Answer to Part 1 Practice Questions

Answer: Question 1.1 – Coe Company

1.

Cumulative Number of Units	Cumulative Average Time/Unit	Cumulative Total Time
1	500	500
2	500 x .9 = 450	450 x 2 = 900
4	450 x .9 = 405	405 x 4 = 1620

2. $25 x 500 hours x 4 units = $50,000 with no learning curve
   $25 x 405 x 4 units = $40,500 with 90% learning curve
   $50,000 - $40,500 = $9,500 savings

3. Budgetary slack is the practice of underestimating budgeted revenues, or overestimating budgeted costs, to make budgeted targets more easily achievable.
   Budgetary slack misleads top management about the true profit potential of the company, which leads to inefficient resource planning and allocation as well as poor coordination of activities across different parts of the company.

4. 1,740 x (25.00 – [44,805/1,740]) = 1,305U
   25.00 x (1,740 – [4 x 500]) = 6,500F
   Direct labor rate variance remains the same, but direct labor efficiency variance will become $3000 negative, because actual hours 1740 is more than expected from 90% learning curve 1620.

5. A factor that could cause an unfavorable price variance and a favorable efficiency variance is using a higher-skilled labor force that would be paid more per hour but would work more quickly.

6. Direct labor efficiency variance would be even more unfavorable if an 80% learning curve was used. The lower number implies more benefit from learning.

7. For a new product, the company may have no way of forecasting the amount of improvement (if any) from savings. The company may set up a production method that is more efficient than prototype, but will not gain further efficiencies.

Answer 1.2 – Law Services Inc.

1. A flexible budget allows the attorneys to tell how much of their unfavorable variance is due to lower than planned billing hours and how much is due to performance issues such as the negotiated billed amount or variable expenses. A master budget is static and any variance must be analyzed further to determine its cause.

2. The flexible budget revenues are calculated by multiplying the actual billed hours by the budgeted amount per billed hour. Then the budgeted variable expense per billed hour is multiplied by the actual billed hours. The flexible budget variable expense is subtracted from the flexible budget revenue. The results are compared to the actual results from last year.

3. 6,000 * 325 = 1,950,000 static budget revenue
   5,700 * 275 = 1,567,500 actual revenue
   1,950,000 - 1,567,500 = $382,500 unfavorable static budget revenue variance
   5,700 * 325 = 1,852,500 flexible budget revenue
   1,852,500 - 1,567,500 = $285,000 flexible budget variance
   6,000 - 5,700 = 300 hours unfavorable sales volume
   300 * 325 = $97,500 unfavorable sales volume variance

4. 6,000 * 50 = 300,000 static budget variable expense
   300,000 - 285,000 = $15,000 favorable variable expense variance

5. 5,700 * 50 = 285,000 flexible budget variable expense
   285,000 - 285,000 = $0, so the variance is a sales volume variance

Answer: Question 1.3 – Inman Inc.

1.

Materials	$400,000	
Direct labor	100,000	
Variable manufacturing overhead	20,000	
Fixed manufacturing overhead	200,000	
	$720,000/100,000 = $7.20	

10,000 beginning inventory + 100,000 manufactured – 106,000 sold = 4,000 units in ending inventory; 4,000 x $7.20 = $28,800.

Sales (106,000 x $12)		$1,272,000
Cost of Goods Sold:		
Beginning inventory	$ 72,000	
Cost of goods manufactured (100,000 x $7.20)	720,000	
- Ending inventory	(28,800)	763,200
Gross profit		508,800
Less selling & administrative		
Variable costs	80,000	
Fixed costs	300,000	380,000
Income		$ 128,800

2.

Materials	$400,000	
Direct labor	100,000	
Variable manufacturing overhead	20,000	
	$520,000/100,000 = $5.20	

4,000 units x $5.20 = $20,800

Sales		$1,272,000
Less variable costs:		
Manufacturing = $5.20 x 106,000	$551,200	
Selling and administrative	80,000	631,200
Contribution margin		640,800
Less fixed costs:		
Manufacturing	200,000	
Selling and administrative	300,000	500,000
Income		$ 140,800

3. The difference in incomes is caused by the treatment of fixed manufacturing overhead. Absorption costing treats this cost as a product cost that is held in inventory until the goods are sold; variable costing treats fixed manufacturing overhead as a period cost, showing it as an expense immediately. Because inventory decreased, absorption costing would expense all of the current month's fixed manufacturing overhead as well as some of the costs that were previously deferred in the prior period's inventory; variable costing would only expense the current month's amount, resulting in a higher income.

4. The advantages of using absorption costing are:
   - It is required for external reporting.
   - It matches all manufacturing costs with revenues.

The advantages of using variable costing are:

- Data required for cost-volume-profit analysis can be taken directly from the statement.
- The profit for a period is not affected by changes in inventories.
- Unit product costs do not contain fixed costs that are often unitized, a practice that could
- result in poor decision-making.
- The impact of fixed costs on profits is emphasized.
- It is easier to estimate a product's profitability.
- It ties in with cost control measures such as flexible budgets.

5. Top-down advantage: speed, control top-down disadvantage: little buy-in, top has less info
   Bottom-up advantage: more likely to commit, disadvantage: may set easier targets

   Best: top-down, cost of products most important, want to focus on control

6. Benchmark with outside examples, mutual learning about problems, balance scorecard methods of evaluation.

Answer: Question 1.4 – Smart Electronics

1. Model M-11:
   Overhead cost allocated (per unit): [€80,000 / (650 + 150)] x 650 = €65,000 65000/1300=50
   Gross margin per unit: €90-€10-€50=€30

   Model R-24:
   Overhead cost allocated (per unit): [€80,000 / (650 + 150)] x 150 = €15,000
   15,000/1500=10
   Gross margin per unit: €60-€30-€10=€20

2. Setups: €20,000 / (3 + 7) = €2,000
   Components: €50,000 / (17 + 33) = €1,000
   Material Movements: €10,000/(15+35)= €200

   Model M-11:
   (€2,000 x 3) + (€1,000 x 170) + (€200*15)= €26,000
   Overhead cost allocated by ABC (per unit): €26,600/1300= €20.00
   Gross margin per unit: €90-€10-€20.00=€60.00

   Model R-24:
   (€2,000 x 7) + (€1000 x 33) + (€200x35)= €54,000
   Overhead cost allocated by ABC (per unit): €54,000/1,500=€36.00
   Gross margin per unit: €60-€30-€36= -€6.00

3. Because the products do not all require the same proportionate shares of the overhead resources of setup hours and components, the ABC system provides different results than the traditional system. The traditional method uses volume base allocation base which allocates overhead costs on the basis of direct labor hours. The ABC system considers important differences in overhead resource requirements by using multiple cost drivers and thus provides a better picture of the costs of each product model, provided that the activity measures are fairly estimated.

   In the case of Smart Electronics, model R-24 uses more setups, components and material movements which might not be reflected in the labor hours. The following table shows the overhead allocated per unit and profit margin per unit under the current conventional costing system and ABC. As indicated, model R-24 was previously under-costed and model M-11 was over-costed.

   Overhead Allocated per unit under the current costing system and ABC:

	Current costing system	ABC
Model M-11	€50	€20.00
Model R-24	€10	€36.00

Gross Margin per unit under the current costing system and ABC

	Current costing system	ABC
Model M-11	€30	€60.00
Model R-24	€20	-€6.00

Smart Electronics' management can use the information from the ABC system to make better pricing decisions. After allocating overhead by ABC, it gives a clear cost picture that model R-24 costs more to manufacture because it uses more setups, components and material movements. The current price of $60 is inadequate in covering the total cost and results in negative gross margin. Therefore, the company might decide to increase the price of the model R-24. For model M-11, the previous overhead was overestimated given that it was allocated by labor hours. Under ABC, only €60.00 of the overhead was allocated to every unit of Model M-11. The management might reduce the price of model M-11 to make it more competitive.

4. Advantages: The ABC system better captures the resources needed for model M-11 and model R-24. It identifies all of the various activities undertaken when producing the products and recognizes that different products consume different amounts of activities. Hence, the ABC system generates more accurate product costs.

Limitations:
ABC requires continuously estimating cost drivers, updating and maintaining the system, which make the system relatively costly.

A complicated system is sometimes confusing to the top management

Estimation of cost of activities and selection of cost drivers sometime may cause estimation errors which could results in misleading cost information.

Answers: Question 1.5 – Small Parts

1. A good system of internal control is designed to provide reasonable assurance regarding achievement of an entity's objectives involving effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.

2. Segregation of duties requires that no one person have control over the physical custody of an asset and the accounting for it. There is no evidence to suggest Smallparts makes any effort to account for the value of returned product, which may indeed be significant. The one salesperson seems to be in charge of all aspects related to returned product, including authorizing the returns, crediting the customers, receiving the returns, handling the physical custody, finding new customers, concluding sales, shipping, billing, and collecting. Most of these rules should be separated.

3. A good system of internal control suggests that four functional responsibilities be separated, and handled by different individuals: (i) authority to execute transactions, (ii) recording transactions, (iii) custody of assets involved in the transactions, and (iv) periodic reconciliations of the existing assets to recorded amounts. Smallparts might improve its control over the inventory of returned product by separating these responsibilities among four different individuals.

4. Separate responsibilities and duties. While the salesman may be assigned to work with customers who return products, and find other customers for these products, other staff should post credits to customer accounts following written policy. The products should be received, inventoried, booked and shipped just like regular products.

Answer: Question 1.6 – Michael Hanson

1. a. Transaction processing controls include: passwords to limit access to input or change data, segregation of duties to safeguard assets, and control totals to ensure data accuracy.
   b. Virus protection controls include: ensuring that latest edition of anti-virus software is installed and updated, firewalls set up to deter incoming risks, and limit internet access to business-related purposes to reduce chances of viruses.
   c. Backup controls include identification of vital systems to be backup regularly, development of disaster recovery plan, testing of backup communications and resources

2. A sound disaster recovery plan contains the following components:
   - Establish priorities for recovery process
   - Identification of software and hardware needed for critical processes
   - Identify all data files and program files required for recovery
   - Store files in off-site storage
   - Identify who has responsibility for various activities, which activities are needed first
   - Set up and check arrangements for backup facilities
   - Test and review recovery plan

3. a. Bank deposits not always correspond with cash receipts. Cause: cash received after bank deposits. Action: have a separate individual reconcile incoming cash receipts to bank deposits.
   b. Physical inventory counts sometimes differ from perpetual inventory record, and sometimes there have been alterations to physical counts and perpetual records. Cause: timing differences. Actions: limit access to physical inventory, require and document specific approvals for adjustments to records,
   c. Unexpected and unexplained decrease in gross profit percentage. Causes: unauthorized discounts or credits provided to customers. Actions: establish policies for discounts credits, document approvals.

Answer: Question 1.7 – Thompson

1. The positive and negative behavioral implications arising from employing a negotiated transfer price system for goods exchanged between divisions include the following:

   Positive
   - Both the buying and selling divisions have participated in the negotiations and are likely to believe they have agreed on the best deal possible
   - Negotiating and determining transfer prices will enhance the autonomy/ independence of both divisions.

   Negative
   - The result of a negotiated transfer price between divisions may not be optimal for the firm as a whole and therefore will not be goal congruent.
   - The negotiating process may cause harsh feelings and conflicts between divisions.

2. The behavioral problems which can arise from using actual full (absorption) manufacturing costs as a transfer price include the following:

   a. Full-cost transfer pricing is not suitable for a decentralized structure when the autonomous divisions are measured on profitability as the selling unit is unable to realize a profit.
   b. This method can lead to decisions that are not goal congruent if the buying unit decides to buy outside at a price less than the full cost of the selling unit. If the selling unit is not operating at full capacity, it should reduce the transfer price to the market price if this would allow the recovery of variable costs plus a portion of the fixed costs. This price reduction would optimize overall company performance.

3. The behavioral problems that could arise, if Thompson Corporation decides to change its transfer pricing policy to one that would apply uniformly to all divisions, including the following:
   - A change in policy may be interpreted by the divisional managers as an attempt to decrease their freedom to make decisions and reduce their autonomy. This perception could lead to reduced motivation.
   - If managers lose control of transfer prices and, thus, some control over profitability they will be unwilling to accept the change to uniform prices.
   - Selling divisions will be motivated to sell outside if the transfer price is lower than market as this behavior is likely to increase profitability and bonuses.

4. The likely behavior of both "buying" and "selling" divisional managers, for each of the following transfer pricing methods being considered by Thompson Corporation include the following:

   Standard full manufacturing costs plus a markup

   The selling division will be motivated to control costs because any costs over standard cannot be passed on to the buying division and will reduce the profit of the selling division.

The buying division may be pleased with this transfer price if the market price is higher. However, if the market price is lower and the buying divisions are forced to take the transfer price, the managers of the buying division will be unhappy.

5. Market selling price of the product being transferred

   This creates a fair and equal chance for the buying and selling divisions to make the most profit they can. It should promote cost control, motivate divisional management, and optimize overall company performance. Since both parties are aware of the market price, there will be no distrust between the parties, and both should be willing to enter into the transaction.

6. Outlay (out-of-pocket) costs incurred to the point of transfer, plus opportunity costs per unit.

   This method is the same as market price when there is an established market price and the seller is at full capacity. At any level below full capacity, the transfer price is the outlay cost only (as there is no opportunity cost), which would approximate the variable costs of the goods being transferred.

   Both buyers and sellers should be willing to transfer under this method because the price is the best either party should be able to realize for the product under the circumstances. This method should promote overall goal congruence, motivate managers, and optimize overall company profits.

Answer: Question 1.8 - Biscayne Industries

1. Benefits of using a flexible budget are:
   a. As a planning tool, the flexible budget allows management to estimate income at more than one level of output. This aids in allocating resources and allowing management to plan for sufficient resources to meet its needs.

   b. As an evaluation tool, actual results are compared with standard costs for actual output. This provides for a fairer comparison and allows for variance computations to better assess performance.

   c. Make better use of historical budget information to improve future planning.

   d. As an evaluation tool, comparing actual results to the flexible budget will not hide poor performance. If output is less than budgeted, comparing actual costs for a lower number of units with master-budgeted costs for a greater number of units will most likely yield favorable variances even though cost inefficiencies may have existed.

2.

Sales	$55,000,000
Cost of goods sold:	
Variable costs (55,000,000/50,000,000 = 10% increase; 30,000,000 – 20,000,000 = 10,000,000 original VC; 10,000,000 * (1+10%)	11,000,000
Fixed costs	20,000,000
Gross profit	$24,000,000
Selling and administrative costs	12,000,000
Operating income	$12,000,000

3. Three reasons sales increased but income decreased are:
   a. Fixed costs increased. Increased output could have moved the company outside of its relevant range, causing fixed costs to be higher than budgeted. Increased sales could have been the result of more advertising dollars spent than originally planned.
   b. The sales price was lowered, resulting in higher total sales but a lower contribution margin per unit. Income decreased because the total increase in sales was not of sufficient volume to be greater than the total increase in variable costs.
   c. The income statement was prepared using absorption costing. Inventory could have decreased throughout the year, causing fixed manufacturing overhead held in beginning inventory to be expensed during the current year.
   d. The product mix changed. More units of the low contribution margin products and fewer units of the high contribution margin products were sold than planned.

4. Zero based budgeting: Preparing a budget from the ground up, as though the budget were being prepared for the first time. Alternative means of conducting activities and alternative budget amounts are evaluated. Also, all expenses are justified and fully explained. Every line of item must be approved.

Answer: Question 1.9 – Brown Printing

1. Absorption costing (also called full costing) includes fixed manufacturing overhead cost in the cost of inventory. This method is required by GAAP and has been prepared using the traditional external reporting format (gross margin format). Under this method, the fixed manufacturing overhead was treated as a product cost. Only the portion of fixed manufacturing overhead assigned to the sold units was expensed in the current period.

   Variable costing includes only variable costs (direct labor, direct material, variable manufacturing cost) in the cost of inventory. Fixed manufacturing overhead is included in the income statement as a period cost.

2. Direct materials $15 + Direct labor $6 + Variable manufacturing overhead $4 = Unit Cost of Goods sold $25.

Sales	$900,000
Variable cost of goods sold ($25 x 10,000 units)	250,000
Variable selling	30,000
Contribution margin	620,000
Fixed manufacturing overhead	240,000
Administrative expenses	160,000
Net income	$220,000

3. The unit cost of goods sold is calculated as follows:
   Direct materials + Direct labor + Variable manufacturing overhead + Fixed manufacturing overhead = $15 + 6 + 4 + ($240,000/15,000 books) = $15 + 6 + 4 + $16 = $41.

Sales revenue	$900,000
Cost of goods sold	410,000
Gross margin	490,000
Selling expenses	30,000
Administrative expenses	160,000
Net income	$300,000

4. Advantages of variable costing
   - It makes better sense to expense fixed manufacturing overhead since it will be incurred each period regardless of the number of units sold or produced.
   - No incentive to overproduce inventory because profit is strictly a function of sales volume (not production volume).
   - Better for internal decision making since this method breaks costs out into variable and fixed components.
   - Contribution format supports cost-volume-profit analysis and other short-run decision making.

Limitations of absorption costing

- The fixed manufacturing overhead assigned to the unsold units has been absorbed on the balance sheet as part of the inventory cost.
- Any difference between the number of units produced and the number of units sold will change the results.
- This method can lead to managers overproducing inventory to obtain better financial results.
- This method is not useful for internal decision making since it does not break out variable and fixed costs to support cost-volume-profit analysis.

5. The $80,000 difference in net income under the two methods represents the value of the fixed manufacturing overhead included ending inventory. 5,000 more books were produced than sold. The fixed manufacturing overhead at $16 per unit means $16 * 5,000 = $80,000 more is included in ending inventory under absorption. Under variable, this $80,000 is expensed, reducing net income.

6. Throughput costing is known as an extreme version of variable costing. It is also known as super-variable costing. Under throughput costing, direct material is the only inventoriable cost. Direct labor and variable manufacturing overhead are treated as period costs. Fixed manufacturing overhead is treated as a period cost, the same as under variable costing.

Answer: Question 1.10 - Lawton Industries

1. Average investment in operating assets employed:

Balance end of current year	$12,600,000
Balance end of previous year*	12,000,000
Total	$24,600,000
Average operating assets employed**	$12,300,000

*$12,600,000 ÷ 1.05
**$24,600,000 ÷ 2

ROI = Income from operations ÷ Average operating assets employed
= $2,460,000 ÷ $12,300,000
= .20 or 20%

2. Residual Income:

Income from operations	$2,460,000
Minimum return on assets employed*	1,845,000
Residual income	$ 615,000

*$12,300,000 x .15

3. Yes, Presser's management probably would have accepted the investment if residual income were used. The investment opportunity would have lowered Presser's ROI because the expected return (18%) was lower than the division's historical returns as well as its actual ROI (20%) for the year just ended. Management rejected the investment because bonuses are based in part on the performance measure of ROI. If residual income were used as a performance measure (and as a basis for bonuses), management would accept any and all investments that would increase residual including the investment opportunity rejected in the year just ended.

4. Presser must control all items related to profit (revenues and expenses) and investment if it is to be evaluated fairly as an investment center by either the ROI or residual income performance measures. Presser must control all elements of the business except the cost of invested capital, that being controlled by Lawton Industries.

Answer: Question 1.11 – SieCo

1. SieCo is currently using a plant-wide overhead rate that is applied on the basis of direct labor costs. In general, a plant-wide manufacturing overhead rate is acceptable only if a similar relationship between overhead and direct labor exists in all department, or the company manufactures products which receive proportional services from each department.

   In most cases, departmental overhead rates are preferable to plant-wide overhead rates because plant-wide overhead rates do not provide

   - a framework for reviewing overhead costs on a departmental basis, identifying departmental cost overruns, or taking corrective action to improve departmental cost control.

   - sufficient information about product profitability, thus, increasing the difficulties associated with management decision-making.

2. In order to improve the allocation of overhead costs in the Cutting and Grinding Departments, SieCo should

   - establish separate overhead accounts and rates for each of these departments.

   - select an application basis for each of these departments that best reflects the relationship of the departmental activity to the overhead costs incurred, i.e., machine hours, direct labor hours, etc.

   - identify, if possible, fixed and variable overhead costs and establish fixed and variable overhead rates for each department.

3. In order to accommodate the automation of the Drilling Department in its overhead accounting system, SieCo should

   - establish separate overhead accounts and rates for the Drilling Department.

   - identify, if possible, fixed and variable overhead costs and establish fixed and variable overhead rates.

   - apply overhead costs to the Drilling Department on the basis of robot or machine hours.

4. Because SieCo uses a plant-wide overhead rate applied on the basis of direct labor costs, the elimination of direct labor in the Drilling Department through the introduction of robots may appear to reduce the overhead cost of the Drilling Department to zero. However, this change will not reduce fixed manufacturing expenses such as depreciation, plant supervision, etc. In reality, the use of robots is likely to increase fixed expenses because of increased depreciation expense. Under SieCo's current method of allocating overhead costs, these costs will merely be absorbed by the remaining departments.

Answer: Question 1.12- Bellaton

1.

	Flexible Budget	
Units Sold	€ 18,000	
Revenues	1,530,000	=18,000×(1,360,000/16,000)=18,000×85
Variable Costs		
Direct Material	(756,000)	=18,000×(672,000/16,000)=18,000×42
Direct Labor	(270,000)	=18,000×(240,000/16,000)=18,000×15
Var. Overhead	(144,000)	=18,000×(128,000/16,000)=18,000×8
Cont. margin	360,000	
Fixed costs	(215,000)	
Operating Income	€ 145,000	

2.

	Actual Results	Flexible Budget	Variances
Units Sold	€ 18,000	€ 18,000	0
Revenues	1,512,000	1,530,000	(18,000)
Variable Costs			
Direct Material	(792,000)	(756,000)	(36,000)
Direct Labor	(252,000)	(270,000)	18,000
Var. Overhead	(144,000)	(144,000)	0
Cont. margin	324,000	360,000	(36,000)
Fixed costs	(210,000)	(215,000)	5,000
Operating Income	€ 114,000	€ 145,000	(31,000)

Revenues: unit price < €85
Direct Material: unit purchase price > €42
Direct Labor: labor rate < €15
Fixed costs: actual fixed costs lower than expected

3. Budgets promote coordination and communication among subunits within the company. They provide a framework for judging performance and they motivate managers and other employees.
Budgets can be time consuming, require everyone's participation, and require adaptability to changing circumstances.

4. A responsibility center is a part, segment, or subunit of an organization whose manager is accountable for a specified set of activities. The types of responsibilities centers include:
   - Cost center – manager responsible for costs only
   - Revenue center – manager is accountable for revenues only
   - Profit center – manager is accountable for revenues and costs
   - Investment center – manager is accountable for investments, revenues, and costs

   The types of responsibility centers in the example include marketing and facilities departments which are cost centers and the sales operations team which is a revenue center.

5. Sales-volume variance is the difference between flexible budget units and the static budget units multiplied by the budgeted unit contribution margin.

   Sales-price variance is the difference between actual price and budgeted price multiplied by the actual quantity of input.

Answer: Question 1.13- Ecoclock

1. Center D would be charged for the variable cost of the units, plus a portion of the fixed costs equal to the total costs divided by the number of units produced:
   $6 + $150,000 / 22,500 =$12.67

2. Using a "practical capacity" method, Center A's fixed costs would be allocated based not on the number of units produced, but rather on the number of units that it is capable of producing (40,000).
   $6 + $150,000 / 40,000 = $9.75

3. 2,500 unit reduction in the number of units produced by Center B, would increase the per-unit allocation of fixed costs.
   Per unit cost based on production of 22,500 units:
   $6 + $150,000 / 22,500 =$12.67

4. Per unit cost based on production of 20,000 units:
   $6 + $150,000 / 20,000 =$13.50

   Thus, C's units costs would increase by $0.83

5. Unused central capacity could be not allocated to operating centers, but to some centralized expense. Management could be evaluated by other measures, diluting the over capacity.

6. Other evaluation measures could include quality, measured by customer satisfaction, or reductions in returns, warranty claims; financial, measured by reductions in variable costs, increases in sales; innovations; measured by new product features, or manufacturing improvements.

Answer: Question 1.14 - Edge

1. Transfer pricing is the price one subunit department or division charges for a product or service supplied to another subunit of the same organization.

   The objectives of transfer pricing are to focus managers' attention on their own subunits and to plan and coordinate actions across different subunits to maximize operating income for the company as a whole. Transfer prices should help achieve a company's strategies and goals and fit its organizational structure. They should promote goal congruence and a sustained high level of management effort. The transfer price should also help top management evaluate the performance of individual subunits and their managers.

2. The three main ways to determine transfer prices are as follows:
   - Market based transfer prices – top management may choose to use the price of a similar product or service publicly listed, for example in a trade association web site. Also, top management may select, for the internal price, the external price that a subunit charges to outside customers.
   - Cost based transfer prices – top management may choose a transfer price based on the cost of producing the product in question. Examples include variable production cost, variable and fixed production costs, and full cost of the product. Full cost of the product includes all production costs plus costs from other business functions (R&D, design, marketing, distribution, and customer service). The cost used in cost-based transfer prices can be actual cost or budgeted cost. Sometimes, the cost-based transfer price includes a markup or profit margin that represents a return on subunit investment.
   - Negotiated transfer prices. In some cases, the subunits of a company are free to negotiate the transfer price between themselves and then to decide whether to buy and sell internally or deal with external parties. Subunits may use information about costs and market prices in these negotiations, but there is no requirement that the chosen transfer price bear any specific relationship to either cost or market price data. Negotiated transfer prices are often employed when market prices are volatile and change constantly. The negotiated transfer price is the outcome of a bargaining process between selling and buying subunits.

3. The advantages and disadvantages to each method are as follows.
   Market based transfer prices generally lead to optimal decisions when three conditions are satisfied. The market for intermediate product is perfectly competitive, interdependencies of subunits are minimal and there are no additional costs or benefits to the company as a whole from buying or selling in the external market instead of transaction internally.

   - Achieves goal congruence when markets are competitive
   - Is useful for evaluation subunit performance when markets are competitive.
   - Motivates management effort
   - preserves subunit autonomy when markets are competitive.
   - However, market may or may not exist, or markets may be imperfect or in distress.

   Cost based transfer prices are helpful when market prices are unavailable, inappropriate, or too costly to obtain – for example, when the product is specialized or when the internal product is different from the products available externally in terms of quality and customer service.

- It often but not always achieves goal congruence.
- It is difficult unless transfer prices exceeds full cost and even then is somewhat arbitrary for evaluating subunit performance.
- It motivates management effort when based on budgeted costs, less incentive to control costs if transfers are based on actual costs.
- Does not preserve subunit autonomy because it is rule based
- It is useful for determining full cost of products and services and it is easy to implement

  Negotiated transfer prices result from a bargaining process and preserves division autonomy because the transfer price is the outcome of negotiations. Each division manager is motivated to put forth effort to increase division operating income but has a disadvantage of the time and energy spent on the negotiation.
- Achieves goal congruence
- It is useful for evaluating subunit performance but transfer prices are affected by bargaining strengths of the buying and selling divisions.
- It motivates management effort
- It preserves subunit autonomy because it is based on negotiations between subunits
- Bargains and negotiations take time and may need to be reviewed repeatedly as conditions change.

4. This company should use market-based transfer prices as market for the products is competitive, interdependencies of subunits are minimal and there are no benefits to the company as a whole from buying or selling in the external market instead of transaction internally.

5. Since management is often evaluated on the basis of subunit profits, they often care deeply about how transfer prices are set. Transfer prices can reduce income tax payments by reporting more income in low tax rate countries and less income in high tax rate countries. However, the tax regulations of different countries restrict the transfer prices that companies can use. Tariffs and customs duties levied on imports can create similar issues. Companies have incentives to lower transfer prices for products imported in to a country to reduce tariffs and customs duties.

6. The four types of responsibilities centers are
   Cost center – the manager is accountable for costs only
   Revenue center – the manager is accountable for revenues only
   Profit center – the manager is accountable for revenues and costs
   Investment center – the manager is accountable for investments, revenues and costs

Answer: Question 1.15 - Zavod

1. The only cost treated differently between the two methods is fixed overhead. Under both methods, direct materials, direct labor, and variable overhead are considered product costs, and are assigned to the units produced. Those costs remain as an asset as the cost of ending inventory on the balance sheet for unsold units. Those costs attached to units that have been sold appear as expenses in the income statement. Under both methods, both variable and fixed selling and administrative costs are expensed as incurred. The only cost treated differently between the two methods is fixed overhead. Under absorption costing, fixed overhead is considered a product cost. Each finished unit absorbs a portion of the fixed overhead cost. Under variable costing, fixed overhead is treated as period cost, and is expensed as incurred.

2. Under absorption costing, each unit will be carried in finished goods inventory at $11.25:

Direct materials	$4.00 per finished unit
Direct labor	$3.25 per finished unit
Variable Overhead	$1.15 per finished unit
Fixed Overhead	$2.85 per finished unit
Total	$11.25

3. Under variable costing, each unit will be carried in finished goods inventory at the variable production cost of $8.40:

Direct materials	$4.00 per finished unit
Direct labor	$3.25 per finished unit
Variable Overhead	$1.15 per finished unit
Total	$8.40

4. Absorption costing income statement:

Sales (10,000 x $32)		$320,000
Cost of goods sold (10,000 x $11.25)		112,500
Gross Profit		$207,500
Selling and administrative		
Variable (10,000 x $5.00)	$50,000	
Fixed	81,000	131,000
Operating income		$ 76,500

Variable costing income statement:

Sales (10,000 x $32)		$320,000
Variable cost of goods sold (10,000 x $8.40)		84,000
Manufacturing contribution margin		$236,000
Variable selling and administrative (10,000 x 5.00)		50,000
Contribution margin		$186,000
Fixed costs:		
Overhead (11,000 x $2.85)	$31,350	
Selling and administrative	81,000	112,350
Operating income		$ 73,650

5. In years when the number of units produced is greater than the number of units sold, such as in this first year, absorption costing net income will be higher than variable costing net income because under absorption costing, some of the fixed overhead will be associated with finished goods, an asset on the balance sheet. Under variable costing, all of the fixed overhead is expensed.

6. Absorption costing is required under GAAP because in theory, all costs of production should be treated as product costs, associated with finished goods inventory and carried as an asset until the units are sold. Fixed overhead is a necessary cost of production and is thus treated as an inventoriable cost.

7. Variable costing is more appropriate for internal decision making, because it is not affected by the level of production, as is absorption costing. Under absorption, net income will increase as more units are produced due to the inventorying of fixed overhead. Such is not the case under variable costing, where fixed overhead is expensed as incurred.

Answer: Question 1.16 – Blue Mountain

1. Cost center: manager is responsible for controlling only the costs of the segment.
Revenue center: manager is responsible for controlling only the revenues of the segment
Profit center: manager is responsible for controlling both the revenues and the costs of the segment.
Investment center: manager is responsible for controlling the revenues, costs and the investment of assets of the segment.

2. The three retail divisions at Blue Mountain represent profit centers.

3. When evaluating the performance of profit centers, use a segmented income statement approach which calculates segment margin. Under this approach, costs that are controllable by the manager are separated from the costs that are not controllable. For Blue Mountain, only the variable expenses and traceable fixed costs are the responsibility (or controllable) by the division manager. Common fixed costs, such as the corporate headquarters, should not be allocated to the division when evaluating performance.

4. Contribution Margin by Division

	Apparel	Shoes	Sports Equip.	Total
Sales	$3,750,000	1,500,000	2,250,000	7,500,000
Less variable expenses	1,500,000	500,000	2,000,000	4,000,000
Contribution margin	2,250,000	1,000,000	250,000	3,500,000

5. Sports Equipment is the unprofitable division. This division's contribution margin is not high enough to cover its traceable fixed expenses.

	Apparel	Shoes	Sports Equip.	Total
Sales	$3,750,000	1,500,000	2,250,000	7,500,000
Less variable expenses	1,500,000	500,000	2,000,000	4,000,000
Contribution margin	2,250,000	1,000,000	250,000	3,500,000
Less traceable fixed expenses	1,000,000	750,000	1,500,000	3,250,000
Segment margin	1,250,000	250,000	(1,250,000)	250,000
Less common fixed expenses				500,000
Net loss				(250,000)

To improve this division's performance, Blue Mountain needs to either increase the division's contribution margin or decrease the traceable fixed expenses. To increase the contribution margin, either the sales price needs to increase, or the variable expenses need to decrease. To decrease traceable fixed expenses, management should analyze all the fixed expenses traced to the division to see if they could be reduced or eliminated.

6. Contribution margin is the difference between total revenues and operations costs. It explains why operating income changes as the number of units sold changes. It helps to evaluate if sales volume is sufficient to insure profitability. Contribution margin contributes to covering fixed costs and it is a critical component in breakeven (cost/volume/profit analysis) to determine if sales are sufficient.

Answer: Question 1.17 – Stark

1. The sales budget is often regarded as the cornerstone of the entire budget. A firm attains its desired goals through sales. Almost all activities of a firm emanate from efforts to attain sales goals and sales growth. An inaccurate sales forecast can render the entire budget a futile exercise and imposes costly expenses to the company as well as its suppliers.

2. The sales budget should consider:
   - Current sales levels and sales trends of the past few years
   - General economic and industry conditions
   - Competitors actions and operating plans
   - Pricing policies
   - Credit policies
   - Advertising and promotional activities
   - Unfilled back orders.

3. The company failed to consider competitors actions as well as the general conditions of the company's retail locations. The impact was missed sales, over-production and excess inventory.

   The company did not prepare the budgets in the right order. Sales budget should be set first based on sales forecast then the production budget will be set based on budgeted sales, beginning inventory and desired ending inventory. The company sets sales targets based on the number of units they expected to produce which is reverse from the correct order and failed to consider beginning and desired ending inventory.

4. Authoritative budgeting is a top-down budgeting process where top management prepares the budget for the entire organization, including lower level operations. It provides better decision-making control than participative budgets. Top management sets overall goals and prepares a budget for operations to attain the goals. However, this type of budget often lacks the commitment of lower level managers and employees responsible for implementing. Also, it doesn't communicate, is dictates and people are more likely to resent orders and are more willing to work to attain goals they perceive as their own.

   Participative budgeting is a bottom up approach that involves the people affected by the budget, including lower level employees in the budgeting process. It is a good communications device. The process of preparing a budget often gives top management a better grasp of the problems their employees face and provides the employees a better understanding of the dilemmas that the top management deals with. A participative budget is more likely to gain employee commitment to fulfill the budgetary goal unless controlled, though; it can lead to easy budget targets or targets not in compliance with the organization's strategy or budget. Effective budgeting processes often combine both approaches.

   This company used authoritative budgeting, as they did not talk to lower level managers, which may have helped them identify the new competitors and construction issues.

5. The budgeting processes should include the formation of a budget committee, determination of the budget period, specification of budget guidelines, preparation of the initial budget proposal, budget negotiation, review, and approval, and budget revisions.

   A budget committee oversees all budget matters and usually consists of at least one senior manager. The committee issues budget guidelines based on plans emanating from the reviews of the firm's strategy, external and internal factors goals and objectives of the budget period, and experience gained from implementing the current budget. Based on the budget guidelines, managers prepare initial budgets and discuss and negotiate their budget proposal with superiors. The budget committee or the chief executive officer gives the final approval of the budget.

6. Common factors of successful budgets share many factors. Most important is acceptance and support of the budget by all managers and employees. A successful budget often becomes a personalized budget of the people who have the responsibility for carrying it out because they feel it is their budget, not a detached, impersonal institutional budget. They own the budget and are the ones who bring the budgeted goal to fruition. A budget is more likely to be successful if employees perceive it as a planning and coordinating tool to help them to do their jobs, not as a pressure device to squeeze the last drop of their energy out of them. Nor is a budget likely to be an asset if it is viewed as a tool for management to place blame. A successful budget is a motivating device that helps people work toward the goals of the organization and a better operating result. It is never used as an excuse for not doing things strategically important to the organization. The expression "not in the budget" never crops up at an organization with a successful budget. A successful budget always has technically correct and reasonably accurate numbers. A technically incorrect budget is likely to be ignored. A budget with inaccurate numbers will fail to gain confidence and be rendered useless.

7. Excess inventory impacts financials in the following ways:
   - Consuming large warehouse space.
   - Costing additional fees until use or sale of the inventory, e.g. warehousing fees.
   - Increasing the risk of inventory obsolesces.
   - Using company's funds.

Answer: Question 1.18 – Rosewood Designs

1. Rosewood's current job order costing system is used for custom, unique production where the co sts of each job can be traced directly to the unique order.

2. A job order system would not be adequate for costing in a mass production environment. When producing large quantities of mass-produced homogenous products, the appropriate costing system is process costing. This change in Rosewood's business would completely change its costing system.

3. Work in process beginning balance $33,000
   Direct materials 3,000
   Direct labor 7,000 ($7 x 1,000 hours)
   Manufacturing overhead 3,000 ($3 x 1,000 hours)
   Total job cost $46,000
   $46,000/2,000 units = $23 per unit

4. Variable costing in which the cost assigned to a product includes only the cost of inputs that vary directly with the number of units produced. Only the directly variable product costs are charged to inventory, such as direct materials, direct labor, and variable manufacturing overhead costs.

5. Learning Curve is a mathematical expression of the phenomenon that incremental unit costs to produce decrease as managers and labor gain experience from practice and as better methods are developed.

6. 80% learning curve:

Units	Cumulative Avg per unit	Cumulative total hrs	Time on most recent
2,000	1.75*	3,500 hrs	3,500 hrs
4,000	1.40**	5,600	2,100
8,000	1.12***	8,960	3,360^

*3,500 hours/2000 units = 1.75 hrs per unit
**1.75 x 80% = 1.4
***1.4 x 80% = 1.12
^8,960 – 5,600 = 3,360 hours spent on last 4,000 units
3,360 hours / 4,000 units = .84 hours per unit x $7 per hour = $5.88 direct labor budget per unit

Answer: Question 1.19 – Maxwell Mechanical

1. Management by exception means management focuses attention on areas that are not performing or meeting expectations. Management spends less time on areas that are operating effectively. Maxwell can use management by exception by focusing on the unfavorable direct materials usage variance. It could also look at units serviced or total labor costs if they varied significantly from budget or planned results.

2. Total direct labor rate variance $200F

	AQxAP	AQxSP	Variance
HVAC technicians	1900x$32=$60,800	1900x$30 = $57,000	$3,800U
Apprentice	4000x$13=$52,000	4000x$14=$56,000	$4,000F
			$200F

3. Total direct labor efficiency variance $5000U

	AQxSP	SQxSP	Variance
HVAC technicians	1900x$30=$57,000	*1500x$30 = $45,000	$12,000U
Apprentice	4000x$14=$56,000	**4500x$14=$63,000	$7,000F
			$5,000U

*SQ = 1500 x 1 hour
**SQ=1500 x 3 hours

4. Maxwell has two substitutable labor inputs. The labor efficiency variance could be further analyzed by breaking down the variance into the mix variance and yield variance. The mix variance analyzes the difference between actual and standard input proportions. The yield variance analyzes the difference between actual and standard inputs used.

5. Favorable direct materials variance combined with unfavorable direct materials variance: Maxwell purchased cheaper, lower quality materials. These lower quality materials caused increased waste. Since the unfavorable usage variance was greater than the favorable direct materials variance, Maxwell should correct purchasing policies to ensure quality materials are purchased.

Answer: Question 1.20 – Holt Manufacturing

1. Predetermined overhead rate = estimated total overhead / estimated total allocation base
=$300,000/48,000 hours = $6.25 per hour

Applied overhead = predetermined overhead rate x actual number of hours
=$6.25 x 41,000 = $256,250

Actual overhead $260,000 – $256,250 = $3,750 under-applied

2. The two methods for allocating the balance of manufacturing overhead are pro-rata (also known as proration) and writing off directly to cost of goods sold. Under proration, the under or over allocated overhead is allocated between the ending balances of work-in-process inventory, finished goods inventory and cost of goods sold on a pro-rata basis using ending balances. The final balance of manufacturing overhead is zero after the entire amount is transferred proportionately to these accounts. Note you do NOT include raw materials in the allocation since no overhead is assigned to raw materials inventory. Under the write off to cost of goods sold method, the total of the under or over applied overhead is all transferred to cost of goods sold.

3. Selection of the method to use should be based on management's knowledge of what caused the under or over allocation during the period. Materiality should also be considered. In Holt's case, the under applied overhead is $3,750, a relatively small amount compared to the size of the operations ($1,500,000 sales). The company maintains relatively small levels of inventory compared to the cost of goods sold (Work in process of $22,000; Finished goods $14,500 compared to unadjusted cost of goods sold $970,000). Holt should allocate the under applied overhead directly to cost of goods sold.

4. Preliminary results prior to adjusting for the under/over applied overhead show the company as profitable for the first year. Sales $1,500,000 – unadjusted cost of goods sold $970,000 – selling and administrative $528,000 = net income $2,000. In closing out the under applied overhead directly to cost of goods sold, it will increase (debit) cost of goods sold. The closing entry will credit manufacturing overhead. By increasing cost of goods sold, the net income (profitability) of the company decreases. In this case, while the adjustment is small, it is enough to move the company from a net income to net loss. After adjustment, the company's results will be:

Sales	$1,500,000
− cost of goods sold	(973,750)
− selling & administrative expenses	(528,000)
= net loss	($1,750)

5. Activity based costing (ABC) refines a costing system by identifying individual activities as the fundamental cost objects (Horngren 146). Holt would be able to identify cost objects and various cost pools for overhead. Using ABC, Holt could refine and improve their cost analysis by using different cost pools and different cost drivers for various overhead activities. ABC cost drivers have a better cause and effect relationship with costs in the cost pool (Horngren 154). ABC provides a more accurate costing that will provide better information for decision making. The cost-benefit of ABC should be considered as the cost of implementing such a system can be

significant. If machine hours truly drive most of the overhead costs or Holt produces only one product, ABC might not be beneficial.

6. The key to monitoring the business's performance with budgets will be to use flexible budgeting. As activity levels could change and vary from the original master budget plans, Holt should use flexible budgeting to compare actual results to a budget based on actual production levels. "Managers can use the flexible budget as part of the planning process to predict how the budget will change under various scenarios, such as a "worst case" or "best case" scenario. They can also use the flexible budget as a benchmark for evaluating performance after the fact, or as part of the control process."

Answer: Question 1.21 – TOR Industries

1. Operating profit margin percentage = Operating Income/ Net Revenue
   Customer A operating profit margin percentage = $292,332/$675,000 = 43.31%
   Customer B operating profit margin percentage = $221,440/$508,000 = 43.59%
   Customer C operating profit margin percentage = $187,816/$425,000 = 44.19%

   Customer C has the highest customer operating income margin percentage.

2. The higher percentage is due to having the lowest level of discounts per unit, having larger order sizes (therefore lower shipping costs per unit and fewer order taking charges) and lower selling costs per unit sold.

3. For the Sales Department to deliver $25,000 more of gross profit at a 50% gross profit margin they would need to increase net revenue by $25,000/50% = $50,000.

4. Product handling - costs can be reduced by working with customer to order in full pallet quantities (reducing pallet breakdowns and re-palletizing costs, and the number of pallets used in shipping). Also, fewer orders reduces the paperwork in the warehouse.

   Order taking – fewer purchase orders reduces the amount of administrative work to support the picking and shipping of products, as well as administrative overhead related to order-entry, accounts receivable and credit and collection work. There may be savings opportunities from automating the ordering process (EDI, linked systems).

   Delivery – by filling trucks and minimizing the number of trips, shipping labor, fuel, fleet maintenance, and delivery wait-times and unloading costs can be reduced.

   Rush orders – by working with customers on better managing inventory levels, rush orders can be reduced or eliminated, resulting in lower costs and higher sales (from reduced stock-outs).

   Visits to customers – by working more closely with customers there is opportunity to increase profitability for both the customer and supplier. Spending more could make sense here if it leads to deepening the relationship with customer to identify shared savings opportunities. With mature customer relationships, visits to customers add value if they are fact based and seek to deepen relationship by more closely tying the supplier to the customers processes and aim to reduce costs for both sides and expand margins.

5. Customer C should be ordering 50 times per year (25,000 units per year / 500 units per shipment).

6. From the customer's point of view, more frequent ordering helps to minimize the amount of stock needed to be kept on hand, reducing carrying costs. However, this needs be weighed against the costs of re-order and potential lost sales and/or production down-time from out-of-stock events.

Answer: Question 1.22 – Alington Industries

1. Unit contribution = {$25,000,000 – [$16,500,000 + ($2,700,000 x .40)]} ÷ 1,484,000
   = $7,420,000 ÷ 1,484,000
   = $5.00 per unit

2. Average assets = [$15,750,000 + ($15,750,000 ÷ 1.05)] ÷ 2
   = ($15,750,000 + $15,000,000) ÷ 2
   = $15,375,000

   ROI = Operating income ÷ average assets
   = $1,845,000 ÷ $15,375,000
   = 12%

   Residual income = Operating income – min. required return on average assets
   = $1,845,000 – ($15,375,000 x .11)
   = $153,750

3. Raddix management would be more likely to accept the proposed capital acquisition as residual income was used as a performance measure because the acquisition would have increased both the division's residual income and the management bonuses. Using residual income, management would accept any investment with a return higher than 11% as all would increase the dollar value of residual income. With ROI as a measurement, Raddix would reject any investment with a return lower than 12% as this would lower overall return and lower bonuses.

4. RI is a flat dollar amount which makes comparing business units of different sizes difficult. ROI may lead managers to reject investment opportunities with a lower ROI which is lower than current or targeted RLI but is strategically beneficial to the organization as a whole.

   Manager will tend to minimize the investment base which includes discretionary costs such as research and development, quality control, maintenance, human resource development, and advertising and promotion. Cutting these costs will increase short-term ROI and RI but may create long-term problems for the department or organization.

5. Three other types of responsibility centers are cost center, revenue center, and profit center.

6. To be evaluated fairly as an investment center, Raddix must control all items related to profit and investment. The division should control all elements of the business except the cost of invested capital which would be controlled by Arlington.

Answer: Question 1.23 – AccuBrake

1. Reporting should include significant risk exposures and control issues, corporate governance issues, and other matters needed or requested by the Board and senior management. The report should highlight significant engagement observations and recommendations. Significant engagement observations are those conditions that in the judgment of the chief audit executive, could adversely affect the organization. Significant engagement observations may include conditions dealing with irregularities, illegal acts, error, inefficiency, waste, ineffectiveness, conflicts of interest, and control weaknesses. After reviewing such conditions with senior management, the chief audit executive should communicate significant engagement observations and recommendations to the board.

2. Yes, the audit executive should report the conflict of interest since it is a conflict of interest and resulting in material overpayments.

3. The Board of Directors' responsibilities include the following:

   - to be a review organ – without such an organ, top management has no way to control itself.
   - To remove top management when it fails to perform. A board capable of removing nonperforming top management has real power.
   - To be a public relations and community relations organ. The board needs easy and direct access to the various publics and constituents.
   - To develop policy and implement procedures necessary to limit conflicts of interest and to ensure compliance with both the law and ethical principles at all levels of the enterprise.
   - To ensure that the corporate compliance programs are in place.

   The board is obligated to exercise a good faith judgment that the corporation's information and reporting system is, in concept and design, adequate to assure that appropriate information will come to its attention in a timely manner as a matter of ordinary operations. There is a presumption that in making a business decision that the directors of a corporation will act on an informed basis, in good faith, and in the honest belief that the action taken was in the best interest of the company.

4. Section 201

   Services Outside the Scope of Practice of Auditors – Prohibited Activities

   An accounting firm providing audit services to a client can't perform any of the following:

   - Bookkeeping or other services related to the accounting records of financial statements.
   - Financial information systems design and implementation
   - Appraisal or valuation services, fairness opinions, or contribution-in-kind reports
   - Actuarial services
   - Internal audit outsourcing services
   - Management functions or human resources
   - Broker or dealer, investment advisor, or investment banking services
   - Legal services and expert services unrelated to the audit

- Any other service determined by the Public Company Accounting Oversight board as unallowable

5. Section 302: Corporate Responsibility for Financial Reports
   The CEO and CFO of each public company issuing financial reports must prepare a statement that accompanies the audit report to certify the appropriateness of the financial statements and disclosures contained in the periodic report and that those financial statements and disclosures fairly present, in all material respects the operations and financial condition of the issuer. The CEO and CFO must knowingly and intentionally violate this requirement in order to be liable.

   The company will not be complaint if the Chairman of the board signs off on the financial statements since Sarbanes-Oxley requires the CEO and CFO to make this certification, not the Chairman of the Board.

6. The act in general says that internal accounting controls shall be examined and if material weaknesses are found, controls must be strengthened, or additional ones installed. Bribes or questionable conduct shall cease, and funds for such bribes and conduct must not be made available. The controls part requires that companies shall

   a) make and keep books, records and accounts, which, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the issuer and

   b) devise and maintain a system of internal accounting controls sufficient to provide reasonable assurances that

      i. transactions are executed in accordance with management's general or specific authorization and
      ii. transactions are recorded as necessary to 1) permit preparation of financial statements in conformity with generally accepted accounting principles or any other criteria applicable to such statement and 2) to maintain accountability for assets
      iii. Access to assets is permitted only in accordance with managements general or specific authorization and
      iv. The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any difference.

   The act gives management and internal auditors a wider concern: devising and maintaining a system of internal accounting controls to provide reasonable assurance that transactions are authorized and accounted for and that assets are safeguarded.

7. In this scenario, the chief audit executive found that the inventory was not properly safeguarded, and they need to add additional procedures to ensure that their assets are properly safeguarded. In addition, they should add some additional authorizations or other procedures to prevent the overpayment and conflict of interest for the supplies.

Answer: Question 1.24 – Great Rivers International

1. Master budget is an organization's operating and financing plan for the upcoming period; it translates short-term objectives into action steps.

   The budgeting process usually includes the formation of a budget committee; determination of the budget period; specification of budget guidelines; preparation of the initial budget proposal; budget negotiation, review, and approval; and budget revision.

2. The sales budget has three components: forecasted sales volume, forecasted sales mix, and budgeted selling prices.

   The role of Sales budget is often regarded as the cornerstone of master budget at any company, and Nile River Company is not an exception. In budgeting and planning process, sales budget should be completed first. After preparation of sales budget, the production budget and all the other budgets for the company are derived from the sales budget. If sales are expected to be low, there will be no need for much inventory, many sales manpower, and so on. On the other hand, if sales are expected to be high, there will be more need for these items.

3. The budgeted production quantity can be calculated according to the following formula:
   Budgeted production (in units) = Budgeted sales (in units) + Desired ending inventory (in units) – Beginning inventory (in units)

   Budgeted sales (in units) = 10,000
   Desired ending inventory (in units) = next year sales (10,000*1.05) multiplied by 30%
   Beginning inventory (in units) will be zero since it's the first year of operation
   Budgeted production (in units) = 10,000+ 10,000*1.05*30% – 0 = 13,150

4. Other than sales, the other two budgets that should be prepared in order to prepare budgeted net operating income before interest expense and income tax are:

   - Cost of goods sold budget
   - Selling and general administrative expenses budget

5. The success of a budget program may be determined by how the budget is developed.

   - In most successful budget programs, department managers participate with upper management in preparing their own budgets. Department managers are more likely to have close knowledge of their areas of responsibility and, therefore, budget estimates may be more reliable. When managers are involved in preparing their budgets, they are more likely to believe their judgments are valued by top management and are more likely to be committed to meeting the budget.
   - The success of a budget program also depends on whether top management believes the budget program is a vital part of the company's activities and how top management uses budget information.

- Rather than using the budget as something to be achieved at all costs, management should use the budget as a means of establishing goals, measuring results and determining areas that need attention. Budgets should establish achievable but challenging targets.
- Sufficient lead time is critical because the preparation of a budget usually takes several months.

Answer: Question 1.25 – Sara Hall

1. Characteristics that define successful budgeting processes include:

    - top management involvement
    - participative or bottom-up approach which allows employees throughout the organization to have input on the budget-setting process
    - promoting coordination between functional areas of the organization
    - providing communication and feedback throughout the process
    - using different budgets for planning than for performance evaluations to help alleviate some of the behavioral issues with the budgeting process
    - using budgeting to motivate employees
    - setting clear goals and expectations at the beginning of a process

2. Ideal standards, also known as theoretical standards, can only be achieved under perfect conditions. Currently attainable standards, also known as practical standards, can be achieved under normal conditions. Normal conditions allow for reasonable downtime such as shift changes, machinery maintenance, and employee training.

3. Machines need downtime for maintenance. Workers need downtime for rest. Set-ups for new production runs may take time. Materials, machines may break; operator error may occur.

4. Stock-outs means disappointed customers, sales lost to competitors. Stock-outs may lead to rush production, incurring overtime, more errors, rush shipments of materials.

5. Budgetary slack occurs when employees attempt to cushion budgets by either understating projected sales or overstating projected costs. Employees do this in order to make sure they will meet the budget later at the end of the period. Employees may also do this in order to appear that they have exceeded expectations. Budgetary slack will hurt the organization because it misleads management about the true position of the organization. Budgetary slack can lead to inefficient resource planning and poor coordination of activities within the organization.

    Business can reduce the incidence and effect of budgetary slack by:

    - Use budgets for planning, but not evaluation.
    - Give rewards for accurate, as well as high budgets.
    - Use additional measures for evaluation in additional to budget success.
    - Have managers learn more about subordinates' day-to-day work.
    - Use external benchmark performance measures.

6. Production Budget for November

Anticipated sales (in units)	12,000
Add: desired ending inventory (30% x Dec sales 15,000)	4,500
Less: beginning inventory (30% x Nov sales 12,000)	3,600
Units to produce	12,900

Answer: Question 1.26 – Arklan Production

1. A plantwide allocation system may work well for some companies but may end up distorting product costs if different departments incur different amounts of manufacturing overhead or if different products use departments to a different extent. When either or both of these conditions exist, the plantwide overhead rate will likely distort product costs, allocating higher than actual costs to departments that do not incur certain costs and higher than actual costs to products that do not use all departments as part of production. It usually does not provide valuable information to the cost control and improvement of internal controls. It can hardly motivate department managers to achieve goals of top management, then fairly determine the rewards earned by the managers.

2. A departmental overhead rate does a better job of matching each department's overhead costs to the products that use the department's resources. It provides more valuable information to the cost control and improvement of internal controls. It also provides the right incentive for managers to make decisions that are consistent with the top management and evaluate their performance fairly.

3. The old manufacturing system was highly manual and direct labor hours were directly related to the actual work that put into each product. Since the new system is automated, there will be significantly less direct labor hours and the hours may not reflect the true costs of the product.

4. Two potential bases for overhead allocation are machine hours and production units through each department. If all products through a department require machine hours, this may be a good base for allocation. If throughput units use departmental resources equally, this may be a good base.

5. Activity-based costing systems focus on activities rather than on departments. Costs are allocated to products based on the activities that are required to complete each product. In ABC, nonmanufacturing as well as manufacturing costs may be assigned to products and some manufacturing costs may not be included in product costs. For example, costs related to sales, distribution and servicing products may be included in product costs while costs that are not affected by which products are made will not be allocated. Traditional cost allocation usually picks one or two predetermined plant-wide overhead rates to allocate overhead costs.

6. Absorption costing includes both variable and fixed manufacturing expenses while variable costing only includes variable manufacturing costs. Variable costing treats fixed manufacturing costs as period costs.

   Variable costing is more suitable for internal decision making since in the short run, fixed manufacturing costs are out of the control of management. Focusing on variable costs can help them decrease wastes, improve efficiency and increase profit. Also using variable costing for internal decision making can prevent management from manipulating income by simply increasing inventory levels.

7. Beginning an ABC system requires significant resources and must be routinely maintained to keep the data driving the system current. Additionally, the ABC system will not agree with financial numbers produced by the traditional costing system and, thus may be questioned by

department managers, sales personnel and management who are used to the old system. If a company's products do not differ significantly in the resources used, the additional costs of ABC may not be worth the additional costs.

Answer: Question 1.27 – Greeting Card Stores

1. The objective of a disaster recovery plan is to ensure that a company will be able to operate despite any interruptions such as power failures, system crashes, natural disasters, etc. It is a process and set of procedures that organizations follow to resume business after a disruptive event. Important components include:

   - Disaster recovery team, including a primary leader and an alternate leader.
   - Designation of a specific backup site to use for alternate computer processing – i.e. hot site or cold site.
   - Test, document and update the plan as required. Review the plan continuously.
   - Also include backups for hardware.

2. The regular backup and proper storage of program and data files will reduce financial risk and business risk. Misstatements might arise if data is lost due to inadequate backing up. Loss of data can also cause severe interruptions of business operations and loss of income.

3. A hot site is fully operational and can come online more or less immediately. A flying-start hot site has the latest data and software, so it can switch on in only a few seconds after the main site goes down.

   A cold site is basically a bare facility, where hardware can be installed relatively quickly (days not minutes). A warm site is somewhere in between, with some communications and networking capabilities, but requiring some hardware / software installation.

   The choice of the level of backup site preparedness is based on the company's weighing the cost of being off-line (lost sales, etc.) versus the cost of buying / maintaining the level of backup.

4. Greeting Cards can improve the disaster recovery and storage control procedures by:

   - ensure a disaster recovery leader is named
   - test backup plan regularly to ensure that it is working.
   - keep backups in a location that might not be subject to the same natural disasters.
   - keep several sets of backups in case the most recent one can't be used.
   - use better file labeling storage controls. External file labels or internal file labels.

5. Means that management can use to protect programs and databases from unauthorized use include:

   Facility and hardware controls: Control access to the building, locate data center away from public areas, give access to only authorized personnel, use key codes or biometrics for entrance, etc.

   Network controls: Use private network or use virtual private networks to secure connection to Internet, add password protection and require periodic password change, encrypt data before data transmission, ensure correct destination address by routing verification, verify message delivery

via message acknowledgement, detect and defend attacks through virus protection software and firewall, alert intrusion by intrusion detection system, etc.

Answer: Question 1.28 - Acme

1. These controls are all application controls and they are necessary to prevent, detect, and correct errors and irregularities in processing transactions.

   Input controls are application controls over data input. Input controls help ensure the validity, accuracy, and completeness of the data entered into an accounting information system. It is usually cost effective to test input data for the attributes of validity, accuracy, and completeness as early as possible. Data that is rejected at time of input can be corrected more easily, and it is not cost effective to screen data throughout the process. Input controls help assure that what is received by the machine is complete. Each entry can be checked to make sure that the fields are filled out properly and for reasonableness or logic. Input controls help with inaccurate recording of input and preventing missing information.

   Processing controls are application controls that are intended to protect the processing of data. The purpose is to prevent, detect and correct errors and irregularities in processing transactions. Processing controls have been designed to prevent or discourage the improper manipulation of data and to ensure the continued satisfactory operating of the hardware and software. Processing controls prevent duplicate data and the loss of files during processing, processing performed too late, or incomplete processing. Processing controls focus on the manipulation of accounting data after they are input. An important objective of processing controls is to contribute to a good audit trail.

   Output controls cover the accuracy and reasonableness of the information processed. They also cover the retention of output reports. The total records processed can agree with the records input. Pre-numbered forms can help control output since these can be accounted for. Output controls ensure the outputs' validity, accuracy and completeness. Two main types of output controls are validating processing results and regulating the distribution and use of printed output.

   In the scenario, there are input controls when the store sales team enters the individual sales into the sales system. The system will alert the user if a negative cost or if an invalid stock number has been entered. There is a processing control with the batch totals that are created and checked. There is an output control with the final batch check and the sending of the activity report.

2. Data encryption is scrambling the data in a message in a systematic way in order to prevent competitors from electronically monitoring confidential data transmissions. Through an encryption technique, data is converted into a scrambled format prior to its transmission and converted by into a meaning form once data transmission is finished. The encrypted data can be read only by a person with a matching decryption key.

   Data encryption is particularly important when using the internet as the routine use of systems includes potential unauthorized access to computer systems and its data through electronic eavesdropping, which allows computer users to observe transmissions intended for someone else, or cause errors in data transmission. Managers use data encryption to protect information.

3. Access to the physical hardware must be protected and could be in a safer location than the company's basement. Data processing centers should be located in safe places away from

scrutiny and guarded by personnel. The location should consider natural disasters and should limit employee access. Few people have reason to be inside and access should be limited to company personnel who wear badges with pictures. Employees entries and exists should be logged and interior room should be protected with mechanism that requires people to be buzzed in to enter. Also, issue keys to authorized personnel only and change locks periodically. For individual computers, the passwords are good, but they should ensure they are using strong passwords. Consider the use of biometric identification.

4. To better protect its programs and databases from unauthorized use, the company should consider logical security controls. These controls include e-IDs and passwords, system authentication requirements, biometrics, logs of log-on attempts, application level firewalls, antivirus and antispyware software, intrusion detection systems, encryption for data in transits, or smart cards.

5. Highly integrated accounting information systems often combine procedures that used to be performed by separate individuals. Consequently, an individual who has unlimited access to the computer, its programs, and live data also has the opportunity to execute and subsequently conceal a fraud. To reduce this risk, a company should design and implement effective separation of duties control procedures. It is essential to divide the authority and responsibility for these two functions. The design and implementation of effective separation of duties control procedures make it difficult for any one employee to commit a successful fraudulent activity.

6. Accounting system duties that should be kept separate include:

- The data control group should review records for evidence of unauthorized computer access.
- Computer operators should not have access to program documentation or logic.
- Two operators should be in the computer room during processing of data,
- Maintain a processing log and review periodically for evidence of irregularities.
- Rotate computer operators among jobs to avoid any singles operator always overseeing the same application.
- Require formal authorizations for program changes, submit written description of changes to a supervising manager for approval.
- Test changes to programs prior to implementation.
- A data control group should maintain registers of computer access codes, help acquire new accounting software, coordinate security controls with specific computer personal, reconcile input and output and distribute output to authorized user. This person should be independent of computer operation which inhibits unauthorized access to computer facility and contributes to more efficient data processing authorizations.

Answer: Question 1.29 – Logan Associates

1. Input controls help ensure the validity, accuracy, and completeness of the data entered into an accounting information system.

   Processing controls focus on the manipulation of accounting data after they are input to the computer system. They contribute to a good audit trail.

   Output controls ensure the outputs' validity, accuracy and completeness. They validate processing results and regulate the distribution and use of printed output.

2. Input - the computer system checks that the has entered a reasonable number of hours for each person (i.e. no negative hours, no hours over a certain threshold).

   Processing - After she has entered everything, she gets a control total that shows her the total number of hours, which she can confirm by checking to the total from the time clock.

   Output - After the payroll checks are printed, she gets a summary report showing the total payroll dollars and total associates paid. She can confirm that the number of checks printed and that the overall amount is reasonable, and she also confirms that the pre-numbered checks agree to the check numbers that the computer has assigned to each of the transactions.

3. Management can protect programs such as the payroll system described above from unauthorized use by the following:

   - Facility monitoring (surveillance systems, cameras, guards, exterior lighting
   - Access controls to facilities/datacenter or computer (biometrics, access cards)
   - Alarm systems (fire, burglar, water, humidly, power fluctuations)
   - Shred sensitive documents
   - Proper storage and disposal of hard drive and other electronic storage media
   - Secure storage of backup copies of data and master copies of critical software.

4. Management should also ensure that access to physical hardware is limited, using the following:

   - e-ids and passwords
   - system authentication
   - biometrics
   - logs of log on attempts
   - application level firewalls
   - anti-virus and anti-spyware software
   - intrusion detection systems
   - encryption for data in transit
   - smart cards

5. Checks should keep the blank checks in a locked, fireproof safe.

6. Kelly currently authorize record transactions (authority), cut the checks (custody), and records the payroll entries (records). The scenario does not mention who does the reconciliation. Kelly could add a fake employee and pay herself or give herself a raise. It would be better if there was a separate approval process for additions or changes to the payroll data and if there were someone else in charge of the checks. A separate person should oversee related reconciliations, if possible.

Answer: Question 1.30 – Lasertech

1. Strategic planning involving setting long-term goals extending 3 to 5 years into the future and preparing long-term budgets that reflect these goals. Planning involves developing objectives for each function of the company and preparing budgets to meet those objectives. Control involves monitoring the various functions to assure that objectives are attained.

2. Once the long-term goals and strategies are developed, management can focus on short-term goals to assist in planning and controlling the production, marketing and financial functions of the company.

3. The success of a budget program may be determined by how the budget is developed.

   - In most successful budget programs, department managers participate with upper management in preparing their own budgets. Department managers are more likely to have close knowledge of their areas of responsibility and, therefore, budget estimates may be more reliable. When managers are involved in preparing their budgets, they are more likely to believe their judgments are valued by top management and are more likely to be committed to meeting the budget.
   - The success of a budget program also depends on whether top management believes the budget program is a vital part of the company's activities and how top management uses budget information.
   - Rather than using the budget as something to be achieved at all costs, management should use the budget as a means of establishing goals, measuring results and determining areas that need attention. Budgets should establish achievable but challenging targets.
   - Sufficient lead time is critical because the preparation of a budget usually takes several months.

4. The budget can coordinate the company's activities by forcing department managers to consider how the functions of their various departments are interrelated. Planned changes to products or to product focus will affect how the product is manufactured and how it is marketed and will affect the financing needed to fund operations. A failure to achieve goals by one function of the company may cause another function to have to adjust its goals.

5. Flexible budgeting is a type of budgeting in which the budgeted amounts may be adjusted to any activity level. Flexible budgeting allows to analyze variances better, because it shows the difference between actual amounts and the flexible budget amounts for the actual level of activity; rather than static budget.

6. The other budget types include but are not limited to the following: Project budgeting, Activity-based budgeting, Zero-based budgeting, Continuous (Rolling) budgeting.