

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
 B.Sc. Engineering 4th Year 1st Term Regular Examination, 2015
IPE 4019

Logistics and Supply Chain Management

Full Marks: 210

Time: 3 hrs

N.B: i) Answer any *THREE* questions from each section in separate scripts.
 ii) Figures in the right margin indicate full marks.
 iii) Assume reasonable data if missing any.

SECTION-A

1. (a) Discuss the goal of a supply chain. Identify the three key supply chain decision phases and explain the significance of each one. 14
- (b) Describe how a company achieves strategic fit between its supply chain strategy and its competitive strategy. 14
- (c) Briefly describe the supply chain macro processes in a firm. 07
2. (a) Discuss the effect of product life cycle on supply chain strategy with necessary figures. 08
- (b) Draw a framework for network design decisions. 12
- (c) Identify the different facilities in a global supply chain network and note down their strategic roles. 15
3. (a) What is meant by Aggregate plan? What are the main objectives of Aggregate planers? List down the information required for a proper aggregate plan. 12
- (b) Write down four strategies to implement aggregate plan in practice. 05
- (c) A company manufactures tools and shells each of them for \$40. The company has a starting inventory in January of 1,000 tools. At the beginning of January the company has a workforce of 80 employees. The plant has a total of 20 working days in each month and each employee works eight regular hours/day. Because of labour rules no employee works more than 10 hours of overtime per month. The various cost are shown in the following table

Items	Cost	Items	Cost
Material	\$10/unit	Labour hours required	4/unit
Inventory Holding	\$2/unit/month	Overtime	\$6/hour
Material cost of stockout/backlog	\$5/unit/month	Regular time	\$4/hour
Hiring and training	\$300/worker	Subcontracting	\$30/unit
Layoff	\$500/worker		

Now, consider the required decision variables and formulate a six month (January- June) aggregate plan.

4. (a) Briefly explain the different types of cost associated with inventory. 07
 - (b) Drive the following expression in case of ordering and delivering the lots jointly for a selected subset of the products 15
- $$n^* = \sqrt{\frac{\sum hc_i m_i D_i}{2\left(s + \sum \frac{s_i}{m_i}\right)}} \text{ Where the symbols have their usual meaning.}$$
- (c) Surge electric uses 4,000 toggle switches a year. Switches are priced as follows: 1 to 499, 90 cents each; 500 to 999, 85 cents each and 1000 or more, 80 cents each. It costs approximately \$ 30 to prepare an order and receive it, and carrying costs are 40 percent of purchase price per unit on an annual basis. Determine the optimal order quantity and the total cost considering all unit discount pricing. 13

SECTION-B

5. (a) Write down the name of models of transportation in supply chain. Discuss about the tailored transportation considering the size of customer. 11
- (b) What types of points should be considered to trade-off between transportation mode and inventory aggregation? 08
- (c) "TL operations have relatively low fixed costs"-Justify the statement. 08
- (d) Is cross-docking be considered as the substitution of distribution centre? Express your opinion. 08
6. (a) What should be the characteristics of information? Discuss about the variety of decisions influenced by information. 12
- (b) "Operational IT systems are used by people, such as shop floor workers"-Justify this notation comparing with other two information enablers. 09
- (c) Write short notes on following supply chain macro processes: i)CRM, ii)ISCM, iii)SRM. 09
- (d) Name the players of ERP with their activities. 05
7. (a) How do the tendencies of local optimization affect the co-ordination of supply chain? 10
- (b) Explain bull- whip effect. What are the major obstacles to achieve co-ordination in supply chain? Briefly describe any two of them. 13
- (c) Write short note on: i)POS, ii)EDI, iii)VMI, and iv)EDLP. 12
8. (a) "Threshold contracts increase information distortion"-Explain briefly. 11
- (b) What is meant by auction? Explain different kinds of auction briefly. 13
- (c) IT serves as "eyes and ears" of management in a supply chain. Justify the statement. 11

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management

B.Sc. Engineering 4thYear 1stTerm, 2016

IPE 4029

Marketing Management

Full Marks: 210

Time: 3 hrs

N.B: i) Answer any *THREE* questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.
iii) Assume reasonable data if missing any.

SECTION-A

1. (a) Define marketing for the 21st century. “Marketing means playing game with the human psychology”- Explain the statement. 11
- (b) Explain the structure of flows in the rice market. 12
- (c) Differentiate simple marketing system and modern marketing system with suitable figure. 12
2. (a) What is SBU? How can you establish it? 10
- (b) “Market definition of a business is superior to product definition” -Justify the argument with example. 12
- (c) Discuss the consumer buying process for refrigerator. 13
3. (a) “The absence of dissatisfies is not enough; the satisfiers must be present to motivate a purchase”-Justify the statement. 15
- (b) Discuss post purchase use and disposal. 10
- (c) Explain the effective segmentation criteria. 10
4. (a) “Marketing is both an art and a science”-Explain. 10
- (b) Discuss new marketing realities. 10
- (c) Write short notes on- 15
 - i) Niche marketing
 - ii) Marketing mix
 - iii) Needs, Wants, Demands

SECTION-B

5. (a) Define non-durable product. Construct a product hierarchy for ‘photocopy machine’. 11
- (b) How can installation and customer training make service differentiation? 12
- (c) Discuss the importance of packaging of soap. 12
6. (a) Discuss pricing objectives viz. maximum market skimming and maximum current profit. 10
- (b) What do you mean by 30% ROI? Discuss auction-type pricing. 12
- (c) Discuss the objectives of advertisements of phone operator GrameenPhone. 13
7. (a) What is sales promotion? Discuss the sales promotion of a restaurant. 12
- (b) Explain the works of public relation department. 12
- (c) What is advertising? How can you measure the effectiveness of a media for advertising purpose? 11
8. (a) Mention the importance of market entry timing of an android application. 08
- (b) What is IP? Discuss its importance for a country. 07
- (c) What is marketing ethics? How can it contribute to the inflation in the month of Ramadan? 10
- (d) Discuss the reasons of direct investment. 10

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
 B.Sc. Engineering 4th Year 1st Term Regular Examination, 2015
IPE 4109
 Management Information System Analysis and Design

Full Marks: 210

Time: 3 hrs

N.B: i) Answer any *THREE* questions from each section in separate scripts.
 ii) Figures in the right margin indicate full marks.
 iii) Assume reasonable data if missing any.

SECTION-A

1. (a) Define Management Information System (MIS). Give two examples of non-arithmetic data processing. 10
- (b) What are the information required for the production management. 15
- (c) What is operational information? In what way is it different from strategic information? 10
2. (a) Briefly explain the system life cycle of an information system design. 15
- (b) Write down the attributes of a system analyst for designing an information system. 10
- (c) What are the requirement specifications? What are the tools used in requirement specifications. 10
3. (a) What is data dictionary? Discuss different elements of data dictionary. 12
- (b) Draw the data flow diagram for accounts process and then develop the data dictionary of accounts process. 13
- (c) Why feasibility analysis is necessary before designing a system? 10
4. (a) What is the difference between an external entity and a process in a DFD? 10
- (b) What are the symbols used in DFD? Write down the main merits of DED. 10
- (c) A bank has the following policy on deposits: on deposits of tk.5000 and above and for three years or above the interest is 12%. On the same deposit for a period less than 3 years it is 10%. On deposits below tk. 5000 the interest is 8% regardless of the period of deposit. Write the above process using i) Structured English, ii) A decision table. 15

SECTION-B

5. (a) What is meant by data base administration? What are the responsibilities of a DBA in an organization? 10
- (b) Define database management system. Write down the objectives of database management system. 12
- (c) Discuss the different steps in designing a database system. 13
6. (a) What is the difference between on-line and off-line data entry? 06
- (b) What are the main principles used in designing forms for data entry? 08
- (c) Briefly explain the different types of codes. 09
- (d) Add a Modulus-11 check digit to the following codes: i) 48467, ii) 96432, and iii) 45687. 12
7. (a) What is the difference between control and audit? 05
- (b) What requirements should be met to ensure security? 10
- (c) Define e-commerce. Write down the advantages and disadvantages of e-commerce. 10
- (d) What is a firewall? What are the functions of a firewall? 10
8. (a) What is relationship? How does it differ from an entity? 08
- (b) What is meant by relationship cardinality? Explain briefly with proper example. 12
- (c) Why do we normalize a relation? Demonstrate a 3NF relation with proper example. 15

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Regular Examination, 2015
IPE 4125
Machine Tools

Full Marks: 210

Time: 3 hrs

N.B: i) Answer any *THREE* questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.
iii) Assume reasonable data if missing any.

SECTION-A

1. (a) What is meant by Kinematics of machine tools drive? Name the different types of stepped and stepless drives. 13
- (b) What is step ratio? How this can help to design an optimum gear box? 10
- (c) Drive an expression for percentage loss of speed in G.P. series. 12
2. (a) With the help of neat sketches, discuss sliding key mechanism and Norton gear box. 15
- (b) A gearbox has six spindle speeds for a machine tool. If the size of the cutter to be used is from 5 to 20 mm in diameter and cutting speed is 21 mm/min. Calculate the common ratio for G.P. series of speed and hence the various spindle speed. 20
3. (a) Enumerate the advantages and disadvantages of hydraulic drive system. 10
- (b) Discuss the operating principle of four way direction control valve with neat sketches. 10
- (c) Classify hydraulic cylinder on the basis of their construction. Why does the four way direction control valve not operate in single acting cylinder? 15
4. (a) What are the machine tool structures? How are the structures classified? 10
- (b) Discuss the basic design criteria of machine tools structure. 12
- (c) "High static stiffness reduces the dynamic stiffness"- Explain. 13

SECTION-B

5. (a) Briefly explain the NC systems of a machine tools. 15
- (b) Enumerate the advantages and disadvantages of Numerical Control System. 08
- (c) Write short note on: i) MCU, ii) Industrial application of robot, iii) Functions of CNC system. 12
6. (a) What is meant by the term "Process capacity"? Explain how it can be improved. 10
- (b) State the basic features of point -to- point and continuous path control system. 13
- (c) Compare CNC with DNC and conventional machine with NC machines. 12
7. (a) Differentiate between i) Capstan and Turret lathe, and ii) Shaper and Planer. 10
- (b) Explain the quick return mechanism of a shaper with suitable sketches. 12
- (c) Discuss the basic principles of centreless grinding operation. 13
8. (a) Explain the power transmission mechanism of a milling machine. Discuss its indexing method shortly. 15
- (b) What are meant by stiffness and rigidity of machine tool structure? 08
- (c) Explain the followings: i) Counter Boring, ii) Counter Sinking, and iii) Damping capacity. 12

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management

B.Sc. Engineering 4th Year 1st Term Regular Examination, 2015

IPE 4129

Industrial Management and Entrepreneurship Development

Full Marks: 210

Time: 3 hrs

N.B: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.
iii) Assume reasonable data if missing any.

SECTION-A

1. (a) Define management. Why management is considered as a dynamic process? Explain. 13
(b) Describe the necessary skills that have to be possessed by a manager in brief. 10
(c) Explain how management and administration are similar and different. 12
2. (a) What is meant by project? Discuss about the areas where project can be considered as the most suitable organizational structure. 12
(b) Define span of management. Explain different types of superior-subordinate relationships. 13
(c) Define the term Decentralization. Describe the principles of decentralization. 10
3. (a) Define group dynamics. Explain Hawthorne experiment regarding human nature and attitude. 13
(b) What is motivation? How a person can be motivated negatively in an organization? 10
(c) Write short note on : i) Dexterity test, ii) Patterned interview, and iii) Job orientation. 12
4. (a) Define Job evaluation. Describe the factor comparison method of job evaluation. 14
(b) List down the barriers of successful communication. 06
(c) A job is rated in terms of wages of Tk.600 per day. The standard time set for the job is 10 days, 8hrs/day. Two workers have taken 76 and 83hours respectively for the completion of the job. A bonus of 75% on the time taken will be given only to those who have completed the job in the standard time. Calculate the earnings of each individual by Bedaux plan. Here 1B stands for 0.9 standard work minute and it includes working time as well as time for rest. 15

SECTION-B

5. (a) What is meant by strategic management? Draw the flow chart of strategic management process and explain briefly. 15
(b) Write short note on SWOT analysis and illustrate the reasons of strategic plan failure. 12
(c) Explain the statement-“Strategy as an emergent process.” 08
6. (a) Define the term “Business”. Briefly explain the seven secrets of business success. 12
(b) Write short note on: i) Sole Proprietorship, and ii) Franchise Business. 12
(c) What is business plan? How can a good business plan be prepared? 11
7. (a) Classify the term “Entrepreneurship”. Explain the traits of a successful entrepreneur. 11
(b) Find out the major reasons of entrepreneurial failure and explain them. 13
(c) Define technology transfer. Describe the various types of technology transfer with proper examples. 11
8. (a) Define conflict. Explain the major six sources of generating conflict in any organization with necessary examples. 13
(b) Draw the flow chart of collective bargaining process for reducing conflict. 10
(c) Explain the term “Separation” clearly for any organization and also describe the forms of separation process with proper examples. 12