Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2017
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) What is supply chain management? Explain the impact of supply chain decisions on the success of a firm.   11
   (b) Identify the three key supply chain decision phases and explain the significance of each one.   12
   (c) Briefly illustrate the cycle view and push-pull view of a supply chain.   12

2. (a) Define strategic fit in terms of supply chain management. Write down the disadvantages of a strategically unfit supply chain.   11
   (b) Discus about the issues affecting strategic fit of a supply chain.   12
   (c) Mention the differences between the competitive strategies of lean and agile supply chain.   12

3. (a) Describe the integer replenishment policy for a multi echelon supply with necessary figures.   10
   (b) Derive the following expression in case of ordering and delivering the lots jointly for a selected subset of products.   13

$$n^* = \sqrt{\frac{\sum hc_i m_i D_i}{2\left(s + \sum \frac{s_i}{m_i}\right)}}$$

   Where the symbols have their usual meaning.
   (c) How does a coordinated supply chain maximize the profits? Explain.   12

4. (a) What is aggregate planning? List down the types of information required for an aggregate planner.   11
   (b) What is meant by implied demand uncertainty? Explain with proper example.   10
   (c) Prefab, a furniture manufacturing company sells three models of furniture with annual demand $D_L = 14000$, $D_V = 1400$ and $D_C = 140$ units. Each model cost $600. A fixed transportation cost of $5000, is incurred each time an order is delivered. For each model ordered and delivered on the same truck, an additional, fixed cost of $1200 is incurred for receiving and storage. If the company incurs a holding cost of 25 percent, evaluate the ordering policy and costs considering the lot sizes ordered and delivered jointly for a selected subset that varies by order.   14

SECTION–B

5. (a) Identify trade-offs that shippers need to consider when designing a transportation network. What modes of transportation are best suited for large, low-value shipments? Why?   12
   (b) Discuss key drivers that may be used to tailor transportation. How does tailoring help?   11
   (c) Discuss the performance characteristics of the followings: 12
   i) Distribution storage with carrier delivery ii) Manufacturer storage with direct shipping iii) Retail storage with customer pickup.

6. (a) What processes within each macro process are best suited to being enabling by IT? What processes are least suited?   11
   (b) What types of industries would be most likely to choose a best of-breed approach to their IT system? What types would be more likely to choose a single large integrated solution?   12
   (c) Are manufacturer better candidates for IT enablement than service organization? Why or why not? Also discuss major applications of supply chain IT and the processes that they enable.   12

7. (a) What is bullwhip effect and how does it relate to lack of coordination in a supply chain? What countermeasures can be used to offset this effect?   11
   (b) What factors load to a batching of orders within a supply chain? How does this affect coordination? What actions can minimize large batches and improve coordination?   12
   (c) How do trade promotion and price fluctuations affect coordination in a supply chain? What pricing and promotion policies can facilitate coordination?   12

8. (a) What issues must be considered when managing a supply chain relationship to improve the chances of developing cooperation and trust?   12
   (b) Toyota uses two different formats "*Direct shipping with milk runs*" in Japan and USA. Explain   12

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2017
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 management. Explain key customer markets.	11
	(b)	Write down the basic differences between needs and demands. Mention the types of demand with proper examples.	10
	(c)	What are the requirements for market segmentation?	07
	(d)	Write short notes on SWOT analysis.	07
2.	(a)	Discuss five stages model of the consumer buying process.	15
	(b)	Explain Maslow and Freud's motivation theory.	10
	(c)	Mention the bases for consumer market segmentation briefly.	10
3.	(a)	Define positioning. What are the differences between point of difference (POD) and point of parity (POP)?	10
	(b)	Demonstrate consumer's post purchase behavior.	12
	(c)	Discuss the evolution of earlier marketing ideas.	13
4.	(a)	What is brand and brand equity? Give examples.	10
	(b)	Define brand element. Discuss the criteria of choosing brand elements.	11
	(c)	Explain the marketing strategies of different stages in product life cycle.	14

SECTION–B

5.	(a)	Discuss on consumer goods and industrial goods classification.	10
	(b)	What are the factors those create service differentiation? Discuss.	13
	(c)	Discuss any three of product mix pricing.	12
6.	(a)	"*Price is not just a number on a tag. It performs many functions.*" Explain.	10
	(b)	How does internal allow to buyers to discriminate between sellers? Explain.	12
	(c)	Discuss make up pricing and auction type pricing.	13
7.	(a)	Discuss on advertising versus promotion.	07
	(b)	What is public relation? Explain their functions.	10
	(c)	Mention the types of new products and ways to create them.	08
	(d)	Discuss the innovation imperative in new product development.	10
8.	(a)	What is trademark infringement? Define and classify intellectual property.	10
	(b)	What is global marketing? Explain the risk regarding global marketing.	10
	(c)	Mention the benefits of direct investment.	07
	(d)	Write down short notes on licensing and joint ventures.	08

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2017
IPE 4109
Management Information Systems 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 MIS. Distinguish between data and information. 10
   (b) Describe the system design life cycle. 13
   (c) What are the qualities of good information? Explain shortly. 12

2. (a) Briefly explain the attributes of a system analyst. 11
   (b) Which elements comprise strategy to gather information? Mention the information sources. 12
   (c) Briefly describe the role and tasks of a systems analyst 12

3. (a) Mention some guidelines to ensure a successful interview. 11
   (b) Explain document flow diagram and logical data flow diagram with examples and figures. 12
   (c) What is data dictionary? Discuss different elements of a data dictionary. 12

4. (a) How are project goals quantified in feasibility analysis? Explain with flow diagram. 15
   (b) A company makes three products which are codified as class A, class B and class C. On class A, items for purchase above Tk. 5000, 10% discount is given. For class B for purchase above Tk. 8,000, a discount of 5% is given. On class C on a purchase of Tk. 10,000 and above, 4% discount is given if the customer is disabled.
   Now express the above statement in structured English. 12
   (c) Write down the symbols of the following items: 08
   i) Process   ii) Internal Entities   iii) File.

SECTION–B

5. (a) What is meant by relationship cardinality? Explain briefly with proper example. 12
   (b) Briefly explain the following terms: 08
   i) Functional dependency   ii) Relation key.
   (c) What special measures should be taken during input preparation to avoid errors? Explain shortly. 15

6. (a) Discuss the different types of codes. 13
   (b) Write an algorithm for generating the modulus-11 code. 10
   (c) Add a Modulus-11 check digit to the following codes. 12
   i) 64329   ii) 68748   iii) 96432   iv) 45687

7. (a) Define Database Management System (DBMS). Write down the objectives of DBMS. 13
   (b) What are the various headings and footings used in a report? Explain with examples. 10
   (c) Pick the appropriate graphics presentation for the following applications: 12
   i) Relative enrollment of students in various departments in a university.
   ii) Growth of student strength in a department over a period of 10 years.
   iii) Sales percent of a production in 6 regions of a country.
   iii) Engineering colleges established in different parts of a country.

8. (a) Why should information system be audited? Briefly explain the various types of auditing methods. 13
   (b) What is EDI? Draw a flow diagram to show the steps to be followed for EDI. 2
   (c) What is firewall? What are the functions of a firewall? 0

Khulna University of Engineering & Technology
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B.Sc. Engineering 4th Year 1st Term Examination, 2017
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 tool drive? Discuss about different types of stepped and steeples drives. 12
   (b) Explain with sketches the working principle of Meander type gear box. 13
   (c) Discuss the various factors to be considered for precession of machine tools. 10

2. (a) Explain with the help of a diagram why arithmetic progression does not permit economical machining at larger diameters. 10
   (b) What is step ratio? Show that $\varphi = \sqrt[(r-1)]{R_v R_d}$ where the symbols have their usual meanings. 10
   (c) Differentiate a ray diagram from a saw diagram. Explain why G.P series is preferred in machine tools. 15

3. (a) What are the different types of drives employed in machine tool? Explain the hydraulic drive system in machine tool. 12
   (b) Write down the advantages and disadvantages of hydraulic system in machine tool drive. 13
   (c) What are the advantages of spool valve over poppet valve? 10

4. (a) With the help of net sketches discuss the working principle of PIV drive. 15
   (b) A gear box has to be designed for a drilling machine to give speed variation between 120 rpm and 200 rpm in six steps. The input shaft runs at 250 rpm. The intermediate shaft has three speeds. Select a suitable gear box layout and calculate gear sizes. 20

SECTION–B

5. (a) Explain the sliding key mechanism and Norton gear box with neat sketches. 15
   (b) What are the sources of vibration in machine tool? State its effect on machine tool. 10
   (c) Discuss the design criteria for the slide ways of a machine tool. 10

6. (a) Define "Turret Lathe". Discuss about the role of compound rest in lathe machine. 10
   (b) Write short note on: 12
      i) Face plate ii) Mandrel iii) Follower rest.
   (c) Is interrupted cutting possible in milling machine? Discuss about the differences between up milling and down milling with necessary sketches. 13

7. (a) Write down the differences between shaper and planner machine. 08
   (b) Describe the cutting mechanism of grinding machine with necessary figures. 12
   (c) Name the different types of drill bits. Describe the twist drill with suitable sketches. 15

8. (a) What is adoptive control machining system? Explain briefly the adoptive control optimization process. 10
   (b) What are the differences between CNC and DNC system? 10
   (c) Describe the BTR approach of DNC system with necessary figures. 15

SECTION–A

1. (a) What is Industrial Management? Explain how management and administration are similar and different. — 12
   (b) Explain how management is an art and science. — 10
   (c) What is contingency theory school? What are basic differences between scientific management theory and classical theory? — 13

2. (a) What is the classical view of organization? How does it differ from the bureaucratic approach? — 12
   (b) What are the merits and limitations of committees? Write down the salient features of project structure of organization. — 12
   (c) Discuss the nature and purpose of matrix organization. — 11

3. (a) Define motivation. Explain Murray's theory of human personality. — 10
   (b) Distinguish between job enrichment and job enlargement. — 10
   (c) What is management by leadership? Note down the attributes of a charismatic leader. — 05
   (d) What are the differences between transformative and charismatic leadership? — 10

4. (a) Define Human Resource Management (HRM). What should be the bargaining strategies of unions and companies? — 10
   (b) What is promotion policy? What are the conditions to be carried while preparing a comprehensive and realistic promotion policy? — 12
   (c) Define absenteeism. What are its advance effects? — 08
   (d) Define transfer. Write down the various types of transfer. — 05

SECTION–B

5. (a) Define Entrepreneurship. Explain the characteristics of a successful entrepreneur. — 13
   (b) Discuss the innovation theory of entrepreneurship. — 10
   (c) Explain the reasons behind entrepreneurial failure in the context of Bangladesh. — 12

6. (a) What is strategic management? Explain the strategic management model. — 12
   (b) Write short note of SWOT analysis. Illustrate the reasons of strategic plan failure. — 15
   (c) What are the benefits of strategic management? — 08

7. (a) What is meant by separation process? Discuss various types of employee separations with appropriate examples. — 12
   (b) Briefly describe the effect of management conflict of organization performance and also mention the sources of organizational conflict. — 13
   (c) How can counseling improve employee performance? Explain. — 10

8. (a) Define the term "*Business*". Briefly explain the seven secrets of business success. — 15
   (b) What is business plan? How a good business plan can be prepared? — 15
   (c) Briefly discuss the following term "*Sole Proprietorship*". — 05