

**Bangladesh Open UniveTk.ity**  
BBA Program  
Semester: 192 (8<sup>th</sup> Level-Accounting)

Course Title: Advanced Accounting

Due on: 03 September, 2021

**Instructions**

- Answer the all questions in your own handwriting on A4 size white paper.
- Fill-in the cover page of your assignment with care.
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**Questions**

1. (a) State briefly the advantages to be derived from a system of Departmental Accounts.  
(b) What difficulties are there in the way of arriving at the net profit of each department?  
(c) What do you understand by the an “independent branch”? Differentiate between a dependent branch and an “independent branch”. Briefly explain the system of accounting that you will adopt in each case.
2. Complex Ltd has 3 departments A, B and C. The following information is provided: (all figures in Taka)

Particulars	Dept. A	Dept. B	Dept. C
Opening Stock (1.1.2020)	3,000	4,000	6,000
Consumption of direct materials	8,000	12,000	-
Wages	5,000	10,000	-
Closing stock	4,000	14,000	8,000
Sales	-	-	34,000

Stocks of each department are valued at cost to the department concerned. Stocks of A Department are transferred to B at a margin of 50% above departmental cost. Stocks of B Department are transferred to C Department at a margin of 10% above departmental cost.

Other expenses were: Salaries-Tk. 2,000; Printing and stationery-Tk.1,000, Rent- Tk.6,000; Insurance paid Tk. 4,000, Depreciation-Tk. 3,000.

Allocate expenses in the ratio of departmental gross profits. Opening figures of reserves for unrealised profits on departmental stocks were:

Department B-Tk. 1,000, Department C-Tk. 2,000.

Prepare Departmental Trading and Profit and Loss Account for the year ended 31st December 2020.

3. XY and Co. commenced business on 1.1.2020 with Head Office at Calicut and a branch at Trichur. All goods were purchased by the Head Office and normally packed immediately but on December 31, 2020, goods costing Tk.5,000 remained unpacked. Only packed goods were sent to the branch which was charged at selling price less 10%. The following information is furnished to you as on December 31, 2020 from the Head Office and branch office books.

	H.O (Tk)	Branch (Tk)		H.O(Tk)	Branch (Tk)
Capital Account	40,000	-	Clerks' salary wages etc	20,000	3,000
Drawings by Proprietor	10,000	-	Sundry Debtors	28,000	4,200
Purchases	4,00,000	-	sundry Creditors	26,600	5,000
Packing materials bought	6,000	-	Current Accounts:		
Sales	3,20,000	1,00,000	Head Office (credit balance)		12,000
Despatch of goods to Branch	1,13,400	-	Branch office (debit balance)	19,000	-
Selling expenses	16,000	800	Bank balance	1,000	1,000
			Goods received from Head office		1,08,000

You are further informed that:

- Sales by Head Office were at a uniform gross profit, after charging packing materials of 20% on the fixed selling price.
- Sales at branch were at fixed selling price.  
Goods invoiced and despatched by Head Office to branch on December 2020 for Tk.5,400 were received by the branch only on January 10, 2021.
- Stock of packing materials on hand as on December 31, 2020 was valued at Tk.1,000.
- Remittance of Tk.1,600 from the branch to the Head Office was in-transit on 31.12.2020.
- Tk.2,000 worth of stock at selling price was damaged at the branch. For valuing stock, this was reduced by Tk.1,090 below the invoice cost to the branch. It was decided that the Head Office and the branch would share equally the loss occasioned by this and also the deficit in stock, ascertained on actual stock taking at the branch of goods at selling price of Tk.500.

Prepare the Profit and Loss Account of the Trichur and Calicut offices and also a Balance Sheet as on 31.12.2020 of the business.

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 Semester: 192 (8<sup>th</sup> Level-Accounting)

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**Due on: 01 October, 2021**

1. The following are the figures extracted from the books of Southeast Bank Limited, as on 31.12.2020: (figures in taka.)

Interest and Discount received	45,05,000	Commission, exchange and brokerage	1,90,000
Interest paid on Deposits	20,37,452	Rent received	65,000
Issued and Subscribed Capital	10,00,000	Profit on sale of investments	2,00,000
Salaries and Allowances	2,00,000	Depreciation on Bank's properties	30,000
Directors' fees and allowances	30,000	Stationery expenses	40,000
Rent and taxes paid	90,000	Preliminary expenses	25,000
Postage and telegrams	60,286	Auditors fees	5,000
Statutory reserve fund	8,00,000		

**Other information:**

- (a) A customer to whom a sum of Tk. 8,00,000 had been advanced has become insolvent and it is expected that only 50% can be recovered from his estate.
- (b) Also, there were other debts, for which a provision of Tk. 1,50,000 was found necessary by the auditors.
- (c) Rebate on bills discounted on 31.12.2019 was Tk. 12,000 and on 31.12.2020 was Tk. 16,000.
- (d) Provide Tk. 6,50,000 for Income tax.
- (e) The directors desire to declare 15% dividends.

Prepare the Profit and Loss Account of Southeast Bank Ltd. for the year ended on December 31, 2020.

2. The following balance relate to Himalaya Company Ltd. as on 31<sup>st</sup> December 2020:

Debit	Tk.	Credit	Tk.
Motor car (cost less depreciation)	8,000	Share Forfeiture Account	500
Sundry debtor	60,000	Share capital	1,00,000
Furniture (cost less depreciation)	4,000	Profit and Loss Account (31.12.2020)	1,500
Plant (cost less depreciation)	15,000	Gross Profit	54,150
Compensation to employees	2,000	Development rebate reserve	1,350
Closing stock	35,000	Bank overdraft – UCO	25,000
Rent and taxes	8,000	Sundry creditor	11,000
Selling expenses	10,000	Liabilities for expenses	3,500

Office expenses, etc.	12,000	
Security deposit	4,000	
Advance income-tax	9,000	
Cash in hand	2,500	
Cash in bank	27,000	
	<u>1,97,000</u>	<u>1,97,000</u>

**The following additional information is available:**

- Share capital consists of 15,000 10% cumulative preference shares of Tk.100 each, out of which 500 shares are fully called-up and paid –up.
- Transfer Tk. 900 to the Development Rebate Reserve Account on 31<sup>st</sup> December, 2020.
- Bank overdraft is secured by the hypothecation of stock.
- The manager is entitled to 5% commission on the net profit of the company.
- Addition made to plant during the year ended 31<sup>st</sup> December 2020 was Tk. 8,000.
- Depreciation written off up to 31<sup>st</sup> December, 2019 and rates against each are as under: Plant Tk.2,000 (15%); Furniture Tk.1,000 (10%); Motor car Tk. 10,000 (20%).
- Provision for taxation to be made at Tk. 9,600.
- The amount shown against shares forfeited account represents unadjusted profit on reissue of forfeited shares made during the year.
- Sundry debtors include outstanding Tk. 1,000 for more than six months.
- Office expenses include Tk. 1,500 as audit fee and Tk. 500 as audit expense.

**You are required to draw:**

- the Profit and Loss Account for the year ended on 31<sup>st</sup> December, 2020; and
  - the Balance Sheet as on that date.
3. MH Ltd bought a motor vehicle on 1.1.2020, for Tk. 4,34,180 under a hire-purchase agreement. The cash price was Tk. 3,60,000. The vehicle was financed by IDLC Finance Ltd. The agreement required an initial deposit of Tk. 1,20,000 on acquisition, followed by two equal instalments of Tk. 1,57,090 on 31.12.2020 and 31.12.2021, hire purchase interest being calculated @ 20% p.a. on the balance at 31 December each year.

On 31.12.2019, the balance on the Motor Vehicle Account was Tk. 16,00,000 and on the provision for depreciation (motor vehicles) Tk. 7,60,000. Depreciation is calculated @ 25% p.a. on a straight-line basis, assuming no residual value. No other acquisitions or disposals took place.

Prepare necessary ledger accounts for the two years ended 31.12.2020 and 31.12.2021 and also show the relevant items in the Balance Sheet of M H Ltd as at 31st December, 2020.

**Bangladesh Open University**  
BBA Program  
Semester: 192 (8<sup>th</sup> Level-AIS)

**Course Title: Advanced Management Accounting**

**Due on: 03 September, 2021**

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**Questions**

1. (a) Briefly describe what is meant by enterprise risk management in the light of an enterprise known to you.  
(b) Narrate six sigma with its general and technical meaning, framework, and examples.
2. (a) Suppose, the management of your organization henceforth implements the activity-based costing system. What steps would you break down and suggest for its implementation?  
(b) Apex Carpet Cleaning is a small, family-owned business operating out of Dhaka, Bangladesh. For its services, the company has always charged a flat fee per hundred square feet of carpet cleaned. The current fee is Tk.28 per hundred square feet. However, there is some question about whether the company is actually making any money on jobs for some customers—particularly those located on remote ranches that require considerable travel time. The owner's daughter, home for the summer from college, has suggested investigating this question using activity-based costing. After some discussion, a simple system consisting of four activity cost pools seemed to be adequate. The activity cost pools and their activity measures appear below:

<u>Activity Cost Pool</u>	<u>Activity Measure</u>	<u>Activity for the Year</u>
Cleaning carpets	Square feet cleaned (00s)	20,000 hundredsquare feet
Travel to jobs	Miles driven	60,000 miles
Job support	Number of jobs	2,000 jobs
Other (costs of idle capacity and organization-sustaining costs)	None	Not applicable

The total cost of operating the company for the year is Tk.430,000, which includes the following costs:

Wages	Tk.150,000
Cleaning supplies	40,000
Cleaning equipment depreciation	20,000
Vehicle expenses	80,000
Office expenses	60,000
President's compensation	80,000
Total cost	<u>Tk.430,000</u>

Resource consumption is distributed across the activities as follows:

Distribution of Resource Consumption Across Activities

	Cleaning <u>Carpets</u>	Travel to <u>Job</u>	Jobs <u>Support</u>	<u>Other</u>	<u>Total</u>
Wages	70%	20%	0%	10%	100%
Cleaning supplies	100%	0%	0%	0%	100%
Cleaning equipment depreciation	80%	0%	0%	20%	100%
Vehicle expenses	0%	60%	0%	40%	100%
Office expenses	0%	0%	45%	55%	100%
President's compensation	0%	0%	40%	60%	100%

Job support consists of receiving calls from potential customers at the home office, scheduling jobs, billing, resolving issues, and so on.

**Required:**

- (i) Prepare the first-stage allocation of costs to the activity cost pools.
  - (ii) Compute the activity rates for the activity cost pools.
  - (iii) The company recently completed a 5 hundred square foot carpet-cleaning job at the Flying Narayanganj—a 75-mile round-trip journey from the company's offices in Dhaka. Compute the cost of this job using the activity-based costing system.
  - (iv) The revenue from the Flying Narayanganj was Tk.140 (5 hundred square feet @ Tk.28 per hundred square feet). Prepare a report showing the margin from this job.
  - (v) What do you conclude concerning the profitability of the Flying Narayanganj job? Explain.
  - (vi) What advice would you give the president concerning pricing jobs in the future?
3. (a) You know, the actual results may differ from what had been budgeted at the beginning of a period. Enumerate the possible reasons for such differences.
- (b) Lavage Ltd. owns and operates a large automatic carwash facility near Bangabandhu Stadium, Dhaka. The following table provides data concerning the company's costs:

	<u>Fixed Cost per Month</u>	<u>Cost per Car Washed</u>
Cleaning supplies		Tk.0.80
Electricity	Tk.1,200	Tk.0.15
Maintenance		Tk.0.20
Wages and salaries	Tk.5,000	Tk.0.30
Depreciation	Tk.6,000	
Rent	Tk.8,000	
Administrative expenses	Tk.4,000	Tk.0.10

For example, electricity costs are Tk.1,200 per month plus Tk.0.15 per car washed.

The company expects to wash 9,000 cars in August and to collect an average of Tk.4.90 per car washed.

**Required:**

- (i) Prepare the company's planning budget for August.
- (ii) If the company actually washed 8,800 cars in August, prepare its flexible budget for August.

**Bangladesh Open University**  
BBA Program  
Semester: 192 (8<sup>th</sup> Level-AIS)

**Course Title: Advanced Management Accounting**

**Due on: 01 October, 2021**

1. (a) Cite examples of cost, profit, and investment centers of the organization known to you.
- (b) Vision Corporation provides business-to-business services on the Internet. Data concerning the most recent year appear below:

Sales	Tk.3,000,000
Net operating income	Tk.150,000
Average operating assets	Tk.750,000

**Required:**

Consider each question below independently. Carry out all computations to two decimal places.

- (i) Compute the company's return on investment (ROI).
- (ii) The entrepreneur who founded the company is convinced that sales will increase next year by 50% and that net operating income will increase by 200%, with no increase in average operating assets. What would be the company's ROI?
- (iii) The chief financial officer of the company believes a more realistic scenario would be a Tk.1,000,000 increase in sales, requiring a Tk.250,000 increase in average operating assets, with a resulting Tk.200,000 increase in net operating income. What would be the company's ROI in this scenario?
2. (a) "All future costs are relevant in decision making." Do you agree? Why?
- (b) Amin Jewelers is considering a special order for 20 handcrafted gold bracelets to be given as gifts to members of a wedding party. The normal selling price of a gold bracelet is Tk.189.95 and its unit product cost is Tk.149.00 as shown below:

Direct materials	Tk. 84.00
Direct labor	45.00
Manufacturing overhead	<u>20.00</u>
Unit product cost	Tk. <u>149.00</u>

Most of the manufacturing overhead is fixed and unaffected by variations in how much jewelry is produced in any given period. However, Tk.4.00 of the overhead is variable with respect to the number of bracelets produced. The customer who is interested in the special bracelet order would like special filigree applied to the bracelets. This filigree would require additional materials costing Tk.2.00 per bracelet and would also require the acquisition of a special tool costing Tk.250 that would have no other use once the special order is completed. This order would not affect the company's regular sales and the order could be fulfilled using the company's existing



capacity without affecting any other order.

**Required:**

What effect would accepting this order have on the company's net operating income if a special price of Tk.169.95 per bracelet is offered for this order? Should the special order be accepted at this price?

3. (a) According to the economists' approach to setting prices, the profit-maximizing price should depend on two factors. Explain them.
- (b) The postal service of FedEx obtains a significant portion of its revenues from sales of special souvenir sheets to stamp collectors. The souvenir sheets usually contain several high-value FedEx stamps depicting a common theme, such as the life of Princess Diana. The souvenir sheets are designed and printed for the postal service by Imperial Printing, a stamp agency service company. The souvenir sheets cost the postal service Tk.0.80 each. FedEx has been selling these souvenir sheets for Tk.7.00 each and ordinarily sells about 100,000 units. To test the market, the postal service recently priced a new souvenir sheet at Tk.8.00 and sales dropped to 85,000 units.

**Required:**

- (i) Does the postal service of FedEx make more money selling souvenir sheets for Tk.7.00 each or Tk.8.00 each?
- (ii) Estimate the price elasticity of demand for the souvenir sheets.
- (iii) Estimate the profit-maximizing price for souvenir sheets.
- (iv) If Imperial Printing increases the price it charges to the FedEx postal service for souvenir sheets to Tk.1.00 each, how much should the FedEx postal service charge its customers for the souvenir sheets?

**Bangladesh Open University**

BBA Program

Semester: 192 (8<sup>th</sup> Level-AIS)**Course Title: Corporate Financial Reporting****Due on: 03 September, 2021****Instructions**

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**Questions**

1. (a) How can information based on past transactions be used to predict future cash flows?
- (b) Why should caution be exercised in the use of the net income figure derived in an income statement? What are the objectives of generally accepted accounting principles in their application to the income statement?
- (c) What is the basis for distinguishing between operating and nonoperating items?
  
2. (a) Differentiate between operating activities, investing activities, and financing activities.
- (b) State the usual basis of valuation of each of the following assets and describe the valuation methods.
  - (i) Trade accounts receivable.
  - (ii) Land.
  - (iii) Inventory.
  - (iv) Trading securities (ordinary shares of other companies).
  - (v) Prepaid expenses.
- (c) The creditors of Chan Ho Company agree to accept promissory notes for the amount of its indebtedness with a condition that two-thirds of the annual profits must be applied to their liquidation. How should these notes be reported on the statement of financial position of the issuing company? Give a reason for your answer.
  
3. (a) What are the major limitations of the balance sheet as a source of information?
- (b) What types of contractual obligations must be disclosed in great detail in the notes

to the balance sheet? Why do you think these detailed provisions should be disclosed?

(c) Describe the guidelines for preparing interim financial reports.

4. In an examination of Arena Corporation as of December 31, 2020, you have learned that the following situations exist. No entries have been made in the accounting records for these items.

1. The corporation erected its present factory building in 2005. Depreciation was calculated by the straight-line method, using an estimated life of 35 years. Early in 2020, the board of directors conducted a careful survey and estimated that the factory building had a remaining useful life of 25 years as of January 1, 2020.

2. An additional assessment of 2019 income taxes was levied and paid in 2020.

3. When calculating the accrual for officers' salaries at December 31, 2020, it was discovered that the accrual for officers' salaries for December 31, 2019, had been overstated.

4. On December 15, 2020, Arena Corporation declared a cash dividend on its common stock outstanding, payable February 1, 2021, to the common stockholders of record December 31, 2020.

**Instructions**

Describe fully how each of the items above should be reported in the financial statements of Arena Corporation for the year 2020.

**Bangladesh Open University**

BBA Program

Semester: 192 (8<sup>th</sup> Level-AIS)**Course Title: Corporate Financial Reporting****Due on: 01 October, 2021**

- 1 (a) What is the difference between a perpetual inventory and a physical inventory? If a company maintains a perpetual inventory, should its physical inventory at any date be equal to the amount indicated by the perpetual inventory records? Why?
- (b) FIFO and weighted-average, methods are often used instead of specific identification for inventory valuation purposes. Compare these methods with the specific identification method, discussing the theoretical propriety of each method in the determination of income and asset valuation.
- (c) In your audit of Gaga Company, you find that a physical inventory on December 31, 2020, showed merchandise with a cost of Taka 441,000 was on hand at that date. You also discover the following items were all excluded from the Tk. 441,000.
  1. Merchandise of Tk. 61,000 which is held by Gaga on consignment. The consignor is the Bontemps Company.
  2. Merchandise costing Tk. 33,000 which was shipped by Gaga f.o.b. destination to a customer on December 31, 2020. The customer was expected to receive the merchandise on January 6, 2021.
  3. Merchandise costing Tk. 46,000 which was shipped by Gaga f.o.b. shipping point to a customer on December 29, 2020. The customer was scheduled to receive the merchandise on January 2, 2021.
  4. Merchandise costing Tk. 73,000 shipped by a vendor f.o.b. destination on December 30, 2020 and received by Gaga on January 4, 2021.
  5. Merchandise costing Tk. 51,000 shipped by a vendor f.o.b. shipping point on December 31, 2020 and received by Gaga on January 5, 2021.

**Instructions**

Based on the above information, calculate the amount that should appear on Gaga's balance sheet at December 31, 2020, for inventory.

2. (a) Mention the characteristic of intangible assets.
- (b) What do you mean by natural resources? What are the different types of cost involved to these types of resources?
- (c) Moyori Inc. has capitalized computer software costs of Tk. 3,900,000 on its new "Leads" software package. Revenues from 2020 (first year) sales are Tk. 2,000,000. Additional future revenues from "Leads" for the remainder of its economic life, through 2024, are estimated to be Tk. 10,000,000.

**Instructions**

- (i) What method or methods of amortization are to be applied in the write-off of capitalized computer software costs?

(ii) Compute the amount of amortization for 2020 for “Leads.”.

3. (a) For what reasons should the percentage-of-completion method be used over the completed-contract method whenever possible?
- (b) Under the percentage-of-completion method, how are the Construction in Process and the Billings on Construction in Process accounts reported in the balance sheet?
- (c) Talha Marina has 300 available slips that rent for Tk. 800 per season. Payments must be made in full at the start of the boating season, April 1, 2021. Slips for the next season may be reserved if paid for by December 31, 2020. Under a new policy, if payment is made by December 31, 2020, a 5% discount is allowed. The boating season ends October 31, and the marina has a December 31 year-end. To provide cash flow for major dock repairs, the marina operator is also offering a 20% discount to slip renters who pay for the 2022 season.
- For the fiscal year ended December 31, 2020, all 300 slips were rented at full price. Two hundred slips were reserved and paid for the 2021 boating season, and 60 slips for the 2022 boating season were reserved and paid for.

**Instructions**

- (a) Prepare the appropriate journal entries for fiscal 2020.
- (b) Assume the marina operator is unsophisticated in business. Explain the managerial significance of the accounting above to this person.

## Bangladesh Open University

### BBA Program

Semester: 192 (8th Level- AIS, Finance, HRM, Marketing)

**Course Title: Business Research Methods**

**Due on; 03 September, 2021**

#### Instructions

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#### Questions

1. (a) What do you mean by Business Research?  
(b) Distinguish between exploratory research, descriptive research and causal research.  
(c) Discuss major phases of business research process.
2. (a) Define knowledge management. What is its purpose within an organization?  
(b) What type of operational questions could a delivery firm like FedEx expect to automate with the company's decision support system (DSS)?  
(c) What makes a decision support system successful?  
(d) What is data warehousing?
3. Neela has been a member of a research team studying interpersonal aggression among preschoolers for more than a year. In that time, her team has repeatedly employed a consistent set of techniques and procedures to study preschoolers as they interact in a number of settings. The procedures revolve around volunteer mothers bringing their children to the university child development lab for a "play session" that is the basis of the formal observations. Settings they have studied so far include: the university pre-school, affluent local day-care centers, and a pre-kindergarten program being offered in the neighborhood school district. All of these settings were fairly racially homogenous.

Neela has just learned that a friend of a friend can help her gain research access, in the near future, to preschoolers in an unusually racially diverse though impoverished preschool setting. Neela decides she has no time to prepare a formal research proposal before embarking on the study. "Besides," she thinks, "this study should go just like all the others we've done."

Is Neela leaving herself open to problems in this situation, or is she safe moving ahead with no formal proposal, given how familiar she is with the study techniques and procedures?

4. Professor Laily wants to know more about the mental process students go through as they learn about research methods. She also wants to know which instructional methods are most effective for teaching research methods to her students. Assume that Professor Laily decides to take a *qualitative* approach to studying these questions. State a specific research question related to her general research problem that lends itself well to a qualitative research approach. Then explain why your question is better addressed using a qualitative, rather than a quantitative, methodology.
5. Suppose you owned a jewelry store in Dhaka, Bangladesh. You are considering opening a second store just like your current store. You are undecided on whether to locate the new store in another location in Chattogram, New Market. Why would you decide to have some research done before making this decision? Should the research be conducted? Do you think any of this information would be useful in the research?
6. (a) A professor wishes to develop a numerical method for giving grades. He intends to base the grade on homework, two midterms, a project, and a final examination. He wishes the final exam to have the largest influence on the grade. He wants the project to have 10%, each midterm to have 20%, and the homework to have 10% of the influence on the semester grade.

(i) Determine the weights the professor should use to produce a weighted average for grading purposes.

(ii) For a student with the following grades during the quarter, calculate a weighted average for the course:

Instrument	Final	Project	Midterm-1	Midterm-2	Homework
Percentage	64	98	67	63	89
Grade					

(iii) Calculate an (unweighted) average of these five scores and discuss why the weighted average would be preferable here.

- (b) Joy provides take-out service for a variety of breakfast items. The following table shows the number of orders that have been recently placed grouped by the size of the order in dollars.

Size of Order	Number of orders
Tk0 to under Tk5	10
Tk5 to under Tk10	12
Tk10 to under Tk15	14
Tk15 to under Tk20	5
Tk20 to under Tk25	9

- (i) What is the approximate average order size for this sample?  
(ii) What is the approximate variance for the order size for this sample?

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BBA Program

Semester: 192 (8th Level- AIS, Finance, HRM, Marketing)

**Course Title: Business Research Methods**

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**Questions**

1. (a) What do you mean by Hypothesis testing?  
 (b) Define: Null hypothesis and alternative hypothesis.  
 (c) Write down the steps to be performed for hypothesis test.  
 (d) What is the significance of understanding of confidence intervals?  
 (e) The average battery life of the iPhone is reported to be 6.0 hours by Apple. Assume that the standard deviation for the battery life for this cell phone is 30 minutes. A random sample of 50 iPhones had an average battery life of 5.7 hours. Use a 90% confidence interval to test the validity of Apple's claim.
2. After completing planned analyses, the researcher must interpret the results of statistical tests. Note several steps that are involved in such interpretation
3. (a) "The standard error of the difference between two means describes the variation in the difference between two sample means." Do you agree? Explain.  
 (b) Traveler's Insurance would like to test the hypothesis that the average number of miles driven per month by a male teenage driver exceeds the average number of miles driven per month by a female teenage driver by more than 50 miles. The following data summarizes the sample statistics for the miles driven per month by each gender. Assume that the population variances are equal.

	Male	Female
Sample mean	685	580
Sample size	13	16
Sample standard deviation	130	120

Define Population 1 as male drivers and Population 2 as female drivers and use the



critical value approach to test this hypothesis with  $\alpha = 0.05$ .

4. (a) "Analysis of variance compares the variance *between* samples to the variance *within* those samples to determine if means of populations are different." Explain.
- (b) "When the *F*-test statistic is greater than the critical *F*-score for ANOVA, the correct conclusion is to fail to reject the null hypothesis?" Explain.
- (c) The following data show the download speed in megabytes per second for a random sample of Smartphone users in three cities using four different networks.

Carrier	Cities		
	Dhaka	Chattogram	Kumila
Grameen	35	14	14
Tele Talk	12	7	8
Robi	19	11	9
Bangla Link	30	12	9

Perform a randomized block ANOVA using  $\alpha = 0.05$  to test if a difference exists in average download speed between these three cities.

5. One of the main objectives of a research report is to make a case for why the research problem deserves an in depth study. What are some of the reasons why this should be done early in the research report?