Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Business Mathematics   **Due on: December 6, 2019**

Instructions for Assignment Submission

1. *Answer all questions in your own handwriting on A4 size white paper.*
2. *Fill-in the cover page (see page#8 of Semester Calendar) of your assignment with care.*
3. *Submit the assignment to the study centre coordinator or his delegate and ensure his/her signature on your Assignment Acknowledgement Form (see page#9 of Semester Calendar).*
4. *Don't make spiral binding. Instead, make soft binding.*
5. *Send a mail with your ID Number and Level to **mbacoordinator.bou@gmail.com** with subject "Add Me", if your e-mail address is not yet added to our e-mail list.*
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Questions

1. (a) Define Set, Infinite set and Power set and Union of sets with examples.
   (b) If A = {1,2,3}, B= {2,3,4,5} and C = {2,4,6,8}, then prove that A – (B$\cup$C) = (A – B) $\cap$ (A – C).

2. Out of total 150 students who appeared for ICWA examination, 45 failed in Accounts, 50 failed in Maths, and 30 is Costing. Those who failed both in Accounts and Maths were 30, those who failed both in Maths and Costing were 32 and those who failed both in Accounts and Costing were 35. The students who failed in all the three subjects were 25. Find out the number who failed at least in *any one of the subjects* and who failed in *only one* subject.

3. (a) What are the fundamental rules of logarithmic operations?
   (b) Simplify $7\log\dfrac{10}{9}$ - $2\log\dfrac{25}{24}$ + $3\log\dfrac{81}{80}$

4. (a) In how many ways 6 men can sit at a round table so that all shall not have the same neighbours in any two arrangements?
   (b) Find out the ways of forming a cricket team consisting of 11 players among 14 players where (i) team will include captain (ii) team will not include captain.

Note: Submit your assignment to the Coordinator of the Study Center you are attached with.

‍স্কুল অব বিজনেস

Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Business Mathematics   **Due on: January 31, 2020**

(Answer all the questions in your own handwriting on A4 size white pages)

1. If $A = \begin{bmatrix} 2 & 7 & 0 \\ 4 & -5 & 8 \\ 6 & 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -5 & 9 \\ 2 & 5 & 3 \\ 1 & 9 & 7 \end{bmatrix}$, evaluate the following

   (i) $3A - 5B$ (ii) $A^T B^T$

2. What do you understand by differential calculus and integral calculus? How does differential calculus differ from integral calculus?

3. Differentiate the following functions with respect to X and identify which functions are increasing and which are decreasing at X=5:

   i) $Y = 4X+3$
   ii) $Y = 7X^2 + 6X + 5$
   iii) $Y = 5e^{X+2} + 3$
   iv) $Y = Log_a X^2$

4. Find the critical point of the following function and identify their nature (maximum, minimum or point of inflection):
   (i) $Y = 2X^2 - 16X + 70$

5. Find the slope of the following functions at X=5:
   i) $Y = 2X^2 - 16X + 50$
   ii) $Y = X^2 + 8X + 15$
   iii) $Y = \ln X^2$

6. Distinguish between definite integral and indefinite integral? Evaluate:

   $(i) \int (e^{5X} - X^2) dX$;

   $(ii) \int_0^5 (X^2 - 2X + 5) dX$

7. Suppose, the marginal cost of a firm is $f'(Q) = 3Q^2 + 5Q + 50$.
   What will be the total cost if the firm produces 30 units of the product?

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8. (a) A manufacturer's marginal cost function is given by MC = $3000 - 44x + 3x^2$, where x is the number of unit produced. The fixed cost of production is Tk.28,000. Find the total cost function and average cost function.

   (b) The supply function for a product is p,(q) = $(4 + 0.2q)^{3/2}$, where q is in thousand of truckloads and p,(q) is in dollars per truckload. Market equilibrium occurs at a demand of 60 thousand truckloads, Compute producer's surplus.

9. **Read the following case carefully and answer the questions that follow:**

A survey of 400 recently qualified Chartered Accountants revealed that 112 joined in industry, 120 started practice and 160 joined the firms of practicing chartered accountants as paid assistants. There were 32 who joined in industry and also did practice; 40 had both practice and assistantship and 20 had both job in industry and assistantship. There were 12 who did all the three.

Questions:

(a) Find out how many could not get any of these and how many did only one of these.

    (i) Chartered Accountants who works in Industry earns Tk.70,000 per month.
    (ii) Chartered Accountants who works as paid assistant earns Tk.70,000 per month.
    (iii) Chartered Accountants are practicing earn Tk.120,000 per month.

(b) Find the grand total monthly amount of earning of all Chartered Accountants.

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Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Business Statistics for Decision Making   **Due on: December 6, 2019**

Instructions for Assignment Submission

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Questions

1. a) Do you use statistics in making the decisions? Give one example from your own context where you need to make a decision. Then identify what kind of statistics can be useful to make a meaningful decision? What's wrong if you do not use statistics?

   b) Which of the following are data and of what types?
   Age, Karim's age is 34yrs, Color, Color of the hair is black, Height of this building is 30ft, Income of Karim is TK. 10000, Gender, Rani is female.

   c) In survey on MBA Program, the following data were found on the ages of the students: 27, 24, 25, 30, 26, 27, 16, 30, 27, 29, 30, 32, 33, 27, 38, 40, 41, 30, 27, 41, 29, 32, 32, 38, 45, 34, 25, 55, 35, 32, 33, 28.
      i.   Prepare a discrete frequency table
      ii. Draw the bar diagram

2. a) Distinguish between relative frequency and cumulative frequency. Do you think histogram can be drawn from any type frequency table? Why or why not?

   b) In our last survey, we got the following data on the ages of the income of the MBA 152 students: 10000, 15000, 20000, 50000, 45000, 5000, 23000, 17000, 34000, 42000, 43000, 12000, 7000, 4000, 22000, 46000, 26000, 10000, 3000, 48000, 36000, 13000, 45000.
      iii. Prepare a continuous frequency table with 5 classes
      iv.   Find the relative frequency and "less than" cumulative frequency.

Note: Submit your assignment to the Coordinator of the Study Center you are attached with.

3. a) What are the measures of central value where all the data are used?
    b) The data on the income of MBA 2307 students are given in the table below.

Grades (Inclusive)	Number of students
0 - 20	3
20 - 40	4
40 - 60	6
60 - 80	3
80 - 100	2

   i. Find the mean income of the students.
   ii. Suppose, BOU wants to offer scholarships to the MBA 2307 students based on their merits. The scholarship offers are – **Category 1:** 50% waiver of their course fees for top 10% students and **Category 2:** 25% course fee waiver for next 10% students. Now find the grades of the students who deserve scholarships of Category 1 and also the grades of the student who deserve Category 2 scholarships.

4. a) What is mode? Do you think a frequency distribution may have multiple mode? Give an example.

    b) Suppose, the MBA students planned to buy T-shirts for each of them for picnic party. The data on sizes of the T-shirts for the students found in a recent survey were as follows -

Size (cm) (Inclusive)	Number of students
40 - 50	10
50 - 60	20
60 - 70	60
70 - 80	50
80 - 90	30

   If they like to buy a single size for all, which size of the T-shirts will be most appropriate?

5. a) In what cases, relative measures of variation are helpful?
    b) If you plan to buy a TV, which of the following brands will be statistically meaningful to purchase? The data on the brands for last 11 years are given below:

Lifetime (Yrs) [Inclusive]	Sony	Singer
1-4	3	1
4-7	10	4
7-10	30	24
10-13	28	40
13-16	13	15

Note: Submit your assignment to the Coordinator of the Study Center you are attached with.

স্কুল অব বিজনেস

Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Business Statistics for Decision Making   **Due on: January 31, 2020**

(Answer all the questions in own handwriting on A4 size white pages)

1. a) What is correlation? If the correlation between advertisement cost and revenue of a firm is 0.95, do you think the firm should continue spending on advertisement?

   b) The following data have been taken from a group of employees of BOU. Check whether the students' years of schooling got any association with their income. If yes, what is the degree of association?

Years of schooling (Years)	5	8	10	12	14	16
Income (Thousand)/Month	20	25	28	30	35	60

2. a) How is the measure of causality different from the measure of association? How measure of causality helps in business decision making?

   b) Following are the data on Price (P) and Quantity Demanded (Q) for Hilsa fish –

Price (P)	Quantity Demanded (Q)
100	100
120	90
130	85
140	78
160	70

   Requirements:

   i) Find $\overline{P}$, $\overline{Q}$

   ii) Estimate the equation Q=a+bP that best fits the data.

   iii) If P=115, what will be the value of Q?

3. Define sampling. What are the advantages of sampling over census?

4. What is normal distribution? Discuss the properties of the normal distribution. Suppose, the duration of a particular project is normally distributed with a mean of 12 days and a standard deviation of 3. What is the probability that the project will be completed in 15 days?

5. What is estimation? Why do we go for estimation? The daily wages of 10 randomly sampled farm labourers are: 14, 17, 14.5, 22, 27, 16.5, 19.5, 21, 18 and 22.5. (i) What is the best estimate of the mean daily wages of the farm labourers? (ii) What is the standard error of the mean? (iii) What is the 95% confidence interval for the population mean?

Note: Submit your assignment to the Coordinator of the Study Center you are attached with.

স্কুল অব বিজনেস

Bangladesh Open University
MBA Program
Semester: 182 (2ⁿᵈ Level)

Course: Organizational Behavior   **Due on: December 6, 2019**

Instructions for Assignment Submission

1. *Answer all questions in your own handwriting on A4 size white paper.*
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Questions

1. (a) What do you mean by Organisation Behaviour? Explain how different discipline contributed to the field of Organisation behavior?
   (b) Discuss the most critical issues that today's managers confront for which OB offers solutions – at least some meaningful insights toward solutions.

2. (a) What are learning and social learning? Discuss the four processes that have been found to determine the influence that a model will have on an individual.
   (b) Discuss the impact of satisfied and dissatisfied employees on workplace.

3. (a) What is perception? Explain the factors that influence perception.
   (b) What is rational model of decision making? How is it different from bounded rationality and intuition? Discuss.

Note: The assignment must be submitted to the Coordinator of the study center you are attached with.

স্কুল অব বিজনেস

Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Organizational Behavior   **Due on: January 31, 2020**

(Answer all the questions in own handwriting on A4 size white pages)

1. (a) Define motivation. In Vroom's model, what are valence, expectancy, and force? How do these variables relate to one another and to work motivation? Give realistic examples.

   (b) Why does Fiedler use LPC (Least Preferred Coworker) questionnaire? What are the three critical situational variables identified by Fiedler? If these are very favorable or unfavorable, what is the most effective leadership style to use?

2. (a) What do you mean by organizational culture? State the important characteristics of organizational culture.

   (b) Discuss the coping strategies that can be designed by management to eliminate or control organizational level stressor in order to prevent or reduce job stress for individual employees.

3. **Go through the case and answer the question below the case:**

   "If Two Heads Are Better Than One, Are Four Even Better"

   Maggie Becker, 24, is a marketing manager for Kavu, a small chain of coffee shops in eastern Ohio. Recently, Maggie's wealthy uncle passed away and left to Maggie, his only niece, Tk.100,000. Maggie considers her current salary to be adequate to meet her current living expenses, so she'd like to invest the money so that when she buys a house she'll have a nice nest egg on which to draw.

   One of Maggie's neighbors, Brian, is a financial advisor. Brian told Maggie there was a virtually endless array of investment options. She asked him to present her with two of the best options, and this is what he came up with.

   (1) **A very low-risk AAA municipal bond fund**. Wish this option, based on the information Brain provided, Maggie estimates that after 5 years she stands virtually zero chance of losing money, with an expected gain of approximately Tk. 7,000.

   (2) **A moderate – risk mutual fund**. Based on the information Brain provided her, Maggie estimates that with this option she stands a 50 percent chance of making Tk.40,000 but also a 50 percent chance of losing Tk.20,000. Maggie prides herself on being rational and objective in her thinking. However, she's unsure of what to do in this case. Brian refuses to help her, telling her that she's already limited herself by asking for only two options. While driving to her parents' house for the weekend, Maggie finds herself vacillating between the two options. Her older brother is also visiting the folks this weekend, so Maggie decides to gather her family around the table after dinner, lay out the two options, and go with their decision. "You know the old saying – two heads are better than one," she says to herself, " So four heads should be even better."

Note: The assignment must be submitted to the Coordinator of the study center you are attached with.

Questions:

(a)   Has maggic made a good decision about the way she is going to make the decision?

(b)   Which investment would you choose? Why?

(c)   Which investment do you think most people would choose?

(d)   Based on what you have learned about group shift, Which investment do you think Maggie's family will choose?

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স্কুল অব বিজনেস
Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Human Resource Management   **Due on: December 06, 2019**

Instructions

- ➢ Answer the all questions in your <u>own handwriting</u> on <u>A4 size white paper</u>.
- ➢ The assignment must be submitted on the assigned date to the Coordinator of the study center you are attached with.
- ➢ Spiral binding is strictly prohibited. Instead, transparent folder or file cover or any other soft binding may be used.

Questions

1. (a)   What do you mean by human resource management? Explain the scope of human resource management.

    (b)   Discuss the model of human resource management.

    (c)   State the objectives of human resource management.

2. (a)   Identify the major environmental influences on human resources management.

    (b)   Explain the constraints of human resources management.

3. (a)   What is HR planning? Describe the reasons for HR planning.

    (b)   Discuss the steps of human resource planning.

    (c)   State the human resource forecasting techniques.

4. (a)   What is job analysis? Explain the uses of job analysis.

    (b)   Discuss the process of job analysis.

Note: Submit your assignment to the Coordinator of the Study Center you are attached with.

Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Human Resource Management   Due on: January 31, 2020

(Answer all the questions in own handwriting on A4 size white pages)

1. (a) What is recruitment? Explain the constraint of recruitment.

   (b) Discuss the process of recruitment.

2. (a) What is selection? Explain the process of selection.
   (b) What are the types of test? Describe.

3. (a) What is career planning? Explain the benefits of career planning.

   (b) Discuss the types of training methods.

   (c) Discuss the process of management development.

4. (a) State the uses of performance appraisal information.

   (b) Explain the steps in performance appraisal.

   (c) Discuss the methods of performance appraisal.

5. **Read the following passage and answer the question that follow:**

   After 10 years in business, Khaled Khan has determined that it is time to hire a few sales representatives. As the founder and president of United Transport Company, Khaled has been the main driver of new business sales for the company. However, as the company has grown, Khaled has found that he must spend more time on planning and administration, having little time to generate sales leads or call on potential customers.
   Khaled wanted to design an incentive structure to the new sales force. He studied (i) Piecework incentive system of pay based on the number of items processed by each individual worker in a unit of time, such as items per hour or per day ; (ii) Output and target-based bonus scheme that an employee will get an hourly rate plus a bonus when the employee exceeds the standard output target; (iii) Commission bonuses based on a percentage of sales in units or taka. It may be paid as a flat amount for each unit sold; (iv) Bonus measured day work that an employee will get a day wages plus a bonus for excess output produced or processed in that day; (v) Group or team Bonus Schemes in which members are given incentive on their joint work that achieves its target or contributes significantly to the organizational performance. He also studied the schemes with organization –wide impact such as suggestion scheme , gain sharing , and profit sharing. Khaled was in a puzzle to decide which one will suit best with his new company as he wanted effective contributions from the sales force and that fits with his organization.

   Discussion question
   Which type of incentive scheme will you think best –fit with the company and why?

Bangladesh Open University
MBA Program
Semester: 182 (2nd Level)

Course: Managerial Economics   **Due on: December 6, 2019**

Instructions for Assignment Submission

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Questions

1. What is managerial economics? Discuss the relationship between managerial economics and regular economics.

2. State the law of demand and show it through a demand schedule and a demand curve. What are exceptions to the law of demand?

3. What is utility? Is it measurable? Describe different approaches to the measurement of utility.

4. What is consumer surplus? Explain it graphically.

5. We give below short-run total cost function:
   $TC = 100 + 50Q - 12Q^2 + Q^3$ where TC is total cost and Q is level of output.
       (i) Determine (a) total fixed cost function (b) total variable cost function (c) average variable cost function, (d) marginal cost function.

       (ii) Calculate TC, ATC, AVC and MC when the firm produces 10 units of output.

       (iii) Calculate the level of output at which AVC is minimum.

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Bangladesh Open University
MBA Program
Semester 182 (2nd Level)

Course: Managerial Economics   **Due on: January 31, 2020**

(Assignment is to be presented in own handwriting on A4 size white pages)

1. Discuss the law of variable proportions. What are the causes of diminishing returns?

2. Explain the relationships among total product, average product and marginal product. Why does not make any economic sense to produce in stage 1 or 3?

3. Explain the relationship between AR and MR curves of a competitive firm.

4. What is monopoly? State the characteristics of monopoly market.

5. **Read the following case carefully and answer the questions that follow:**

    Electricity Consumption

    Shanghai is China's financial and business hub. In late July 2004, with daytime temperatures reaching 37 degrees Celsius, the city's electricity consumption surged to a weekly record of 14.35 million kilowatt hours. The city authorities resorted to asking 2,100 businesses to operate at night, and a further 3,000 others to adjust operating hours.

    Even high-profile multinational companies were not spared. General Motors and Volkswagen were ordered to suspend production for more than a week each. Shanghai Volkswagen spokesman Lu Jun explained, "It's a rule. We have to cut power for 10 days … We've cut power and so have had to stop production. It's all over Shanghai".

    The Shanghai episode mirrored a nationwide shortage of electric power. In Beijing, on July 22, 2004, the Municipal Power Supply Bureau imposed the capital's first brownout of the year, disrupting supply to suburban areas for 47 minutes in the afternoon. The Chinese government has certainly been working tirelessly to resolve the power crisis. Thermal coal is the principal fuel used to generate electric power in China. In July, Premier Wen Jiabao exhorted, "Railway departments should do their utmost for the transport of coal for electricity generation".2 The Ministry of Railways increased train speed and freight loads, and allocated 90% of freight capacity to transport key materials. In the first half of 2004, Chinese railways shipped 480 million tons of coal, up 12.2% over the same period last year. The Ministry of Communications has also pitched in. It diverted ships from overseas routes to domestic coal transport and approved emergency coal transportation on various roads and waterways.

    China is the world's second-biggest coal exporter. In 2003, China exported 93 million tons of coal, including 80.8 million tons of thermal coal. To assure supplies to the electric power industry, the Chinese government has limited coal exports to 80 million tons in 2004. China Coal Import & Export Vice President Zhou Dongzhou predicted that exports of thermal coal would fall to 70 million tons.

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Since the 1960s, the Chinese government has regulated the supply of thermal coal to electric power plants. It requires coal mines to supply power plants with about one-quarter of coal purchases at a contract price. The government regulates the supply of coal to support its regulation of the electricity industry. In the late 1990s, the Chinese government dissolved the

Ministry of Electric Power, and divided its functions between the State Electricity Regulatory Commission (SERC) and the State Power Corporation of China.

The State Power Corporation owns five of the six transmission grids (Northwest, North, Northeast, Central, and East) and about half of the national generating capacity. Regulation is necessary to ensure that the State Power Corporation does not abuse its monopoly power. The SERC regulates all aspects of the electricity industry, except pricing. With regard to electricity pricing, the SERC's role is to advise the National Development Reform Commission (NDRC). To ensure that electric power generation is economically viable, mines are required to sell coal cheaply to power plants. Typically, the government sets the contract price below the spot market price. For instance, between 2003-04, while the spot market price of thermal coal rose by 25%, the contract price rose by only 10%. Many mines have ignored their contracts with power plants and sold coal on the spot market to earn higher profits. Some power plants cut back production, so exacerbating the national power shortage. Some estimate that the nationwide power shortage will soon reach 30 million kilowatts, which is more than double Shanghai's peak consumption.

With China headed for a power crisis, the government is under pressure to increase electricity prices. In June 2004, following persistent rises in the cost of fuel, the NDRC increased electricity prices by an average of 2.2 fen per kilowatt hour in the East, North, Central, and South grids. But, apparently, this increase has not been sufficient. The threat of a power crisis continues.

Questions:

1. Explain how the impact of a price increase on electricity consumption depends on the price elasticity of demand.

2. The price elasticity of the Indian demand for electricity has been estimated to be -0.65 among residential users and -0.45 among industrial users. If these elasticities apply to China as well, how will the impact of a price increase be spread between residential as compared with industrial users?

3. Many Chinese organizations ignore the market system. For instance, they borrow money from banks and refuse to repay, thus creating "bad debts" for lenders. Likewise, they might consume electricity without bothering to pay the power supplier. Do such organizations cause the demand for electricity to be more or less price elastic?

4. Suppose that the Chinese government regulates the electricity industry through marginal cost pricing.

a. How does the contract price of thermal coal affect an electric power plant's *marginal cost*?

b. If the contract price were raised to 99% of the spot market price, how would that affect the electric power plant's production?

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