Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2019
IPE 4019
Logistics and Supply Chain Management

Full Marks: 210   Time: 03 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 'Supply Chain Management? Discuss the goal of a supply chain.   13
    (b) How does product life cycle affect on strategic fit? Explain.   12
    (c) Discuss the necessity of value chain in a company with a suitable diagram.   10

2. (a) List the drivers of supply chain and discuss their impact on supply chain performance.   10
    (b) Describe the distributer storage with last mile delivery distribution network with example and mention its strengths and weaknesses.   15
    (c) Draw the framework for network design decisions mentioning the brief functions of different phases.   10

3. (a) Briefly explain the role of different strategic factors influencing network design decisions.   12
    (b) A computer manufacturing company sales three models of computers with annual demand $D_L = 10,000$, $D_M = 8,000$ and $D_H = 500$ units. Each model costs $400. A fixed transportation cost of $3000 is incurred each time an order is delivered. For each model ordered and delivered on the same truck, an additional fixed cost of $1000 is incurred for receiving and storage. If the company incurs a holding cost of 20%, evaluate the ordering policy and costs considering the lot sizes ordered and delivered jointly for a selected subset that varies by order.   13
    (c) What are the strategies applied for aggregate planning? Explain.   10

4. (a) Derive the following expression in case of ordering and delivering the lots jointly,   12

$$n^* = \sqrt{\sum_{i=1}^{k} \frac{D_i h C_i}{2 S^*}}$$

where the symbols have their usual meanings.

    (b) Superpart, an auto parts retailer, demand for parts is 15,000 per month incurs a holding cost of 20 percent. The manufacturer uses the following unit discount pricing schedule: 15

Order Quantity	Marginal Unit Price
0-7,000	$4.00
7,001-12,000	$3.97
Over 12,000	$3.90

Evaluate the number of parts that superpart manager should order in each lot.

    (c) Differentiate between lot size based and volume based quantity discount.   08

5. (a) What are the trade-offs considered in transportation design? Briefly illustrates the transportation and inventory cost trade-off. 13

(b) Write down the name of modes of transportation in supply chain. Discuss about the tailored transportation considering the customer distance. 12

(c) "TL operations have relatively low fixed costs"– Justify the statement. 10

6. (a) What should be the characteristics of information? Discuss about the variety of decisions influenced by information. 12

(b) Discuss about the key processes under customer relationship management. 12

(c) How can IT manage risks in a supply chain? 11

7. (a) Briefly discuss the major factors that effect in supplier scoring and assessment. 15

(b) How can design collaboration with suppliers help a PC manufacturer to improve performance? Explain. 10

(c) What is Auction? List the most commonly used auctions in supply chain and briefly explain any one of them. 10

8. (a) How do the tendencies of local optimization effect the co-ordination of supply chain? 10

(b) Discuss about the operational obstacles to co-ordination in a supply chain with suitable examples. 15

(c) Explain the two common views regarding how co-operation and trust can be built into supply chain relationship. 10

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2019

IPE 4029

Marketing Management

Full Marks: 210   Time: 03 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 Marketing management? Explain the objectives of Marketing management.   10
   (b) Discuss the core concept of marketing with necessary sketches.   10
   (c) Describe the system of modern marketing management with sketches.   15

2. (a) What is meant by marketing concept? Discuss the competing concepts in marketing.   10
   (b) Explain how the marketing strategy is different from the marketing concept.   10
   (c) Define production concept of marketing. Consider a situation where this concept is perfect to use, discuss with example.   15

3. (a) What is meant by marketing strategy? Mention the types of marketing strategy.   10
   (b) Explain the various methods of price strategies with examples.   13
   (c) Discuss the role of various marketing promotion strategies with suitable examples.   12

4. (a) What is meant by marketing mix? Why is it important in marketing management?   12
   (b) Explain how a company can control marketing mix elements for targeting its product in a market.   10
   (c) Explain the various methods of determining prices in marketing mix.   13

SECTION–B

5. (a) Define non-durable product. Construct a product level hierarchy for a "Racing car"   10
   (b) What is sales promotion. Explain coupons, premiums, patronage awards and P-O-P displays.   10
   (c) Determine the mark up price where variable cost per unit $12, fixed cost $500000 and expected unit sales 60,000 and 20% mark up on sales.   10
   (d) How customer training can play a vital role in service differentiation.   05

6. (a) Define Micro scheduling and Macro scheduling problem in advertising. Describe different patterns of advertising timing.   10
   (b) Explain Warren Keegan's adaptation strategies of product and communication to a foreign country.   10
   (c) "Commitment, Risk and Control increases while shifting from direct exporting to Licensing"- Justify the statement.   10
   (d) Mention some reasons for new product failure.   05

7. (a) Show the figure of new product development decision process.   10
   (b) "International division would be more effective than export department"- Explain the statement.   10
   (c) "Market entry timing is critical in commercializing a new product"- Justify the statement.   10
   (d) How personal influence can impact on the adoption process?   05

8. (a) What is meant by marketing ethics? Discuss ethics in promotion and pricing.   10
   (b) What is pattern? Write down the conditions of patentability.   10
   (c) Write short notes on: (i) Joint ventures, (ii) Conjoint analysis.   15

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2019
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

(a) What is meant by kinematics of machine tools drive? Discuss about different types of stepped and stepless drive.   12

(b) What are the design criteria of a machine tool structure? Explain different types of stiffness.   13

(c) Discuss the various factors to be considered for precession of machine tools.   10

(a) Define step ratio? Show that, $\varphi = (r-1)\sqrt{R_v R_d}$ where the symbols have their usual meanings.   12

(b) Explain why arithmetic progression does not permit economical machining at larger diameters.   10

(c) A machine spindle is to operate on ferrous metals at 30 m/min and is required to have 6 speeds. The spindle can accommodate HSS cutter ranging from 10 to 60 mm diameters. Determine the following: i) spindle speeds ii) plot a graph between cutting velocity and cutter diameter for each spindle speed and calculate the range of cutting velocity for 12 and 36 mm diameter cutter.   13

(a) Define direction control valve. What are the advantages of spool valve over poppet valve?   12

(b) Explain the working principle of hydraulic driver for shaper.   11

(c) Describe different types of direction control valve as used in the hydraulic system.   12

(a) With the help of neat 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 120-200 rpm in 6 steps. The input shaft runs at 250 rpm. The intermediate shaft has 3 speeds. Select a suitable gear box layout and calculate the gear sizes.   20

SECTION–B

(a) Write down the differences between shaper and planner.   08

(b) Name the different types of drill bits. Describe the twist drill with suitable sketches.   15

(c) Describe the cutting mechanism of grinding machine with figures.   12

(a) Prove that compliance of a machine tool is given by $C = \frac{1}{S_2} + \frac{1}{S_4}(\frac{L-X}{L})^2 + \frac{1}{S_3}(\frac{X}{L})^2$ where S_1, S_2, S_3 are the rigidity of headstock, saddle and tailstock respectively and L= length of workpiece, X= distance of cutting tool tip from head stock end.   13

(b) Discuss types of cutting motion in a machine tool?   11

(c) Explain types of ribbing with sketches. Why ribbing is used in machine tools.   11

(a) Define indexing. Index 35°29′ using appropriate method and find error.   10

(b) Explain the followings: i) Counter boring ii) Damping capacity iii) Follower rest iv) Mandrel.   08

(c) Define transfer machine? Describe the economics of automatic machines.   10

(d) Write down differences between plain and roller bearing.   07

(a) Define NC. State the advantages and disadvantages of numerically controlled machine tools over conventional machine tools.   10

(b) Describe the BTR approach of DNC system with necessary figures.   15

(c) Explain the adoptive control optimization process.   10

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2019
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) "Administration is the determinative function, whereas management is an executive function"-Explain the statement with examples.   10
   (b) Briefly describe the different subsystems of an open & organic system.   12
   (c) "It is necessary to have management skill and knowledge prior to an Industrial Engineer"- Explain it in the sense of industrial Management.   13

2. (a) Critically examine Graicuna's theory of superior-subordinate relationship.   10
   (b) Define span of Management. "Functional structure based on functional authority weakness the unity of command" Explain.   15
   (c) Differentiate between "line" and "line and staff" organization.   10

3. (a) Define group dynamics. Explain Hawthorne experiment regarding human nature and attitude.   13
   (b) Write down the barriers to successful communication and possible techniques to overcome those barriers.   12
   (c) Write short notes on: i) Job rotation, ii) Job enlargement, iii) Job enrichment   10

4. (a) Define Job evaluation. Explain point method of job evaluation with suitable example.   12
   (b) Differentiate between Halsey plan and Rowan plan for wedge incentive with proper diagram.   10
   (c) A job is rated in terms of wages of TK. 600 per day. The standard time set for the job is 10 days, 8 hrs/day. Two workers have taken 75 and 80 hours 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 Bedava plan.   13

SECTION–B

5. (a) What is meant by strategic management? Briefly describe the principles of strategic management.   10
   (b) What is SWOT analysis? Discuss basic strategic planning model.   13
   (c) Illustrate the reasons of strategic plan failure.   12

6. (a) How a person can be motivated positively and negatively in an organization?   13
   (b) What are the perspectives of employee motivation?   10
   (c) Write notes on: i) Autocratic leadership ii) Laissez-Fair leadership iii) Democrative leadership.   12

7. (a) Define "Entrepreneurship". Explain the characteristics of a successful entrepreneur.   13
   (b) Discuss risk factors involved in creating High-Technology entrepreneurships.   12
   (c) What are the reasons behind the entrepreneurial failure in the context of Bangladesh?   10

8. (a) Write down the 10 fundamentals of counselling process.   10
   (b) Describe conflict. Describe the different types of conflict briefly.   13
   (c) What are the scopes and objectives of collective bargaining in any organization?   12

Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2019
IPE 4109
Management Information System Analysis and Design

Full Marks: 210   Time: 03 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). Explain the role of MIS in industry.	12
	(b)	Differentiate between strategic and operational information.	09
	(c)	List eight tasks performed by systems analysis. Are excellent programmers necessarily excellent system analysis? Justify your statement.	14
2.	(a)	Briefly describe the overview of design of an information system.	14
	(b)	What are the inputs and outputs of the system design phase?	06
	(c)	What are the methods of gathering information? Why are interviews essential in gathering information?	15
3.	(a)	When are the goals of a project specified? What should be the characteristics of goals?	13
	(b)	What is the main merit of DFD? What is the difference between a source and a sink in a DFD?	07
	(c)	Prepare physical and logical DFDs for the following activities: i)issuing out a book from a library, ii) getting a ticket reserved for a train journey.	15
4.	(a)	What is data dictionary? Draw a logical data flow diagram for stores process and then develop the data dictionary for the process.	17
	(b)	An organization maintains an employee file in which each record has the following data: (Employee No., employee name, employee gross pay) It has been decided to increase the pay as per the following formula: For pay of tk. 1000 or less increase 15%. For pay of more than tk. 1000 but up to tk. 2500 increase 10%. For pay over tk. 2500 increase 5%. i)write a structured English processing rule corresponding to the above policy ii)express the policy as a decision table	18
		SECTION-B	
5.	(a)	What is meant by relationship cardinality? Explain briefly with proper example(s).	12
	(b)	Why should relations be normalized? Demonstrate a 3NF relation.	15
	(c)	Briefly explain the following terms: i)functional dependency, ii) relation key	08
6.	(a)	What is the difference between on-line and off-line data entry?	05
	(b)	What are input data records divided into batches for off-line data entry?	10
	(c)	Design a group classification code to code i) motor vehicles, ii) music cassettes, and iii) books.	15
	(d)	What is the advantage of a serial number code?	05

7.	(a)	What types of output will be used for the following? Explain with reasons. i)strategic management, ii) tactical management, iii) operational management.	12
	(b)	Briefly discuss about different business graphics used in designing output reports.	10
	(c)	Why should information system be audited? Briefly explain the various types of auditing methods.	13
8.	(a)	What is the difference between security and privacy? What requirements should be met to ensure security?	13
	(b)	Write short notes on the followings: i) EDI, ii) Firewall.	12
	(c)	What is e-commerce? Mention the advantages and disadvantages of e-commerce.	10