

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination

Summer Semester, A. Y. 2018-2019

Course No. : BTM 4203

Time : 3 Hours

Course Title : Business Communication

Full Marks : 150

There are **8 (eight)** questions. Answer any **6 (six)** questions. All questions carry equal marks. Marks in the margin indicate full marks. Do not write on this question paper.

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1. a) Communication skills are of utmost importance in managing information and technology in any organization. Make a hypothetical example of business communication. Then relate your example with the concept of Communication Pyramid and explain how proper understanding of this theory might help for effective communication. 10
 - b) Describe the formal network of communication in an organization, division or department with which you are familiar. Why you think the communication network has taken this form and how successfully does it seem to meet the business needs. Discuss. 8
 - c) "Business communication does not merely mean writing letters. There are many more modes and styles of effective communication." Write down different modes of communication. 7
 2. a) We often tell our customers, peers and suppliers how to assess and manage risk. Engineering risks include technical risk, schedule risk and cost risk. Many technical books about risk assessment and management have been published. However, risk management involves risk communication, which involves listening to identify various risks correctly. Distinguish the characteristics of a poor listener and an effective listener. 10
 - b) The National Research Council (NRC) defines risk communication as an "interactive process of exchange of information and opinion among individuals, groups, and institutions." The definition includes "discussion about risk types and levels and about methods for managing risks". Listening to the voice of customers and the public is central to effective communication about topics of high concern. How to listen to voices of customers about risk? 10
 - c) The more effectively you listen, the more effectively you communicate about engineering risk and cost. However, only about 25% of listeners grasp the central ideas in business communications. To improve listening skills, which issues will you consider? 5
 3. a) The seven steps problem solving method makes case study solving easier and increases your learning benefits. Briefly describe these steps of case study analysis. 10
 - b) Differentiate between program implementation and program effects case study. 5

- c) The majority of Mexico's rural inhabitants are relatively poor, relying in part on government benefits for their livelihood. As they tend not to have bank accounts, they usually collect government benefits in cash from a limited number of state-bank branches. These branches are often a long way from where the recipients live, so it can take a lot of time and effort for them to collect their benefits. In addition, traveling to the branches can sometimes expose benefit recipients to crime along the way. 10

The Mexican government also owns and operates a chain of 22,000 stores, throughout Mexico, called Diconsa, which provide basic food, clothes, and other essential goods to the rural population. These stores are supplied via a network of central and regional warehouses and several thousand delivery trucks.

McKinsey has been asked to investigate and assess the possibility of using the Diconsa network to provide a basic set of financial services to supplement the limited number of state-bank branches. The offer would start with dispensing government-benefit payments and move progressively to include savings accounts, bill payment, insurance, credit, and other financial products.

What should the team investigate to determine whether the Diconsa network could and should be leveraged to provide a range of basic financial services to Mexico's rural population?

4. a) The basic idea is that a marketer or R&D starts with many business ideas that need to be examined and winnowed down, then shaped into concepts and tested until a final market offering is selected and launched. The innovation funnel provides a solution for explicitly defining the information requirements for managing the innovation process from idea to launch. Briefly describe about "innovation funnel" for generating new business idea. 15
- b) The "Business Opportunity Analysis" provides a structured, repeatable method for assessing current sales opportunities. This sales aid helps to qualify opportunities faster and more effectively by analyzing them from the most critical customer, business, and competitive perspectives. Use of this aid will help to invest time, energy, and resources on the opportunities you are most likely to win. Discuss business opportunity analysis. 10
5. a) Which of the preparatory pages of reports appear to be related primarily to the length of a report? Which one of these is necessary for formality? 5
- b) Mention the important parts of report writing. 10
- c) You have received a complaint from a valued customer from Akther furniture, pointing out that the furniture he had ordered for a special occasion has arrived in a damaged condition. Though the fault is of the transport company, you have decided to replace the damaged furniture immediately. Draft a suitable reply to the customer. 10
6. a) Suppose, you are thinking about developing a new product, entering a new market, scaling, building relationships with investors, or deciding on a new course for the company, you would make a mistake of thinking of these things in black and white. Simplicity is good, but business development requires more than problem-answer approach and businesses need to show the value that they will create for customers, markets, and all stakeholders in exchange. That exact value is created through 15

storytelling. The story of value places around the relevant parties in the world, where your business or product/service will revolutionize their world and their lives. If you are thinking of entering a new market, you have to develop your strategy. Your strategy will be your story. Discuss the role of storytelling for business development.

- b) Stephen Denning identified that story telling is an increasingly accepted way to achieve management goals. But leaders need to use a variety of narrative patterns for different aims of storytelling. Briefly describe these aims with examples. 10
7. a) "YOU-view point" emphasizes readers' interest and helps to win the readers' mind and attention in the cover letter for getting a job. Write down the importance of "YOU-view point" for preparing a cover letter. 10
- b) Distinguish between the solicited and unsolicited application letters. 5
- c) Imagine you are the manager of a good-sized unit within your organization. Your work frequently brings you into contact with another manager call him Yan to whom you have come to dislike. No matter how much you do for him, it's not enough. Worse, he never seems to believe that you're doing the best you can for him. Resenting his attitude and his obvious lack of trust in your abilities and in your good faith, you don't spend as much time with him as you know you should; in consequence the performance of both his unit and yours is deteriorating. How do you overcome this disliking and improve your performance? 10
8. a) Dr. Robert wrote a book on persuasion, it's been widely hailed as a seminal book. The most significant aspect of this book was the highlighting of Cialdini's six principles of persuasion. Explain these principles with business applications. 10
- b) Researchers found that executives typically have a default style of decision making that lands them in one of five categories. Explain those five categories of decision making style along with their persuasion strategy. 10
- c) Suppose you were a sales representative of a car company. You were selling somebody a car and you had all of tools of persuasion and strategies. One customer walked into your dealership and it was apparent, with a family of six kids, they were looking for and genuinely needed a family-sized, affordable vehicle. But, you then leveraged all of your persuasive abilities to convince the customer that he shouldn't buy a minivan but rather a two-seater convertible to reclaim his youth, and in doing so, informing his children how important it is to stay true to their youthful ideals, knowing full well that you would make twice the commission on that car and it was completely unsuitable for them. From this case, you have to identify is it persuasion or manipulation. Justify your answer. 5

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DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination

Summer Semester, A.Y. 2018-2019

Course Code : BTM 4205

Time : 3.00 Hours

Course Title : Principles of Marketing

Full Marks : 150

There are **8 (Eight)** questions. Answer **any 6 (Six)** questions. All questions carry equal marks. Marks in the margin indicate full marks. Do not write on this question paper.

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1. (a) What is marketing communication mix? Briefly describe about the five promotion mix tools to persuasively communicate customer value and build customer relationship? 10
 - (b) Compare and contrast push and pull promotion strategies. Which promotion strategies would be more effective for Unilever Company Ltd. for cosmetic products? 05
 - (c) Suppose, you have been hired as marketing communication manager by PRAN foods Ltd. You have been requested by the CEO of your organization to develop a marketing communication for a newly launched beverage product: Cheer Up. How would you describe the various steps in developing effective marketing communication for Cheer Up? 10
 2. (a) What are the five marketing management orientations? Justify each of them with appropriate examples and state why that orientation is relevant today. 10
 - (b) What is marketing environment? Describe the elements of a company's microenvironment and give an example illustrating why each is important? 15
 3. (a) Name and briefly describe the product mix pricing strategies. 10
 - (b) Explain market skimming and market penetration pricing strategies. Why would a marketer of innovative high-tech products like Sony LED television choose market skimming pricing rather than market penetration pricing when launching a new product? 07
 - (c) The price of any product should fall somewhere between one that is too high to generate any demand and that is too low to produce a profit. Based on the statement, describe the factors that a company need to consider when setting prices for products. 08
 4. (a) What do you mean by product mix? Describe the product mix decisions for Sony Ltd. in terms of width, length, depth and consistency? 08
 - (b) What is brand? Describe different types of brand development strategies with real life examples. 10

- (c) "A product's package is often considered a silent and last salesperson because it has visibility, information, emotion, and workability."-Evaluate the statement with examples. 07
5. (a) Compare and contrast business and consumer markets. 07
- (b) What is business buying center? In a buying center purchasing process, which buying center participant is most likely to make each of the following statements? 08
- "This bonding agent better be good, because I have to put this product together."
 - "I have specified this bonding agent on another job, and it worked for them."
 - "Without an appointment, no sales rep gets in to see CEO Mr. Samson Chowdhury."
 - "Okay, it's a deal-we'll buy it."
 - "I'll place the order first thing tomorrow."
- (c) Name and describe the five stages of product life cycle. How has Coca-Cola survived through different stages of product life cycle? 10
6. (a) Colgate proposes to launch a new toothpaste for kids in Bangladesh. Forecast the size of the market and develop a positioning statement for this new toothpaste. How many differences they can promote? 08
- (b) Name and define five value propositions. Which value proposition describes Mercedes Benz and BMW cars? 12
- (c) If you want to open a franchise of Pizza Hut in Gazipur, what kind of segmentation variable will you use to segment the market and why? 05
7. (a) Explain the differences among needs, wants and demands. 05
- (b) What is business portfolio analysis? How will you perform current business portfolio analysis of "Jamuna Group" using BCG growth-share matrix? Describe. 12
- (c) The economic environment is fast changing in Bangladesh. What changes do you expect to see in the consumption patterns among customers on account of these changes? How should you respond to those changes as a marketer? 08
8. (a) How would you explain the difference among style, fashion, and fad? 06
- (b) How do consumers respond to various marketing efforts the company might use? List the buyer characteristics that affect consumer buyer behavior and discuss which one influence you most when making a new car purchase decision. 10
- (c) Explain the stages of consumer buyer decision process and describe how your family went through this process to make a recent purchase? 09

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DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination**Summer Semester, A. Y. 2018-2019**

Course No. : BTM 4207

Time : 3 hours

Course Title : Organizational Behavior

Full Marks : 150

There are **8 (eight)** questions. Answer **any 6 (six)** questions, All questions carry equal marks. Marks in the margin indicate the full marks. Do not write on this question paper.

1. a) Define organizational behavior (OB). Why studying OB is important for the students of BTM? 08
- b) Briefly discuss the major challenges of organizational behavior. 09
- c) What are the major opportunities of organizational behavior? Discuss. 08
2. a) Define organizational structure. What are the key areas to be considered for designing the proper organizational structure? Briefly discuss the advantages of work specialization within an organizational structure. 12
- b) Briefly discuss the specific roles of departmentalization, chain of command, span of control, and decentralization within a particular organizational structure. 13
3. a) Elaborate the concept and elements of simple structure, matrix structure and team structure of an organization. 15
- b) Define bureaucracy. Briefly discuss the strengths and weaknesses of bureaucracy. 10
4. a) Define job satisfaction. What are the causes of job satisfaction? How employees express their job dissatisfaction? 12
- b) Critically discuss the effects of job satisfaction on employee performance. How is job satisfaction related to customer satisfaction? 13
5. a) Define motivation. Why is motivation important at work environment? 10
- b) Critically discuss Maslow's hierarchy of need based theory of motivation. 15
6. a) Define emotion. Draw the nature of interrelationship among affect, emotion and mood with examples. 10
- b) Briefly discuss the sources of emotion and mood. 15
7. a) Define stress and stress management. Briefly discuss the major causes of stress. 13
- b) What are the main causes of stress outside work or organization? What are the mechanisms to relieve the stresses? 12
8. a) Briefly discuss the methods of measuring training effectiveness. 13
- b) Briefly overview on management development process as part of OB. 12

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DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination

Summer Semester, A. Y. 2018-2019

Course No. : BTM 4209

Time : 3 Hours

Course Title : Micro Economics

Full Marks : 150

There are **8 (Eight)** questions. Answer any **6 (Six)** questions. All questions carry equal marks. Marks in the margin indicate full marks. Do not write on this question paper.

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1. a) Explain price elasticity of demand and supply with graphs and examples. 10
- b) Consider a proposal to raise the minimum wage by 10 percent. Estimate the impact on employment and on the incomes of affected workers. Write a short essay explaining how you would decide if you had to make a recommendation on the minimum wage. 10
- c) Briefly explain the economics of agriculture. 5
2. a) Marginal utility and the law of diminishing marginal utility- explain with graphs. 10
- b) Which pairs of the following goods would you classify as complementary, substitute, or independent goods: beef, ketchup, lamb, cigarettes, gum, pork, radio, television, air travel, bus travel, taxis, and paperbacks? 15
- Illustrate the resulting shift in the demand curve for one good when the price of another good goes up. How would a change in income affect the demand curve for air travel? The demand curve for bus travel?
3. a) "Compulsory military service allows the government to fool itself and the people about the true cost of a big army." Compare the budget cost and the opportunity cost of a voluntary army (where army pay is high) with those of compulsory service (where pay is low). What does the concept of opportunity cost contribute to analyzing the quotation? 5
- b) Discuss diminishing returns and U-shaped cost curves with graphs 10
- c) All cost curves can be derived from the total cost curve- explain with hypothetical example and graphs. 10
4. a) Explain the Mankiw's ten principles of economics. 20
- b) Define Economics in your own words. 5

5. a) Suppose, your organization is a perfectly competitive firm producing computer memory chips. Your production capacity is 1000 units per year. Your marginal cost is \$10 per chip up to capacity. You have a fixed cost of \$10,000 if production is positive and \$0 if you shut down. What is your profit-maximizing levels of production and profit if the market price is \$5 per chip? 5
- b) Discuss in detail the supply behavior of a competitive firm. 20
6. a) Draw three graphs for three market structures using relative costs (average cost & marginal cost) and demand. 15
- b) Explain with graph how a monopolist chooses the quantity of output to produce and the price to charge. 5
- c) What are the three reasons for which a market might have a monopoly? Give two examples of monopolies and explain the reason for each. 5
7. a) If the members of an oligopoly could agree on a total quantity to produce, what quantity would they choose? Explain with a graph. 10
- b) If the oligopolists do not act together but instead make production decisions individually, do they produce a total quantity more or less than in your answer to the previous question? Why? Explain with a graph. 10
- c) Draw Michael Porter's five factor theory for an oligopoly situation. 5
8. a) Explain why each of the following statements about profit-maximizing competitive firms is incorrect. Restate each one correctly. 15
- i. A competitive firm will produce output up to the point where price equals average variable cost.
 - ii. A firm's shutdown point comes where price is less than minimum average cost.
 - iii. A firm's supply curve depends only on its marginal cost. Any other cost concept is irrelevant for supply decisions.
 - iv. The $P = MC$ rule for competitive industries holds for upward-sloping, horizontal, and downward sloping MC curves.
 - v. The competitive firm sets price equal to marginal cost.
- b) What are the main characteristics of a competitive market? Does a competitive firm's price equal its marginal cost in the short run? 10

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Semester Final Examination

Summer Semester, A. Y. 2018-2019

Course No. : BTM 4401

Time : 3 Hours

Course Title : Legal Environment of Business

Full Marks : 150

There are **8 (Eight)** questions. Answer any **6 (Six)** questions. All questions carry equal marks. Marks in the margin indicate full marks. Do not write on this question paper.

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1. a) What is meant by legal environment of business? Describe the reasons for studying the course Legal Environment of Business. 10
 - b) What should be the essential features of a legal system? What are the sources of laws? 8
 - c) Describe the major schools of legal thoughts. 7
 2. a) What is a partnership firm? What essential elements are required to form a partnership firm? 9
 - b) What do you mean by doctrine of implied authority? What are the limitations of the scope of this authority? 8
 - c) What is dissolution of partnership firms? Describe the modes of dissolution of partnership firms. 8
 3. a) What is a joint stock company? Describe the procedures of forming a joint stock company in Bangladesh. 9
 - b) What is Memorandum of Association? Write the major contents of a Memorandum of Association. 8
 - c) Can a public limited company start its normal business operations upon receiving the Certificate of Incorporation? Which formalities are needed for commencing its normal business operations? 8
 4. a) What is a prospectus? List the major information contained in a prospectus. 8
 - b) Who are liable for misstatement in the prospectus? Write the liabilities for such misstatement in the prospectus. 9
 - c) Who is a director of a joint stock company? Write the legal positions of a director. Who are eligible to be a director? 8
 5. a) What is labor law? Write the scope of labor law. 9
 - b) Define "Factory" and "Manufacturing Process" according to the provisions of Bangladesh Labor Code 2006. 6

- c) Write the major health and hygiene rules contained in the Bangladesh Labor Code 2006. 10
6. a) Briefly explain the major safety issues of workforces from HR perspective. 8
- b) Describe the rules regarding the safety measures against fire and fencing of machinery. 9
- c) State the powers of the Inspector in relation to certain cases of danger. 8
7. a) What are the welfare programs? Describe the major welfare programs undertaken by Human Resource Department in developed economies. 10
- b) Mention the major welfare issues that must be considered in the factories of Bangladesh? 8
- c) Describe the rules contained in the Bangladesh Labor Code 2006 regarding the working hours and leaves of the workers. 7
8. a) What is meant by good-faith bargaining? Identify the situations that oppose good-faith bargaining. 10
- b) Discuss the various forms of bargaining issues. 8
- c) The employees of a textile mill limited are trying to unionize the organization but the management is reluctant to this move but does not disclose this to the workers. Management accordingly makes the necessary arrangement for the election. In the meantime, it negotiates with a few senior and reliable workers and offers to provide extra incentives for overall workers for the upcoming year. Who will be held for unfair labor practice? 7

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DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination

Summer Semester, A.Y. 2018-2019

Course Code : Math 4461

Time : 3.00 Hours

Course Title : Business Statistics

Full Marks : 150

There are **8 (Eight)** questions. Answer **any 6 (six)** questions. All questions carry equal marks. Marks in the margin indicate full marks. Do not write on this question paper. Programmable calculators are not allowed.

1. (a) What is least-square method? How would you apply least square method to fit regression line in the scatter diagram? 06
- (b) How can you measure strength of association and test significance in multiple regression analysis? 07
- (c) Interpret the following table assuming that attitude toward the city is the dependent variable and the sample size is 12: 12

Multiple Regression					
Multiple R	0.97210				
R ²	0.94498				
Adjusted R ²	0.93276				
Standard Error	0.85974				
Analysis of Variance					
	df	Sum of Squares	Mean Square	F-Value	Significance of F
Regression	2	114.26425	57.13213	77.29364	0.00000
Residual	9	6.65241	0.73916		
Variables in the Equation					
Variable	<i>b</i>	SE _B	Beta(<i>B</i>)	t	Significance of t
Importance	0.28865	0.08608	0.31382	3.353	0.0085
Duration	0.48108	0.05895	0.76363	8.160	0.0000
(constant)	0.33732	0.56736		0.595	0.5668

*Duration =Duration of residence and importance= importance of weather.

2. (a) What is product moment correlation? State the different names of product moment correlation? How would you differentiate partial correlation and part correlation? 05
- (b) The following table shows data about in-store promotion and sales. The in-store promotion is measured in categorical scale such that 1=high in store promotion, 2=medium in store promotion and 3= low in store promotion. You need to determine eta square (η^2) and F-statistic for one-way ANOVA. Assume with 2 and 9 degree of freedom table F is 4.10. 14

Coupon Level (X)	Sales (Y)
1	10
1	7
1	10
1	9
2	8
2	6
2	5
2	9
3	6
3	4
3	3
3	7

- (c) How can you determine the significance of N-way ANOVA in case of overall effect, interaction effect and main effect? 06
3. (a) What is time series analysis? Describe the four components of time series analysis? 10
- (b) Determine the seasonal index for the following data about quarterly sales of Coca-Cola: 15

Year	Winter	Spring	Summer	Fall
2016	6.7	4.6	10.0	12.7
2017	6.5	4.6	9.8	13.6
2018	6.9	5.0	10.4	14.1

*You need to consider only 2 values after the decimal point.

4. (a) Describe the characteristics of normal probability distribution. 05
- (b) Layton Tire and Rubber Company wishes to set a minimum mileage guarantee on its new MX100 tire. Tests reveal the mean mileage is 67,900 with a standard deviation of 2,050 miles and that the distribution of miles follows the normal probability distribution. Layton wants to set the minimum guaranteed mileage so that no more than 4 percent of the tires will have to be replaced. What minimum guaranteed mileage should Layton announce? 08

- (c) Southwest Arizona State University provides bus service to students while they are on campus. A bus arrives at the North Main Street and College Drive stop every 30 minutes between 6 A.M. and 11 P.M. during weekdays. Students arrive at the bus stop at random times. The time that a student waits is uniformly distributed from 0 to 30 minutes. 12
- I. Draw a graph of this distribution.
 - II. Show that the area of this uniform distribution is 1.00.
 - III. How long will a student “typically” have to wait for a bus? In other words, what is the mean waiting time? What is the standard deviation of the waiting times?
 - IV. What is the probability a student will wait more than 25 minutes?
 - V. What is the probability a student will wait between 10 and 20 minutes?
5. (a) “Data can be classified according to levels of measurement. The level of measurement of the data dictates the calculations that can be done to summarize and present the data. It will also determine the statistical tests that should be performed.”-Based on this statement discuss about different levels of measurement along with their characteristics, applications and relevant examples. 12
- (b) Listed below are the commissions earned last month by a sample of 15 brokers at Salomon Smith Barney’s Oakland, California office. Salomon Smith Barney is an investment company with offices located throughout the United States. 13
- | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 2,038 | 1,758 | 1,721 | 1,637 | 2,097 | 2,047 | 2,205 | 1,787 |
| 2,287 | 1,940 | 2,311 | 2,054 | 2,406 | 1,471 | 1,460 | |
- I. Locate the median, the first quartile, and the third quartile for the commissions earned.
 - II. Draw a box plot on the basis of information given above. Comment on the shape of the distribution.
 - III. Determine whether there is any outlier in this distribution of data.
6. (a) Describe why is it important to study dispersion? How can you interpret standard deviation using empirical rule and Chebyshev’ theorem? 08
- (b) Describe the various steps for constructing frequency distribution. 08
- (c) The number of traffic citations issued last year by month in Beaufort County, South Carolina, is reported below: 09
- | Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Citation | 19 | 17 | 22 | 18 | 28 | 34 | 45 | 39 | 38 | 44 | 34 | 10 |
- Determine the population variance and interpret the result.
7. (a) Describe various characteristics of binomial probability distribution. 04
- (b) Describe different sampling methods with relevant examples. 12
- (c) Last month, the National Association of Theater Managers conducted a survey of 500 randomly selected adults. The survey asked their age and the number of times they saw a movie in a theater. The results are summarized in the following table: 09

Movies Per Month	Age			Total
	Less than 30 (B ₁)	30 up to 60 (B ₂)	60 or Older (B ₃)	
0 (A ₁)	15	50	10	75
1 or 2 (A ₂)	25	100	75	200
3,4, or 5 (A ₃)	55	60	60	175
6 or More (A ₄)	5	15	30	50
Total=	100	225	175	500

Determine the probability of:

- I. Selecting an adult who attended 6 or more movies per month
 - II. Selecting an adult who attended 2 or fewer movies per month
 - III. Selecting an adult who attended 6 or more movies per month or 60 years of age or older
 - IV. Selecting an adult who attended 6 or more movies per month given the person is 60 years of age or older
 - V. Selecting an adult who attended 6 or more movies per month and is 60 years of age or older.
8. (a) Describe the central limit theorem with relevant chart examples. 05.
- (b) The Quality Assurance Department for Cola Inc. maintains records regarding the amount of cola in its Jumbo bottle. The actual amount of cola in each bottle is critical, but varies a small amount from one bottle to the next. Cola Inc. does not wish to under fill the bottles, because it will have a problem with truth in labeling. On the other hand, it cannot overfill each bottle, because it would be giving cola away, hence reducing its profits. Its records indicate that the amount of cola follows the normal probability distribution. The mean amount per bottle is 31.2 ounces and the population standard deviation is 0.4 ounces. At 8 A.M. today the quality technician randomly selected 16 bottles from the filling line. The mean amount of cola contained in the bottles is 31.38 ounces. Is this an unlikely result? Is it likely the process is putting too much soda in the bottles? 08
- (c) Playtime Toys Inc. employs 50 people in the Assembly Department. Forty of the employees belong to a union and ten do not. Five employees are selected at random to form a committee to meet with management regarding shift starting times. What is the probability that four of the five selected for the committee belong to a union? 06
- (d) Coastal Insurance Company underwrites insurance for beachfront properties along the Virginia, North and South Carolina, and Georgia coasts. It uses the estimate that the probability of a named Category III hurricane (sustained winds of more than 110 miles per hour) or higher striking a particular region of the coast (for example, St. Simons Island, Georgia) in any one year is .05. If a homeowner takes a 30-year mortgage on a recently purchased property in St. Simons, what is the likelihood that the owner will experience at least one hurricane during the mortgage period? 06

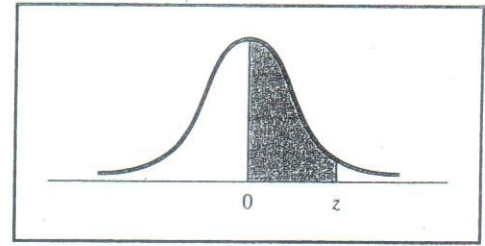


TABLE 2
Area Under the Normal Curve

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.49865	.49869	.49874	.49878	.49882	.49886	.49889	.49893	.49897	.49900
3.1	.49903	.49906	.49910	.49913	.49916	.49918	.49921	.49924	.49926	.49929
3.2	.49931	.49934	.49936	.49938	.49940	.49942	.49944	.49946	.49948	.49950
3.3	.49952	.49953	.49955	.49957	.49958	.49960	.49961	.49962	.49964	.49965
3.4	.49966	.49968	.49969	.49970	.49971	.49972	.49973	.49974	.49975	.49976
3.5	.49977	.49978	.49978	.49979	.49980	.49981	.49981	.49982	.49983	.49983
3.6	.49984	.49985	.49985	.49986	.49986	.49987	.49987	.49988	.49988	.49989
3.7	.49989	.49990	.49990	.49990	.49991	.49991	.49992	.49992	.49992	.49992
3.8	.49993	.49993	.49993	.49994	.49994	.49994	.49994	.49995	.49995	.49995
3.9	.49995	.49995	.49996	.49996	.49996	.49996	.49996	.49996	.49997	.49997

Entry represents area under the standard normal distribution from the mean to z.