

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

**DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT**

Semester Final Examination

Winter Semester, A. Y. 2017-2018

Course No. : BTM 4101

Time : 3 Hours

Course Title : Principles of Management

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) Define the term 'manager' in your own words. What are the fundamental functions of management process? Discuss. 10
    - b) Explain the roles of a manager which was identified by Henry Mintzberg. Give relevant example as appropriate. 8
    - c) In today's environment, which is more important to organization -- efficiency or effectiveness? Justify your choice. 7
  2.
    - a) Describe the major contributions of scientific management and administrative management. What assumptions are made about workers in these theories? 8
    - b) Can a manager use tools and techniques from several different perspectives at the same time? For instance, can a manager use both classical and behavioral perspectives? Give an example of a context when a manager does this. 7
    - c) Elaborate the historical development of management theories and discuss precursors to modern management theory. 10
  3.
    - a) Discuss the impact of dimensions in the context of organizations general environment. For each dimension, give at least one specific example. 8
    - b) Develop a model that should guide a manager for ethical decision making in an organization. 7
    - c) How does environment affect organizations? Develop a model of organizational effectiveness that can adapt its environment. 10
  4. Read the following case; then answer the questions that follow.

How important is Steve Jobs to Apple computer, the company that he co-founded in 1976 and which he has twice served as CEO? Apple's remarkable success in marketing a steady stream of new-product innovations depends in part on its ability to project a certain mystique and generate buzz, and Jobs has been crucial to that strategy. "He's really the face of the company", says Kendall Whitehouse of the University of Pennsylvania's Wharton School of Business. "Jobs (has been) the centerpiece for refocusing the company and brand."

In January 2009, however, Jobs disclosed that he was suffering from a "hormone imbalance" and announced that he was taking a medical leave of absence during which chief operating officer Tim Cook would assume the bulk of his



responsibilities. Jobs hastened to add that he was receiving treatment and promised that "I will be the first one to step up and tell our board of directors that I can no longer continue to fulfill my duties as Apple's CEO." For some analysts, however, this personal reassurance wasn't enough to resolve questions about the company's future. Apple, they felt, had done little to quell long-standing rumors about Job's health and had revealed even less about his plans for carrying on in his absence, whether short or long term.

It's not an unusual reaction. "Investors get worried," says Wharton's Peter Capelli "if they think the future of an entire company depends on a couple of key individuals". Capelli hastens to add, however "in fact, that's almost never the case. This bias-attributing the success of organizations to individuals-is pretty common. [But] all the studies show that .....companies don't collapse when the leader departs and there's some time to fill the job."

Filling the job, especially at large organizations, is usually a matter of succession planning-the process of managing the transition from one CEO (or, indeed, just about any manager) to another. Having such a plan is obviously a good idea-if as Capelli and other experts emphasize, it's approached in the right way. "Succession planning per se," says Capelli, "is a waste of time.....Because [a firm] needs change so frequently.....there's no real ability to plan. [Formal succession plans].... Almost always get tossed aside because they're out of date."

So what's the right approach to filling an organization's top jobs? Jim Moore, former chief learning officer at Sun Microsystems, suggests that executives and experts alike start thinking in terms of succession development instead of succession planning. "Plans," he contends, "do not develop anyone -only development experiences develop people." In fact, he adds, "Succession-planning process.....sometimes create a false sense that the planning process is an end in itself rather than a precursor to real development."

And what constitutes "real development"? According to Roert M.Fulmer of Pepperdine University's Graziado School of Business and Management, it includes "leadership development, tracking and developmental opportunities. The real key," says Fulmer, who prefers the term "succession management," "is to create a match between the organization's needs and the aspirations of individuals" within the organization. As such, the process involves human resource directors as well as strategic planners: Succession management says Fulmer, a member of a team commissioned by the American Productivity and Quality Center (APQC) to study best practices in succession management among U.S. companies "identifies and monitors various talent pools within the organization to match the future needs of the organization with the bench strength of available talent." Capelli agrees: It's important for any company to be developing talent internally," he says. "And it's also important to be promoting people from within." The APQC study found that best-practice firms spend a lot of time creating developmental activities that are in line with their organizational needs.

Another tricky issue is the extent to which the succession development process should be transparent. Experts agree that when a company is in the process of putting a succession plan into action, it needs to let stakeholders-investors, customers, partners, employees-know what's going on. But how much should the company make known about the process and its ongoing status? As we have already seen, Apple's reluctance to reveal details about Steve Job's health and its plans for functioning without him as CEO caused some concern among investment



analysts when he stepped down in January 2009. Jobs' was back at work six months later, but the issue arose again in January of 2011, when Jobs announced he was taking another leave of absence in a terse-email that Apple released publicly.

Job's brief statement, said Charles Elson, an expert in corporate governance at the University of Delaware, "leaves a lot to the imagination-and that was the problem last time.....It does leave a lot for investors to worry about." And once again, some analysts were dissatisfied with Apple's handling of the situation. Said Kim Caughey Forrest of Fort Pitt Capital, an investment fund: "I'm not sure that the company and the board of directors in particular, have answered the question about succession planning. We had this issue [before], and the board was supposed to learn from it, but they haven't."

- a) In what ways can succession planning be regarded as a type of contingency planning? Under what circumstances might it be necessary for a company to treat its succession-planning process as a crisis management process? 5
  - b) How might a company use the process of goal setting to implement its succession plan? Be sure to consider the barriers to successful implementation that it might encounter. 5
  - c) When asked if Apple would provide more details about Job's second leave of absence, a company spokes-woman responded: "We've said all we're going to say." Is Apple obligated to offer any more details, particularly about the health of its CEO? One lawyer who advises corporate boards on such questions says that such details are material to investment decisions only "if you're asking shareholders to make decision based on [that] information ... You can't expect the company," he adds, "to give a blow-by-blow account of Steve Job's health." What do you think?  
If you were an Apple investor, what information would you regard as "material" to your decisions? What would you want to know in deciding whether to keep or sell your shares of Apple? 10
  - d) Mention the pros and cons of decentralization and centralization. 5
5. a) Critically explain the four basic levels of international business activity. Do you think any organization will achieve the forth level of international business activity? Explain. 10
  - b) Identify a product you recently purchased which is made in another country. What factors do you think caused it to be made by another country rather than host country? 8
  - c) Suppose, you are the CEO of an up-coming toy company and you have plans to go international market soon. What steps would you take to carry out your plan? How would you organize your company? 7
6. a) Draw the relationship between decision making and planning process. List the steps in a formal goal setting process. 12
  - b) What are the barriers to goal setting and planning of an organization? How does organization overcome these barriers? 6

- c) Illustrate the major elements of developing and executing tactical plans in organizations. 7
7. a) Most business decisions are made considering either risk or uncertainty. In your opinion, is it easier to make a decision under a condition of risk or a condition of uncertainty? Describe. 8
- b) Discuss about Delphi group technique for group decision making. Is it viable to make any decision based on Delphi group? 7
- c) Identify the steps of rational decision making for solving managerial problems? 10
8. a) What do you mean by 'organizing' as a function of management? Describe delegation procedure for distributing authority in an organization. 10
- b) Why most of the organizations are becoming flattened type now-a-days? 5
- c) Based on your knowledge on any firm, describe how it is departmentalized. 10



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**DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT**

Final Semester Examination

Winter Semester, A. Y. 2017-2018

Course No. : BTM 4103

Time : 3 Hours

Course Title : Financial Accounting I

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. Programmable calculators are not allowed. Do not write on this question paper.

1. a) Rifat, a fellow student, contends that the double-entry system means each transaction must be recorded twice. Is Rifat correct? Explain. 5
- b) Maquoketa Services was formed on May 1, 2017. The following transactions took place during the first month. Transactions are: 20
- i. Jay Bradford invested \$40,000 cash in the company, as its sole owner.
  - ii. Hired two employees to work in the warehouse. They will each be paid a salary of \$3,050 per month.
  - iii. Signed a 2-year rental agreement on a warehouse; paid \$24,000 cash in advance for the first year.
  - iv. Purchased furniture and equipment costing \$30,000. A cash payment of \$10,000 was made immediately; the remainder will be paid in 6 months.
  - v. Paid \$1,800 cash for a one-year insurance policy on the furniture and equipment.
  - vi. Purchased basic office supplies for \$420 cash.
  - vii. Purchased more office supplies for \$1,500 on account.
  - viii. Total revenues earned were \$20,000 of which \$8,000 cash and \$12,000 on account.
  - ix. Paid \$400 to suppliers for accounts payable due.
  - x. Received \$3,000 from customers in payment of accounts receivable.
  - xi. Received utility bills in the amount of \$380, to be paid next month.
  - xii. Paid the monthly salaries of the two employees, totaling \$6,100.

**Instructions**

- Prepare journal entries to record each of the events listed.
- Post the journal entries to T-accounts.
- Prepare a trial balance as of May 31, 2017.

2. a) Explain Materiality concept. 5
- b) DuPage Company purchases a factory machine at a cost of \$18,000 on January 1, 2017. DuPage expects the machine to have a salvage value of \$2,000 at the end of its 4-year useful life. During its useful life, the machine is expected to be used 160,000 hours. Actual annual hourly use was 2017, 40,000; 2018, 60,000; 2019, 35,000; and 2020, 25,000. 15

**Instructions**

Prepare depreciation schedules for the following methods:

- i. Straight-line,
- ii. Units-of activity, and
- iii. Declining-balance using double the straight-line rate.

- c) During 2017, Paola Corporation reported net sales of \$3,500,000 and net income of \$1,500,000. Its balance sheet reported average total assets of \$1,400,000. 5

**Instruction**

Calculate the asset turnover.

3. a) What is the monetary unit assumption? 5
- b) The trial balance of Avtar Sandhu Co. shown below does not balance. 20

**Avtar Sandhu Co.**  
**Trial Balance**  
**June 30, 2017**

	Dr.	Cr.
Cash		\$3340
Accounts Receivable	\$2812	
Supplies	1200	
Equipment	2600	
Accounts Payable		3666
Unearned Service Revenue	1100	
Owner's Capital		8000
Owner's Drawings	800	
Service Revenue		2480
Salaries and Wages Expense	3200	
Utilities Expense	<u>810</u>	
	<u>\$12522</u>	<u>\$17486</u>

Each of the listed accounts has a normal balance per the general ledger. An examination of the ledger and journal reveals the following errors.

- i. Cash received from a customer in payment of its account was debited for \$580, and Accounts Receivable was credited for the same amount. The actual collection was for \$850.
- ii. The purchase of a computer on account for \$710 was recorded as a debit to Supplies for \$710 and a credit to Accounts Payable for \$710.
- iii. Services were performed on account for a client for \$980. Accounts Receivable was debited for \$980, and Service Revenue was credited for \$98.
- iv. A debit posting to Salaries and Wages Expense of \$700 was omitted.
- v. A payment of a balance due for \$306 was credited to Cash for \$306 and credited to Accounts Payable for \$360.
- vi. The withdrawal of \$600 cash for Sandhu's personal use was debited to Salaries and Wages Expense for \$600 and credited to Cash for \$600.

**Instruction**

Prepare a correct trial balance.

(Hint: Prepare the correct journal entry for the transaction described and compare it to the mistake made.)

4. a) Assume it is now December 31, 2010, and Nicole has just completed her first year of operations at Nicole's Getaway Spa. After looking through her trial balance, she noticed that there are some items that have either not been recorded or are no longer up-to-date. 10
- i. Nicole's Getaway Spa is renting its space at a cost of \$600 per month. On September 1, 2010, Nicole paid eight months' rent in advance using cash. This prepayment was recorded in the account Prepaid Rent back in



September.

- ii. The building purchased at the beginning of the year for \$47,000 cash has estimated depreciation of \$2,000 for 2010, but none has been recorded yet.
- iii. Wages to the support staff at Nicole's Getaway Spa have been paid up to December 26, 2010. The support staff worked both December 27 and 28 and will be paid on January 5, 2011. Wages amount to \$1,000 per day.
- iv. The insurance policy, purchased on June 1 for \$3,000 cash, provides coverage for 12 months. The insurance coverage since June has now been used up.
- v. The unadjusted amount in the Spa Supplies account was \$2,000 at December 31, 2010, for supplies purchased on account. A year-end count showed \$700 of supplies remains on hand.
- vi. On the last day of December, a customer obtained spa services by using a \$90 gift certificate which was purchased earlier in the month. Use of the gift certificate to pay for these services had not yet been recorded.

**Instruction**

Prepare the adjusting journal entries that should be recorded for Nicole's Getaway Spa at December 31, 2010, assuming that the items have not been adjusted prior to December 31, 2010.

- b) Quinn Becker is the president of Better Books. She has no accounting background. Becker cannot understand why fair value is not used as the basis for all accounting measurement and reporting. Discuss. 5
- c) Victoria Lee Company had the following adjusted trial balance. 10

**Victoria Lee Company  
Adjusted Trial Balance  
For the month ended June 30, 2017**

	Dr.	Cr.
Cash	\$3712	
Accounts Receivable	3904	
Supplies	480	
Accounts Payable		\$1382
Unearned Service Revenue		160
Owner's Capital		5760
Owner's Drawings	550	
Service Revenue		4300
Salaries and Wages Expense	1260	
Miscellaneous Expenses	256	
Supplies Expense	1900	
Salaries and Wages Payable		460
	<u>\$12062</u>	<u>\$12062</u>

**Instructions**

- i. Prepare closing entries at June 30, 2017.
- ii. Prepare a post-closing trial balance.

5. a) "An adjusting entry may affect more than one balance sheet or income statement account." Do you agree? Why or why not? 5

- b) Devin Wolf Company has the following balances in selected accounts on December 31, 2017. 15

Accounts Receivable	\$ -0-
Accumulated Depreciation—Equipment	-0-
Equipment	7,000
Interest Payable	-0-
Notes Payable	10,000
Prepaid Insurance	2,100
Salaries and Wages Payable	-0-
Supplies	2,450
Unearned Service Revenue	30,000

All the accounts have normal balances. The information below has been gathered at December 31, 2017.

- i. Devin Wolf Company borrowed \$10,000 by signing a 9%, one-year note on September 1, 2017.
- ii. A count of supplies on December 31, 2017, indicates that supplies of \$900 are on hand.
- iii. Depreciation on the equipment for 2017 is \$1,000.
- iv. Devin Wolf Company paid \$2,100 for 12 months of insurance coverage on June 1, 2017.
- v. On December 1, 2017, Devin Wolf collected \$32,000 for consulting services to be performed from December 1, 2017, through March 31, 2018.
- vi. Devin Wolf performed consulting services for a client in December 2017. The client will be billed \$4,200.
- vii. Devin Wolf Company pays its employees total salaries of \$9,000 every Monday for the preceding 5-day week (Monday through Friday). On Monday, December 29, employees were paid for the week ending December 26. All employees worked the last 3 days of 2017.

**Instruction**

Prepare adjusting entries for the seven items described above.

- c) Zaragoza Company accumulates the following adjustment data at December 31. 5
- i. Services performed but not recorded total \$1,000.
  - ii. Supplies of \$300 have been used.
  - iii. Utility expenses of \$225 are unpaid.
  - iv. Services related to unearned service revenue of \$260 were performed.
  - v. Salaries of \$800 are unpaid.

**Instruction**

For each of the above items indicate the following: prepaid expense, unearned revenue, accrued revenue, or accrued expense.

6. a) Why is the normal operating cycle for a merchandising company likely to be longer than for a service company? 5
- b) Mr. McKenzie has prepared the following list of statements about service companies and merchandisers. 5
1. Measuring net income for a merchandiser is conceptually the same as for a service



company.

2. For a merchandiser, a sale less operating expenses is called gross profit.
3. For a merchandiser, the primary source of revenues is the sale of inventory.
4. Sales salaries and wages is an example of an operating expense.
5. The operating cycle of a merchandiser is the same as that of a service company.
6. In a perpetual inventory system, no detailed inventory records of goods on hand are maintained.
7. In a periodic inventory system, the cost of goods sold is determined only at the end of the accounting period.
8. A periodic inventory system provides better control over inventories than a perpetual system.

**Instruction**

Identify each statement as true or false. If false, indicate how to correct the statement.

- c) On September 1, Nixa Office Supply had an inventory of 30 calculators at a cost of \$18 each. The company uses a perpetual inventory system. During September, the following transactions occurred. 15
- September 6 Purchased 90 calculators at \$22 each from York, terms net/30.
  - September 9 Paid freight of \$90 on calculators purchased from York Co.
  - September 10 Returned 3 calculators to York Co. for \$69 credit (including freight) because they did not meet specifications.
  - September 12 Sold 26 calculators costing \$23 (including freight) for \$31 each to Sura Book Store, terms n/30.
  - September 14 Granted credit of \$31 to Sura Book Store for the return of one calculator that was not ordered.
  - September 20 Sold 30 calculators costing \$23 for \$32 each to Davis Card Shop, terms n/30.

**Instruction**

Journalize the September transactions.

7. a) Explain the difference between the terms FOB shipping point and FOB destination using hypothetical diagrams. 5
- b) Elsa's Boards sells a snowboard, Xpert, that is popular with snowboard enthusiasts. Information relating to Elsa's purchases of Xpert snowboards during September is shown below. During the same month, 121 Xpert snowboards were sold. Elsa's uses a periodic inventory system. 15

Date	Explanation	Units	Unit Cost	Total Cost
September 1	Inventory	26	\$97	\$2522
September 12	Purchases	45	102	4590
September 19	Purchases	20	104	2080
September 26	Purchases	<u>50</u>	105	<u>5250</u>
	Total	<u>141</u>		<u>\$14442</u>

**Instructions**

- i. Compute the ending inventory at September 30 and cost of goods sold using the FIFO and LIFO methods. Prove the amount allocated to cost of goods sold under each method.
- ii. For both FIFO and LIFO, calculate the sum of ending inventory and cost of goods sold. What do you notice about the answers you found for each method?

- c) Charapata Company applied FIFO to its inventory and got the following results for its ending inventory. 5
- Cameras 100 units at a cost per unit of \$65
  - Blu-ray players 150 units at a cost per unit of \$75
  - iPods 125 units at a cost per unit of \$80

The cost of purchasing units at year-end was cameras \$71, Blu-ray players \$67, and iPods \$78.

**Instruction**

Determine the amount of ending inventory at lower-of-cost-or-market.

8. a) Tri-State Bank and Trust is considering giving Wilfred Company a loan. Before doing so, management decides that further discussions with Wilfred's accountant may be desirable. One area of particular concern is the inventory account, which has a year-end balance of \$297,000. Discussions with the accountant reveal the following. 15
- i. Wilfred sold goods costing \$38,000 to Lilja Company, FOB shipping point, on December 28. The goods are not expected to arrive at Lilja until January 12. The goods were not included in the physical inventory because they were not in the warehouse.
  - ii. The physical count of the inventory did not include goods costing \$95,000 that were shipped to Wilfred FOB destination on December 27 and were still in transit at year-end.
  - iii. Wilfred received goods costing \$22,000 on January 2. The goods were shipped FOB shipping point on December 26 by Brent Co. The goods were not included in the physical count.
  - iv. Wilfred sold goods costing \$35,000 to Jesse Co., FOB destination, on December 30. The goods were received at Jesse on January 8. They were not included in Wilfred's physical inventory.
  - v. Wilfred received goods costing \$44,000 on January 2 that were shipped FOB destination on December 29. The shipment was a rush order that was supposed to arrive December 31. This purchase was included in the ending inventory of \$297,000.

**Instruction**

Determine the correct inventory amount on December 31.

- b) Presented below are selected transactions of Molina Company. Molina sells in large quantities to other companies and also sells its product in a small retail outlet. 10
- March 1 Sold merchandise on account to Dodson Company for \$5,000, terms 2/10, n/30.
  - March 3 Dodson Company returned merchandise worth \$500 to Molina.
  - March 9 Molina collected the amount due from Dodson Company from the March 1 sale.
  - March 15 Molina sold merchandise for \$400 in its retail outlet. The customer used his Molina credit card.
  - March 31 Molina added 1.5% monthly interest to the customer's credit card balance.

**Instruction**

Prepare journal entries for the transactions above.



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**DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT**

Semester Final Examination  
Course No. : Math 4161  
Course Title : Mathematics I

Winter Semester, A. Y. 2017-2018  
Time : 3 Hours  
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. Programmable calculators are not allowed. Do not write on this question paper. The Symbols have their usual meaning.

1. a) Solve each of the following inequalities and illustrate them on a number line: 6  
 (i)  $\frac{3}{2}(s-2)+1 > -2(s-4)$ ; (ii)  $\frac{(x+2)}{(x^2+2x-3)} < 0$
- b) Given  $f(x) = \frac{2}{3x-5}$ ,  $g(x) = x^3 - 3$  find  $(f \circ g)(x)$  and  $(g \circ f)(1)$  4
- c) X car rental agency charges \$25 plus 60 cents per mile. Y car rental agency charges \$30 plus 50 cents per mile. Which agency offers the better deal? 4
- d) An insurance company examined the records of a group of individuals hospitalized for a particular illness. It was found that the total proportion discharged at the end of t days of hospitalization is given by  $f(t) = 1 - \left(\frac{200}{200+t}\right)^3$ . 6  
 Evaluate (i)  $f(0)$ , (ii)  $f(100)$ , (iii)  $f(800)$  and (iv) at the end of how many days was half of the group discharged?
- e) A manufacturer can sell a certain product for \$110 per unit. Total cost consists of a fixed overhead of \$7500 plus production costs of \$60 per unit. 5  
 (i) How many units must the manufacturer sell to reach the break even?  
 (ii) What is the manufacturer's profit or loss if 100 units are sold?  
 (iii) How many units must be sold by the manufacturer to realize a profit of \$1250?
2. a) Transform the equation  $11x^2 + 24xy + 4y^2 - 20x - 40y - 5 = 0$  to rectangular axes 13  
 through the point  $(2, -1)$  and inclined at an angle  $\tan^{-1}\left(-\frac{4}{3}\right)$ .
- b) Through what angle must the axes be rotated to remove the term containing  $xy$  in  $11x^2 + 4xy + 14y^2 = 5$ ? What is the transformed equation? 12
3. a) A manufacturer can produce blank videotapes at a cost of \$2 per cassette. The cassettes have been selling for \$5 a piece. Consumers have been buying 4000 cassettes a month. The manufacturer is planning to raise the price of the cassettes and estimates that for each \$1 increase in the price, 400 fewer cassettes will be sold each month. 6  
 (i) Express the manufacturer's monthly profit as a function of the price at which the cassettes are sold.  
 (ii) Sketch the graph of the profit function. What price corresponds to maximum profit? What is the maximum profit?

- b) The highway department is planning to build a picnic area for motorists along a major highway. It is to be rectangular with an area of 5,000 square yards and is to be fenced off on the three sides not adjacent to the highway. Express the number of yards of fencing required as a function of the length of the unfenced side.
- c) Transform the equation  $17x^2 + 18xy - 7y^2 - 16x - 32y - 18 = 0$  to one in which there is no term involving  $x$ ,  $y$  and  $xy$ .

4

15

4. a) If  $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 2 \\ 1 & 2 & 0 \end{bmatrix}$ , find the products  $AB$  and  $BA$ , hence show that  $AB \neq BA$ .

10

- b) Prove that  $A = \begin{bmatrix} 1/\sqrt{3} & 1/\sqrt{6} & -1/\sqrt{2} \\ 1/\sqrt{3} & -2/\sqrt{6} & 0 \\ 1/\sqrt{3} & 1/\sqrt{6} & 1/\sqrt{2} \end{bmatrix}$  is orthogonal.

5

- c) You have \$10,000 to invest. You want to invest the money in a stock mutual fund, a bond mutual fund, and a money market fund. The expected annual returns for these funds are given in the following table 1. You want your investment to obtain an overall annual return of 8%. A financial planner recommends that you invest the same amount in stocks as in bonds and the money market combined. How much should you invest in each fund?

10

Table 1

Investment	Expected return
Stock mutual fund	10%
Bond mutual fund	7%
Money market fund	5%

5. a) Find the rank of the following matrices.

20

$$(i) A = \begin{bmatrix} 1 & 2 & -1 & 0 \\ -1 & 3 & 0 & -4 \\ 2 & 1 & 3 & -2 \\ 1 & 1 & 1 & -1 \end{bmatrix} \text{ (using elementary transformations)}$$

$$(ii) A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 7 \\ 3 & 6 & 10 \end{bmatrix} \text{ (using definition)}$$

- b) An urn1 contains two white balls ( $w_1, w_2$ ) and one black ball (B). Urn2 contains one white ball ( $w_3$ ). A ball is drawn from urn1 and placed in urn2. Then a ball is drawn from urn2. What is the probability that the ball drawn from urn2 will be white?

5



6. a) Find the inverse of the following matrix (i) by applying elementary row operations and (ii) by Cramer's rule. Hence verify the result. 18

$$A = \begin{bmatrix} 2 & 1 & 3 \\ 1 & 0 & 1 \\ 2 & 1 & 1 \end{bmatrix}$$

- b) (i) If A and B are two mutually exclusive events then prove that  $P(A \cup B) = P(A) + P(B)$ . 7  
 (ii) If A and B are not two mutually exclusive events then prove that  $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ .

7. a) Find all eigenvalues and the corresponding eigenvectors of the matrix. 13

$$A = \begin{bmatrix} 1 & 2 & -1 \\ 0 & -2 & 0 \\ 0 & -5 & 2 \end{bmatrix}$$

- b) Solve the following system of linear equations by using matrix. 12

$$2x + 3y + z = 9$$

$$x + 2y + 3z = 6$$

$$3x + y + 2z = 8$$

8. a) A company produces two types of can-openers: manual and electric. Each requires in its manufacture the use of three machines: A, B, and C. Table 2 gives the data relating to the manufacture of these can-openers. Each manual can-opener requires the use of machine A for 2 hours, machine B for 1 hour and machine C for 1 hour. An electric can-opener requires 1 hour on A, 2 hours on B and 1 hour on C. Furthermore, suppose the maximum numbers of hours available per month for the use of machines A, B and C are 180, 160 and 100 respectively. The profit on a manual can-opener is \$ 4 and on an electric can opener is \$6. If the company can sell all the can-openers it can produce, how many of each type should it make in order to maximize the monthly profit? 13

Table 2

	Manual	Electric	Hours Available
A	2 hr	1 hr	180
B	1 hr	2 hr	160
C	1 hr	1 hr	100
Profit/unit	\$4	\$6	

- b) Solve the following Linear Programming problems using graphical method: 12

(i) Maximize  $P = 5x_1 + 7x_2$       (ii) Minimize  $C = 20x_1 + 30x_2$

subject to  $x_1 \leq 6$       subject to  $2x_1 + x_2 \leq 10$

$2x_1 + 3x_2 \leq 19$ ;       $3x_1 + 4x_2 \leq 24$

$x_1 + x_2 \leq 8$        $8x_1 + 7x_2 \leq 56$

$x_1, x_2 \geq 0$        $x_1, x_2 \geq 0$

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

DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination

Winter Semester, A. Y. 2017-2018

Course No. : Hum 4161

Time : 3 Hours

Course Title : Sociology

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. Programmable calculators are not allowed. Do not write on this question paper.

- 
1. a) 'Sociology is the scientific study of human society'- elaborate the statement in the context of sociological importance in studying business technology by IUT students. 8
  - b) Briefly discuss the subject matter of sociology with special reference to your own society. 7
  - c) Discuss the major contribution of Karl Marx in sociological thinking and analyze his contribution from the perspective of business, production and technology. 10
  2. a) Define society, community, institution and association with examples. 13
  - b) Draw the nature of association and interrelationship among society, community, institution and association in the context of business and technology. 12
  3. a) Define social structure and social stratification. Briefly discuss the historical development of social stratification with examples. 10
  - b) Briefly discuss the existing social stratification and social class pattern in contemporary urban and rural society. 15
  4. a) Define culture. Briefly discuss the major elements of culture with examples. 12
  - b) What do you mean by cultural change, cultural variations and cultural dimensions? Discuss in the context of contemporary Bangladesh society. 13
  5. a) Define technology and society. Draw the nature of interrelationship between technology and society. 10
  - b) How is information technology and society interrelated? Give example with some case studies from your own society. 15
  6. a) Define socialization. Discuss the process of socialization. 12
  - b) Briefly discuss the types of socialization with examples from your own society. 13



7. a) Define gender and gender discrimination. Briefly discuss the changing gender role in the garment manufacturing sector of Bangladesh with their social, economic, cultural and psychological impacts and implications. 12
- b) Define social research. What are the steps of social research? Why is social marketing research important for the students of BTM? Discuss. 13
8. a) Define personality. Discuss the major impacts and dimensions of personality in the context of business, technology and management. 12
- b) Critically discuss the perspectives of personality development. 13

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

DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination

Course No. : Hum 4163

Course Title : Business English

Winter Semester, A. Y. 2017-2018

Time : 3 Hours

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.

1. a) Read the following passage; then answer the questions that follow: 10

Every society has to tell a story about happiness about how individuals can satisfy themselves and feel good. According to advertisers, the way to happiness and satisfactions is through the consumptions of objects in the marketplace. They say their products will make us happy.

However, the questions that we need to ask are, "Is it true?" Does ..... come from material things? Do we get happier as a society as we get richer, as our standard of living increases, as we have more access to a large collection of objects?

The general answer to these questions is "No". What people say they really want out of life is good self-esteem, warm family relationships, tension free leisure time, close and intimate friends & romance & love. This is not to say that material products are not important. They form a necessary part of a good quality of life. But above a certain level of poverty and comfort, material things stop giving us the kind of satisfaction that the magical world of advertising insists they can deliver.

- i. A suitable title for this passage could be:  
A. Advertising & Happiness. B. International Advertising Networks C. The Rules of Advertising
- ii. The missing word in "Does.....come from material things?" in paragraph 2 is  
A. advertisement B. questions. C. happiness
- iii. According to the passage, material objects stop being very important to people when  
A. people have low self-esteem B. certain level of comfort has been achieved  
C. advertisers are happy and satisfied
- iv. The main idea of this passage is that  
A. advertising is what people want in life B. products do not bring happiness  
C. happiness is not important.
- v. The word warm in paragraph 3 is  
A. noun B. verb C. adjective
- vi. The possessive pronoun "their" in paragraph 1 refers to.....  
A. objects B. advertisers C. society
- vii. The phrase "consumption of objects" is similar in meaning to.....  
A. selling cars B. buying products C. eating meals



- viii. Examples of non-material things that people want out in life are:  
A. .... B. .... C. ....
- ix. The article suggests that the goal of advertisers is to  
A. reduce tension in life B. sell products in the markets C. bring happiness and satisfaction to the consumer
- x. According to this article advertisements try to ..... us that their products make us happy.  
A. conclude B. convince C. introduce

- b) Read the following passage; then answer the questions that follow: 15

Electronic money is a digital equivalence of cash, stored on an electronic device or remotely at a server. One common type of e-money is the 'electronic wallet', where users store relatively small amounts of money on their payment cards or other smart cards, to use for making small payments. But e-money can also be stored on (and used via) mobile phones or in a payment account on the internet. E-money is first introduced in Bangladesh for transport service with a card named Xpass. Even with huge opportunity it was not successful due to lack of enough public awareness. Later commercial banks introduced prepaid cards with stored value for certain brands/super shops. But the real thrust came with the introduction of mobile financial services. DBBL mobile services & bKash changed the e-money landscape of the country. Now 12.2 million account holders transact taka 460.38 core everyday through 3.2 million transactions. Bangladesh Bank encourage private sector to generate innovative idea to popularize electronic money, i-pay Limited and Aamra Boloro Bangladesh are awarded licenses to work as payment systems operators. Hopefully these two electronic money providers will be in operations by the end of this year. Bangladesh Bank is very keen to enable new, innovative & secure electronic money services to be designed to provide market access to new companies and to foster real and effective competition among all market participants.

Questions:

- i. Select a suitable title for the passage.
- ii. How can you define "E-Money"? Is there any difference between E-Money service and E-Banking?
- iii. How can a user be benefited from using E-money?
- iv. What is the present status of E-money transactions in Bangladesh?
- v. What will be the impacts on Bangladesh economy if E-money transactions become completely available for all?

2. a) Write a short-composition within 200 words on any of the following: 15

- i. Bangabandhu Satellite -1
- ii. Padma Bridge

- b) Recently you have attended a seminar on Women Entrepreneurship in Bangladesh. The resource person who delivered speech on the topic. Hereby, write about the Women Entrepreneurship in Bangladesh mentioning what the concept means, present conditions, problems and prospects within 150 words. 10

3. a) In many countries, today, there are highly qualified graduates without employment. What factors may have caused this situation and what, in your opinion, can/ should be done about it? Give reasons for your answer and include any relevant example from your own knowledge or experience. 15  
Write at least 200 words.

b) Complete the text with the correct words in the box.

6

To accompany, training, to go, not very easy, let, to see

After \_\_\_\_\_ for five years to be a doctor, Dennis Gibney was keen \_\_\_\_\_ more of the world. So he took a job in a Hospital in Kathmandu, the capital city of Nepal. It was hard work and after a couple of months the hospital \_\_\_\_\_ him save a few days' holiday. He decided that he'd like \_\_\_\_\_ into the jungle. This is \_\_\_\_\_ to do on your own, so he asked a Nepalese guide, Adesh, \_\_\_\_\_ him.

c) Choose the correct word to complete the following sentences.

4

- i. Unemployment is one issue/ problem that I don't think we will ever be able to solve.
- ii. Let's look at some ways to prevent/ solve this situation from happening again.
- iii. By the end of the meeting, we had resolved all the issues/ problems raised by the staff.
- iv. We need to employ a Human Resources manager who can prevent/ solve our staffing problems.

4. a) Questions i to vi are incomplete sentences. Beneath each sentence you will see four words marked A, B, C and D. Choose the best option to complete the sentence.

6

- i. Refrigerating meats .....the spread of bacteria.  
A. retards B. retarding C. to retard D. is retarded
- ii. Throughout the animal kingdom ..... bigger than the elephant.  
A. Whale is only the B. only the whale is C. is the whale only D. only whale is the.
- iii. The fact .....money orders can usually be easily cashed has made them a popular form of payment;  
A. of B. that C. is that D. which is
- iv. The first article of the United States Constitution gives Congress ..... to pass laws;  
A. the power B. has the power C. the power is D. of the power
- v. Geysers have often been compared to volcanoes ..... they both emit hot liquids from below the Earth's surface.  
A. due to B. because C. in spite of D. regardless of
- vi. During the early period of ocean navigation ..... any need for sophisticated instruments and techniques;  
A. so that hardly B. where there hardly was C. hardly was D. there was hardly

b) Complete the sentences with the correct preposition.

5

- i. There are some differences .....British and American English.
- ii. Money isn't the solution .....every problem.
- iii. They were delighted .....the present I gave them.
- iv. Why are you so rude .....people?
- v. We enjoyed our holiday, but we were bit disappointed.....the hotel.
- vi. I can't understand people who are cruel .....animals.



- vii. Are you still upset ..... what I said to you yesterday.
- viii. The man we interviewed for the job was intelligent and we were impressed .....the way he answered our questions.
- ix. I'm sorry .....the smell of paint in the room. I've just finished redecorating it.
- x. Our neighbors were very angry .....the noise we made.

c) Complete each sentence using a phrasal verb that means the same words in bracket. 14

- i. The football match had to be .....because of the weather.(cancelled)
- ii. The story Kate told wasn't true. She .....(invented it)
- iii. A bomb .....near the situation, but no-one was injured. (explode)
- iv. Paul finally .....nearly an hour late.( arrived)
- v. Here's an application form. Can you .....and sign it, please? (complete it)
- vi. A number of buildings are going to be .....to make way for the new road. (demolished)
- vii. I'm having a few problems with my computer which need to be .....as soon as possible. (put right)
- viii. Be positive! You must never .....! (stop trying)
- ix. I was very tired and .....in front of the television. ( fell asleep)
- x. After eight years together, they've decided to ..... (separate)
- xi. The noise is terrible. I can't .....any longer. (tolerate it)
- xii. We don't have a lot of money but we have enough to..... (manage)
- xiii. I'm sorry I'm late. The meeting .....longer than I expected. (continued)
- xiv. We need to make a decision today at the latest. We can't .....any longer. (delay it)

5. a) Do you think English is the global business language? If so, what does that mean in your country? 5

b) How often do you use English in academic purpose? Why is English important in business sector? Do you feel more comfortable emailing or calling someone in English? Do you feel that writing formal English is challenging? 8

c) Learning English at school is often seen as more important than learning local languages. If these are not taught, many are at risk of dying out. In your opinion, is it important for everyone to learn English? Should we try to ensure the survival of local languages and, if so, how? 7

d) Suppose you are the head of HR of ABC multinational company. As a manager you have to conduct many business conferences in your organization nationally and internationally. In this case, how would you open a conversation with someone in English at a conference? Is it any difference in your native language? 5