible to know whether the sample is sufficiently large to achieve the objectives of the test. 15-29 a.

	SER	ALLOWANCE FOR SAMPLING TER-SER	ERROR SUFFICIENT?
1.	2%	3%	Yes
2.	2%	3%	Probably*
3.	2%	3%	No (due to small sampling size)
4.	2%	3%	Probably*
5.	2%	3%	No (due to smaller sample size)*
6.	10%	NA	No (SER exceeds TER)
7.	0%	5%	Yes
8.	0%	5%	No due to small sample size

* Students' answers as to whether the allowance for sampling error risk is sufficient will vary, depending on their judgment. However, they should recognize the effect that lower sample sizes have on the allowance for sampling risk in situations 3, 5 and 8. 15-29 (continued) b. Using the attributes sampling table in Table 15-9, the CUERs for columns 1-8 are: 1. 4. 0% 2. 4. 6% 3. 9. 2% 4. 4. 6% 5. 6. 2% 6. 16. 4% 7. 3. 0% 8. 11. 3% c.

ILLUSTRATIONS IN PART a or b CHANGE IN FACTORS	EFFECT ON CUER	
1	Decrease in ARACR	Increase	Compare columns 1 and 2
2	Decrease in

population size | No effect or minor decrease | Compare columns 4 and 2 | | | | | | | | Decrease in sample size | Increase | | | 3 | | | Compare columns 2 and 3 (both sample | | | | | exception rates are 2%) | | | | | | | | | Decrease in the number of exceptions in | Decrease | Compare columns 6 and 7 | | 4 | the sample | | | d. The factor that appears to have the greatest effect is the number of exceptions found in the sample compared to sample size. For example, in columns 5 and 6, the increase from 2% to 10% SER dramatically increased the CUER. Population size appears to have the least effect. For example, in columns 2 and 4, the CUER was the same using the attributes sampling table even though the population in column 4 was 10 times larger. e. The CUER represents the results of the actual sample whereas the TER represents what the auditor will allow. They must be compared to determine whether or not the population is acceptable. 15-30 a. and b. The sample sizes and CUERs are shown in the following table: | | | INITIAL SAMPLE SIZE FROM TABLE | | | | | ACTUAL SAMPLE SIZE | 15-8 | | CUER FROM TABLE 15-9 | | | | | SER | | | 1 | 100 | 127 | 2. 0% | 6. 2% | | 2 | 100 | 99 | 0. 0 | 3. 0 | | 3 | 60 | 65 | 1. 7 | 6. 4 | | 4 | 100 | 93 | 4. 0 | 9. 0 | | 5 | 20 | 18 | 5. 0 | 18. 1 | | 6 | 60 | 60 | 13. 3 |> 20. 0 | a. The auditor selected a sample size smaller than that determined from the tables in populations 1 and 3. The effect of selecting a smaller sample size than the initial sample size required from the table is the increased likelihood of having the CUER exceed the TER. If a larger sample size is selected, the result may be a sample size larger than needed to satisfy TER. That results in excess audit cost. Ultimately, however, the comparison of CUER to TER determines whether the sample size was too large or too small. b. The SER and CUER are shown in columns 4 and 5 in the preceding table. c. The population results are unacceptable for populations

1, 4, and 6. In each of those cases, the CUER exceeds TER. The auditor's options are to change TER or ARACR, increase the sample size, or perform other substantive tests to determine whether there are actually material misstatements in the population. An increase in sample size may be worthwhile in population 1 because the CUER exceeds TER by only a small amount. Increasing sample size would not likely result in improved results for either population 4 or 6 because the CUER exceeds TER by a large amount.

d. Analysis of exceptions is necessary even when the population is acceptable because the auditor wants to determine the nature and cause of all exceptions. If, for example, the auditor determines that a misstatement was intentional, additional action would be required even if the CUER were less than TER. 15-30 (Continued) e. | TERM | NATURE OF TERM | | 1. Estimated population exception rate | Nonstatistical estimate made | | | by auditor. | | | | | | | | 2. Tolerable exception rate | Audit decision. | | | | | 3. Acceptable risk of assessing control risk too low | Audit decision. | | | | | 4. Actual sample size | | | | Audit decision (determined by other audit decisions). | | | | | 5. Actual number of exceptions in the sample | Sample result. | | | | | 6. Sample exception rate | | | | Sample result. | | 7. Computed upper exception rate | | | | Statistical conclusion about the population. | 15-31 a. The following shows which are exceptions and why: | INVOICE NUMBER | EXCEPTION? | TYPE OF EXCEPTION | | 5028 | No | Error was detected and corrected by client. | | 6791 | No | Sales invoice was voided. | | 6810 | Yes | Proof of shipment not presented. | | 7364 | No | Credit collection problem; should be noted for review of | | | | allowance for doubtful accounts. | | | | Duplicate sales invoice not properly filed. | | 7625 | Yes | Invoices not recorded by proper date; represents potential cutoff| | 8431 | Yes | problem. | | | |

Customer orders not included in invoice package to verify | | 8528 | Yes | compliance with the order. | | | | Error in pricing. No internal verification. | | | | Duplicate sales invoice not properly filed. | | 8566 | Yes | Credit not authorized. | | 8780 | Yes | Internal verification of price extensions and postings of sales | | 9169 | Yes | invoices was not included. | | 9974 | Yes | | 15-31 (continued) b. It is inappropriate to set a single acceptable tolerable exception rate and estimated population exception rate for the combined exceptions because each attribute has a different significance to the auditor and should be considered separately in analyzing the results of the test. c. The CUER assuming a 5% ARACR for each attribute and a sample size of 150 is as follows: | | | | | | | INVOICE NUMBER | DESCRIPTION OF ATTRIBUTE | NUMBER OF | | | | | EXCEPTIONS | SER | | 6810 | Shipping document not located | 1 |. 67% | | 7625 | Duplicate sales invoice/customer order | 3 | 2. 00% | | 8780 | not located | | | | 8528 | | | | | 8431 | Invoice date improper | 1 |. 67% | | 8566 | Price extensions postings incorrect | 1 |. 67% | | 8566 | Price extensions and postings not | 2 | 1. 33% | | 9974 | internally verified | | | | 9169 | Credit not authorized | 1 |. 67% | d. | | | SAMPLING ERROR SUFFICIENT? | | INVOICE NUMBER | | | | | TER-SER | | | 6810 | 5. 33% | Yes | | 7625 | | | | 8780 | 4. 0% | Probably* | | 8528 | | | | 8431 | 5. 33% | Yes | | 8566 | 5. 33% | Yes | | 8566 | 4. 67% | Probably* | | 9974 | | | | 9169 | 5. 33% | Yes | *Students' answers will most likely vary for this attribute. 15-31 (continued) e. For each exception, the auditor should check with the controller to determine an explanation for the cause. In addition, the appropriate analysis for each type of exception is as follows: | INVOICE NUMBER | | | | EXCEPTION ANALYSIS | | 6810 | Confirm the account balances to the customers; examine the reduction in the perpetual inventory | | | records. | | 7625 | Trace the

amount to the sales journal and accounts receivable master file; examine the shipping | | | document and recompute the sale amount. | | 8431 | Determine who recorded the invoice and check several others prepared by him or her to determine if | | | the problem consistently occurs. | | 8528 | Examine the accounts receivable master file for subsequent cash receipt; examine sales invoices for | | | other invoices to the same customer to determine if customer orders were attached. | | 8566 | Check the price on other invoices to the same customer. Check the price on other invoices that have | | | the same product. | | 8780 | See 7625 | | 9169 | Check credit history of customer and evaluate collectibility of the customer's account. | | 9974 | Recheck actual price, extensions and postings; determine who the clerk was and check several other | | | invoices for proper indication of performance. | 15-32 a. Attributes sampling approach: The test of control attribute had a 6% SER and a CUER of 12. 9%. The substantive test of transactions attribute has SER of 0% and a CUER of 4. 6%. Nonstatistical sampling approach: As in the attributes sampling approach, the SERs for the test of control and the substantive test of transactions are 6% and 0%, respectively. Students' estimates of the CUERs for the two tests will vary, but will probably be similar to the CUERs calculated under the attributes sampling approach. b. Attributes sampling approach: TER is 5%. CUERs are 12. 9% and 4. 6%. Therefore, only the substantive test of transactions results are satisfactory. Nonstatistical sampling approach: Because the SER for the test of control is greater than the TER of 5%, the results are clearly not acceptable. Students' estimates for CUER for the test of control should be greater than the SER of 6%. For the substantive test of transactions, the SER is 0%. It is unlikely that students will estimate CUER for this test greater than 5%, so the results are

acceptable for the substantive test of transactions. 15-32 (continued) c. If the CUER exceeds the TER, the auditor may: 1. Revise the TER if he or she thinks the original specifications were too conservative. 2. Expand the sample size if cost permits. 3. Alter the substantive procedures if possible. 4. Write a letter to management in conjunction with each of the above to inform management of a deficiency in their internal controls. If the client is a publicly traded company, the auditor must evaluate the deficiency to determine the impact on the auditor's report on internal control over financial reporting. If the deficiency is deemed to be a material weakness, the auditor's report on internal control would contain an adverse opinion. In this case, the auditor has evidence that the test of control procedures are not effective, but no exceptions in the sample resulted because of the breakdown. An expansion of the attributes test does not seem advisable and therefore, the auditor should probably expand confirmation of accounts receivable tests. In addition, he or she should write a letter to management to inform them of the control breakdown. If the client is a publicly traded company, the auditor must evaluate the deficiency to determine the impact on the auditor's report on internal control over financial reporting. d. In this case, we want to find out why some invoices are not internally verified. Possible reasons are incompetence, carelessness, regular clerk on vacation, etc. It is desirable to isolate the exceptions to certain clerks, time periods or types of invoices. â†� Case 15-33 a. Audit sampling could be conveniently used for procedures 3 and 4 since each is to be performed on a sample of the population. b. The most appropriate sampling unit for conducting most of the audit sampling tests is the shipping document because most of the tests are related to procedure 4. Following the instructions of the audit program,

however, the auditor would use sales journal entries as the sampling unit for step 3 and shipping document numbers for step 4. Using shipping document numbers, rather than the documents themselves, allows the auditor to test the numerical control over shipping documents, as well as to test for unrecorded sales. The selection of numbers will lead to a sample of actual shipping documents upon which tests will be performed. c. Note: The sampling data sheet that follows assumes an attributes sampling approach. The only difference between the sampling data sheet for attributes sampling and for nonstatistical sampling is the actual determination of sample size. For nonstatistical sampling, students' answers will vary, but will most likely be comparable to the sample sizes determined under attributes sampling.

15-33 (continued) | | | | | | INITIAL SAMPLE | | DESCRIPTION OF ATTRIBUTES | | | | SIZE* | | | EPER | TER | ARACR | | | A duplicate sales invoice exists for the shipping| 1. 0 | 5. 0 | 10 | 77 | | document selected. | | | | | | | | | | | | Shipping document agrees with related duplicate | | | | | | sales invoice. | 0. 0 | 4. 0 | 10 | 57 | | | | | | | The duplicate sales invoice has attached a copy | | | | | | of the shipping document, shipping order, and | | | 10 | 77 | | customer order. | 1. 0 | 5. 0 | | | | | | | | | The shipping order has proper credit approval. | | | | | | | | | | | | The duplicate sales invoice has internal | | | 10 | 77 | | verification of computations. | 1. 0 | 5. 0 | | | | | | | | | | The duplicate sales invoice has the same price | | | 10 | 77 | | and quantity as approved price list and shipping | 1. 0 | 5. 0 | | | | document. | | | | | | | | | | | | | Customer name, amount and date agrees between | | | 10 | 57 | | duplicate sales invoice and sales journal and | 0. 0 | 4. 0 | | | | subsidiary ledger. | | | | | | | | | | | | | | | | | | | | | | | | | 10 | 57 | | | 0. 0 | 4. 0 | | | |* assumes the shipping document is the sampling unit. | â– Integrated Case Application 34. a. and d. PINNACLE

MANUFACTURINGâ€¢PART V Client: Pinnacle Manufacturing Audit Area: Tests of Controls and Substantive Test of Transactionsâ€¢ Acquisitions. Define the Objective(s): Examine vendors' invoices, receiving reports, purchase orders, and other related documents to determine whether the system has functioned as intended and as described in the audit program. Define the population precisely (including stratification, if any): Vouchers from 1/1/2004 to 10/31/2004. First voucher number - 4614. Last voucher number - 31612. Define the sampling unit, organization of population items, and random selection procedures: Voucher number, recorded sequentially in the acquisitions journal; random number function in electronic spreadsheet. | | Planned Audit | Actual Results | | | | | Description of Attributes | | | | | | | | | | | | | EPER | TER | | EPER | TER | ARACR | Initial Sample Size | Sample Size | Number of Exceptions | SER | Calculated Sampling Error (TER-SER) | | 1. Payee, name, amount, and date on cancelled check agrees with related purchases journal and cash disbursements entry. (9a) | 0 | 5% | 10% | 40 | | | | | | 2. Evidence of signature, proper endorsement and cancellation of each check. (9b) | 0 | 5% | 10% | 40 | | | | | | 3. Date on cancelled check agrees with bank cancellation date. (9c) | 0 | 5% | 10% | 40 | | | | | | 4. Cash discounts are correct. (9d) | 0 | 5% | 10% | 40 | | | | | | 15-34 (continued) [pic] c. Population = voucher numbers 4614 to 31612 Sample size = 50 Random Selection: If random selection is performed using Excel, the command to select numbers randomly from the population is: = RANDBETWEEN(4614, 31612) The command for selecting the random number can be entered directly onto the spreadsheet, or can be selected from the function menu (math & trig) functions under the " insert" menu . It may be necessary to add the analysis tool pack to access the RANDBETWEEN function. Once the

formula is entered, it can be copied down to select additional random numbers. The random numbers will vary for each student, so they are not listed in this solution. â†� Internet Problem Solution: Sampling for US Census 15-1 There are numerous applications of sampling. The U. S. Census Bureau is among the most famous users of sampling methodologies. One of the many reasons sampling is used by the Census Bureau is for population projections. Visit the U. S. Census Bureau Web site and read " Methodology and Assumptions for the Population Projections of the United States: 1999-2100" [www. census. gov/population/www/documentation/twps0038. html]. Answer the following questions: 1. The authors of the paper make assumptions about the U. S. population on three dimensions. What are the three dimensions? (Hint: The authors refer to these dimensions as " components of change. ") Answer: The three dimensions are fertility, mortality, and migration. 2. What is the expected population of the U. S. in 2050 given the new series (i. e., based on 1998 data) based on the lowest series? The middle series? And the highest series? Answer: Lowest - 313, 546, 000; Middle - 403, 687, 000; Highest - 552, 757, 000 15-1 (continued) 3. What do the lowest, middle, and highest series represent? Answer: Similar to the use of sampling in an audit context, this paper emphasizes how key sampling judgments affect sample results. The lowest, middle, and highest series represent the effects of varying expectations regarding fertility, mortality, and migration. The projections do not include a systematic measurement of uncertainty regarding these dimensions. However, in the development of each of the component assumptions, high and low variants were established based on a reasoned assessment of what represented " extreme" values. Applying variant assumptions for each component

individually resulted in the range of population series that would be identified with the maximum likely variance of that component. To produce the lowest and highest series, the authors combined the extreme values of all three major components that favored, respectively, the lowest and highest population growth. Therefore, the extreme projections do not represent likely scenarios in themselves, but purport to represent the extremes between which most likely outcomes should fall. Fertility and international migration imposed a greater uncertainty on the projections than did mortality, because childbearing and mobility, to a greater extent than death, are functions of individual and collective decision-making that are difficult to forecast accurately. (Note: Internet problems address current issues using Internet sources. Because Internet sites are subject to change, Internet problems and solutions are subject to change. Current information on Internet problems is available at www. prenhall. com/arens).