Khulna University of Engineering & Technology
Department of Industrial Engineering and Management
B.Sc. Engineering 4th Year 1st Term Examination, 2018

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.   10
    (b) Mention the information required for production management.   12
    (c) Discuss the quality of information. How can quality be ensured?   13

2. (a) Briefly explain the system life cycle of an information system design.   13
    (b) Discuss the attributes of a system analyst.   12
    (c) What are the measures should be taken in interview? Explain them.   10

3. (a) Explain the physical document flow diagram and logical data flow diagram.   12
    (b) What is data dictionary? Develop a data dictionary for purchasing process.   13
    (c) When and why are technical, operational, and economical feasibility analysis required?   10

4. (a) What are the methods of calculating payback period? Explain.   12
    (b) What is meant by cost benefit analysis? Explain how this analysis is performed?   13
    (c) Write down the following statement in structured English.   10
        Statement: Give a discount of 5% if the customer pays advance or if the purchase is for Tk. 10,000 or more and the customer is a regular customer.

SECTION-B

5. (a) What is relationship? How does it differ from an entity?   08
    (b) Draw an E-R diagram showing the cardinality for the followings: 12
        (i)   A bill is sent to a customer. A customer can receive many bills.
        (ii)   A clerk works in a bank. The bank has many clerks.
        (iii) A part is used in many products and a product uses many parts.
        (iv)   A car is owned by a person. The person can own many cars.
    (c) Why should relations be normalized? Demonstrate a 2NF relation.   15

6. (a) What is the difference between on-line and off-line data entry?   07
    (b) What is the advantage of a serial number code? Why is it not normally used?   07
    (c) What special measures should be considered during input preparations? Explain briefly.   13
    (d) Add a modules- 11 check digit to the following codes.   08
        (i)   94328
        (ii)   326583

7. (a) What are the basic objectives in evolving a database for an organization?   10
    (b) What are the basic requirement of a successful database system?   10
    (c) Briefly discuss about different business graphics used in designing output reports.   10
    (d) What are the various heading used in a report?   05

8. (a) What is proof figure? Explain with proper example. 10
   (b) Briefly explain the different types of testing procedures of information system. 12
   (c) What is the basic difference between privacy and security? 05
   (d) Write short notes on the followings: 08
       (i) E – commerce
       (ii) LAN

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B.Sc. Engineering 4th Year 1st Term Examination, 2018
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'? List the supply chain decision phases that have significant impacts on supply chain profitability and explain them in brief.   13

   (b) Briefly explain the cycle view and push-pull of a supply chain.   10

   (c) What is meant by strategic fit of a supply chain? Explain why achieving strategic fit is important to a company's overall success.   12

2. (a) Discuss the necessity of value chain in a company with a suitable diagram.   12

   (b) Describe the steps required to construct an aggregate planning model.   12

   (c) Derive the following expression in case of ordering and delivering the lots jointly   11

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

   where the symbols have their usual meanings.

3. (a) Describe the integer replenishment policy for a multi echelon supply chain with necessary figures.   10

   (b) Demand for the Deskpro Computer at best buy is 1000 units per month. Best buy incurs a fixed order placement, transportation and receiving cost of $4,000 each time an order is placed. Each computer costs best buy $500 and the retailer has a holding cost of 20 percent. Evaluate the number of computers that the store manager should order in each replenishment lot.   13

   (c) What is meant by implied demand uncertainty? Explain its effect on supply chain uncertainty with proper example.   12

4. (a) Explain optimal cycle service level for seasonal items with a single order in a season.   10

   (b) Identify the different facilities in a global supply chain network.   10

   (c) A machine tools retailer, demand for tools is 20,000 per month. Retailer incurs a fixed order placement, transportation and receiving cost of $120 each time an order for tools is placed with the manufacturer. Retailer incurs a holding cost of 20 percent. The manufacturer uses the following marginal unit discount pricing schedule.   15

Order Quantity	Marginal Unit Price
0-8,000	$5.00
8,000-13,000	$4.95
Over 13,000	$4.92

Evaluate the number of tools that retailer manager should order in each lot.

SECTION-B

5. (a) "TL operations have relatively low fixed costs"–Justify the statement. 10
   (b) What modes of transportation are best suited for large, low-value shipments? Explain briefly. 13
   (c) Discuss the key drivers that may be used to tailored transportation. How does tailoring help? 12

6. (a) What should be the characteristics of information? Discuss about the variety of decisions influenced by information. 12
   (b) Briefly describe key process under customer relationship management. 10
   (c) What are the ideas to keep in mind when making a decision regarding supply chain IT? Explain. 13

7. (a) How can design collaboration with suppliers help a PC manufacturer to improve performance? Explain. 10
   (b) What is Auction? Explain different kinds of auction briefly. 13
   (c) "Threshold contracts increase information distortion"–Do you agree with this fact? Explain your thoughts with relevant justification. 12

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

SECTION–A

1. (a)   What is meant by kinematics of machine tools drive? Discuss the general requirements of machine tools. — 13

    (b)   What is slideway? Make neat sketches of different forms of slideways? — 12

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

2. (a)   Define step ratio? Show that, $\varphi = (r-1)\sqrt{R_v R_d}$, where $r = no.\,of\,steps, R_v =$ cutting speed range ratio, $R_d = $ diameter range ratio. — 15

    (b)   Explain why geometric progression series is preferred in machine tools. — 08

    (c)   Explain with sketches the working principle of a meander type gear box. — 12

3. (a)   Write short notes on: — 12
    i) Norton gear box ii) Vane type motor iii) PIV iv) Sequence valve

    (b)   A gear box has to be designed for drilling machine to give speed variation between 100 and 180 rpm in 6 steps. The input shaft runs at 225 rpm. The intermediate shaft has 3 speeds. Select a suitable gear box layout and calculate the gear sizes. — 23

4. (a)   Describe different types of direction control valves as used in the hydraulic system. — 13

    (b)   Differentiate between plain and roller bearings. — 07

    (c)   What are advantages and disadvantages of hydraulic drive? — 07

    (d)   Let, N_{min}=50 rpm, N_{max}=450 rpm and n=9, calculate spindle speeds for G.P series. — 08

SECTION–B

5. (a)   Write down differences between machine and machine tools. — 08

    (b)   Prove that compliance of a machine tool is given by $C = \frac{1}{S_2} + \frac{1}{S_1}(\frac{L-X}{L})^2 + \frac{1}{S_3}(\frac{X}{L})^2$ 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. — 15

    (c)   Explain different types of cutting motion in machine tools. — 12

6. (a)   With the help of suitable sketch, describe the following terms: — 12
    i) Counter sinking ii) Carriers and catch plate iii) Reaming iv) Steady rest and follower rest.

    (b)   What is backlash in a lathe machine? Discuss various types of lathe machine used in practice. — 12

    (c)   Describe the quick return mechanism of a shaper machine with necessary diagram. Why it is necessary? — 11

7. (a)   Explain the power transmission mechanism of a milling machine. — 12

    (b)   What is meant by indexing? Explain the procedure of angular indexing. — 13

    (c)   What is the purpose of dividing head of a milling machine? Write down the name of different components of a dividing head. — 10

8. (a)   What is numerical control of a machine tool? Explain the basic components of an NC system. — 12

    (b)   State the basic features of point-to-point and continuous path control system. — 11

    (c)   What is meant by automation and industrial robots? Briefly explain how robot works? — 12

Khulna University of Engineering & Technology
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B.Sc. Engineering 4th Year 1st Term Examination, 2018
IPE 4129
Industrial Management and Entrepreneurship Development

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. Explain how management and administration are similar and different. — 12

(b) Define industrial management. Draw a network of management functions and explain it. — 13

(c) 'It is necessary to have management knowledge and management skill prior to be an industrial engineer'. Explain it in the sense of industrial management. — 10

2. (a) What is contingency theory school? What are the implications and relevances? — 12

(b) Define the bureaucracy theory school. 'A successful organization should react as an organic and open system'. To what extent you are agreeing with this opinion. Explain. — 13

(c) Why delegation of authority is necessary? Discuss the obstacles of effective delegation. — 10

3. (a) What is leadership? Discuss the trait theory of leadership. — 13

(b) What are the differences between wages and salaries? Briefly explain the different types of wages. — 12

(c) Distinguish between recruitment and selection of employees. What are the bargaining strategies of companies and unions? — 10

4. (a) What is promotion policy? What are the conditions to be covered while preparing a comprehensive and realistic promotion policy? — 12

(b) Define HRM. Describe the basic principle of HRM with its suitable activities. — 11

(c) Define job evaluation. Why is it done? Describe the factor comparison method of job evaluation. — 12

SECTION-B

5. (a) Define strategic management. How does strategic management help to cope with its other competitors? — 10

(b) Explain the reasons behind entrepreneurial failure in the context of Bangladesh. Also discuss the innovation theory of Entrepreneurship. — 12

(c) Define entrepreneurship. Describe the role and challenges for the Bangladeshi entrepreneurs in 21st century for the development of economic condition. — 13

6. (a) Write down the necessity of registration for the partnership business. What are the contents that should be included in the application for registration? — 10

(b) What is employee separation? What are the differences between discharge and retrenchment? — 13

(c) Define group dynamics. Explain Hawthorne experiment regarding human nature and attitude. — 12

7. (a) Discuss the scopes and objectives of collective bargaining in any organization. 12
   (b) Define conflict. Explain the major six sources of generating conflict in any organization with necessary examples. 13
   (c) Define technology transfer. Describe the various types of technology transfer with proper examples. 10

8. (a) Write short notes on: 16
       (i) C-corporation (ii) Limited Liability Company (LLC) (iii) SWAT analysis (iv) BCG Matrix
   (b) What is counseling? Write down the purposes and fundamentals of counseling? 12
   (c) How does R&D help strategic management? 07