BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2   B. Sc. Engineering Examinations 2010-2011

Sub : **CSE 441** (Information Technology)

Full Marks : 140   Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) What are the differences between information system and information technology? Briefly describe different components of an information system.   **(2+3)**

   (b) What is BUS? Briefly describe different types of BUS.   **(5)**

   (c) What is cache memory? Describe different levels of cache memory?   **(5)**

   (d) Briefly describe different measures you should take to optimize your disk's performance.   **(5⅓)**

   (e) Describe the clipboard and its use.   **(3)**

2. (a) (i) List four parts of a computer system.   **(2+2)**

   (ii) What are the four phases of information processing cycle?

   (b) What is repetitive stress injury? What are the measures we should take to avoid RSI while working with the keyboard and the mouse?   **(3⅓)**

   (c) Write short notes on: **(2+2)**

   (i) application software

   (ii) system software

   (d) What are the functions of ALU and CU in a computer processor?   **(3+3)**

   (e) Convert decimal 58963 to hexadecimal. Then convert it to octal.   **(3+3)**

3. (a) What is the purpose of formatting a magnetic disk? Explain FAT.   **(4⅓)**

   (b) Explain the term "submarining". List the four factors you should consider when comparing monitors.   **(2+2)**

   (c) Briefly describe the factors affecting the processing speed of a CPU.   **(5)**

   (e) Write short notes on any four of the following: **(2.5×4)**

   (i) SCSI

   (ii) Antivirus

   (iii) Firewall

   (iv) Plug and Play

   (v) Interrupt

   (vi) Intrusion detection system

CSE 441

4. (a) How does a solid state disk store data? What is flash memory? **(2+2)**

   (b) List the services that an operating system provides to software programs. Describe the process step by step that an operating system does when we run a program. **(2+3)**

   (c) Briefly describe volatile and non-volatile memory with example. **(4)**

   (d) Discuss the use of Database Management System (DBMS) in today's world. **(2⅓)**

   (e) What is Relational Database? Describe Table, Relations, Join and Query with examples. **(2+6)**

SECTION – B
There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) Briefly describe the following network topologies using appropriate figures: **(12)**

   (i) Bus Topology
   (ii) Star Topology
   (iii) Ring Topology
   (iv) Mesh Topology

   (b) How can an organization be benefited using computer networks? Explain. **(4⅓)**

   (c) Why are modems required when two computers need to exchange data over standard telephone lines? What factors should you consider when purchasing a modem? **(4+3)**

6. (a) What are the differences between intranet and extranet? Explain their roles in business to business (B2B) e-commerce. **(3+3)**

   (b) How does the web work? Briefly describe. **(8)**

   (c) "E-mail is a real time communication system" - do you agree? Justify your answer. **(4⅓)**

   (d) What boolean operators are generally used for web searching? Explain how they are used. **(5)**

7. (a) Describe how satellite communications can be used for internet connections. **(6)**

   (b) Describe two e-commerce activities that are important to consumers. **(8)**

   (c) What precautions should you take to protect your personal information? **(5)**

   (d) What is a firewall? Briefly describe its role for computer and network security. **(4⅓)**

8. (a) Briefly describe the terms 'Threat', 'Vulnerability' and 'Countermeasures' in the context of computer security. **(6)**

   (b) Briefly describe different types of threat to computer hardware and data. What measures should be taken against the threats? **(8⅓)**

   (c) Describe three methods of hacking. **(9)**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2   B. Sc. Engineering Examinations 2010-2011

Sub : **IPE 409** (CAD/CAM)

Full Marks : 210   Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) What are the different types of models of design process? Explain Ohsuga model in detail. **(17)**

   (b) Using neat sketch briefly explain the architecture of a computer aided design system. What are the strengths and weaknesses of conventional representation? **(18)**

2. (a) What are the three schemes used for three-dimensional modelling? Discuss their relative advantages and disadvantages. **(15)**

   (b) With appropriate examples explain constructive solid geometry and boundary representation of solid modelling. **(20)**

3. (a) Give examples of parametric and non-parametric equations used for line and circle. Derive the equation in general form of a cubic polynomial in the Hermite basis. **(17)**

   (b) What are the key differences between windowing transformation and viewing transformation? Briefly explain different phases of transforming entities from model coordinate system to display coordinate system for three dimensional computer graphics. **(18)**

4. (a) What are the similarities between object transformation and coordinate transformation? Explain using related drawing and equations for rotation, scaling and translation. **(17)**

   (b) Write short notes on **(18)**

   (i) Ruled surface and Bezier surface

   (ii) Typical data structure

   (iii) Pure primitive instancing

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) CNC machine is more flexible compared to NC machine - Justify. **(8)**

   (b) Close loop feedback system with servo motor is preferred over open loop system with stepper motor - why? **(10)**

IPE 409

Contd ... Q. No. 5

    (c) Write a G-code for machining a circular part having 25 mm dia using R command **(6)**

    (use any suitable endmill cutter). **(6)**

    (d) How can you distinguish CNC machining center from CNC machine? **(5)**

    (e) How a 6-axis CNC machine is superior to 5-axis CNC machine?

6. (a) What are the main features of a CNC machining center? Explain with sketches. **(18)**

    (b) What is the difference between "Direct Numerical Control" and "Distributive Numerical Control"? **(5)**

    (c) Write a G-code for the following circular part using single point cutting tool (Fig. 6c). **(12)**
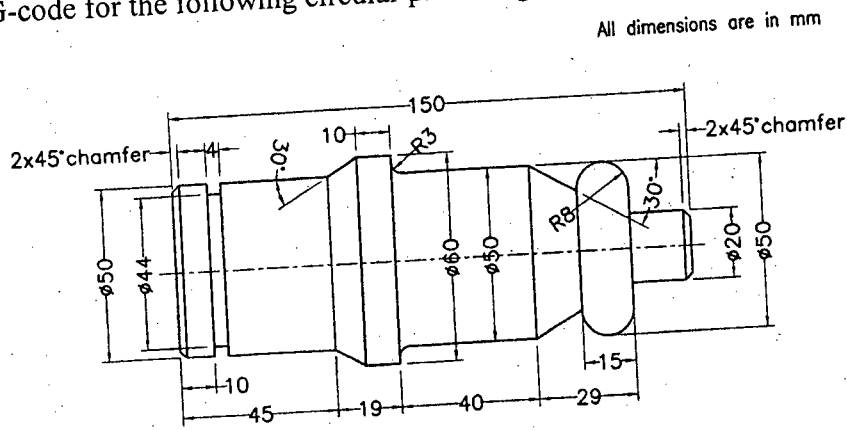
All dimensions are in mm

Fig. Q6 (c)

7. (a) Absolute and incremental positioning systems can be combined in CNC operation- discuss with appropriate example. **(6)**

    (b) Write down the benefits and limitations of two different types of tool holders used in CNC machine. **(8)**

    (c) Why tool length offset is required in CNC machining? Discuss. **(6)**

    (d) Write a G-code for machining the component in Fig. 7(d) using any suitable tool. **(15)**

All dimensions are in mm
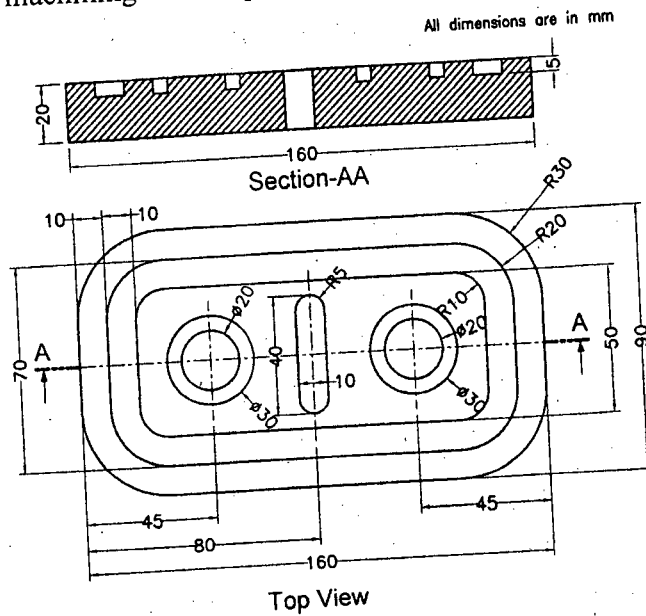

Section-AA

Top View

Fig. Q7 (d)

8. (a) Discuss the importance of seamless CAD/CAM integration. Explain the role of neutral format in CAD/CAM integration. **(18)**

    (b) Differentiate IGES and DXF format with examples. **(17)**

List of G-code for CNC Milling/Turning Operations

G-code	Description
G00	Rapid traverse
G01	Linear interpolation
G02	Clockwise circular interpolation
G03	Counterclockwise circular interpolation
G20	Inch data input
G21	Metric data input
G28	Automatic return to the reference point

G-code	Description
G40	Tool (nose) radius compensation cancel
G41	Tool (nose) radius compensation left
G42	Tool (nose) radius compensation right
G54-59	Workpiece coordinate system 1-6 selection
G90	Absolute command programming
G91	Incremental command programming
G92	Zero offset setting

G-code	Description
G50	Maximum spindle speed command
G80	End of shape designation
G81	Start of longitudinal shape designation
G82	Start of traverse shape designation

G-code	Description
G85	Call for rough bar turning cycle
G87	Call for finishing turning cycle
G96	Constant cutting speed
G97	Fixed RPM

List of M-code for CNC Milling/Turning Operations

M-code	Description
M02	End of program
M03	Spindle clockwise
M04	Spindle counterclockwise
M05	Spindle stop

M-code	Description
M06	Tool change
M08	Coolant on (spray)
M09	Coolant off
M30	End of program

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2   B. Sc. Engineering Examinations 2010-2011

Sub : **IPE 411** (Industrial and Business Management)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Classify managers based on management levels. What skills are needed for managers of different levels? **(10)**

    (b) What is the difference between "functional" and "general" managers? **(08)**

    (c) Describe "Hawthorne" experiment in brief. What is "Hawthorne" effect? Why is it important to managers? **(10)**

    (d) Describe the contributions of Frederick W. Taylor in Scientific management school. Also mention the limitations of his theories. **(7)**

2. (a) Briefly describe four building blocks of an Organization. **(10)**

    (b) Explain matrix organizational structure with suitable example. Mention its advantages and disadvantages. **(15)**

    (c) Describe five bases of Power. Define and classify Formal Authority with suitable examples. **(10)**

3. (a) Explain ERG theory and Maslaw's Need theory in brief. Write the differences between these two theories. **(15)**

    (b) Explain Expectancy theory of Motivation. Write Hamner's rules for behavior modification. **(10)**

    (c) For a worker, working in a machine shop, the following data is given. Guaranteed base rate is 40 tk per hour, total piece to be produced = 800 pieces, standard task = 200 pieces/hour, low task would be 80% of the standard task. The worker took 4 hours to complete the job. Percentage of the workers' share in the gain of above task is 30%. Hence calculate the rate of incentive per hour for the worker; use Halsey plan. **(10)**

4. (a) Briefly describe the "Hersey and Blanchard's" Situational Leadership model. **(10)**

    (b) Differentiate between leaders and managers. **(8)**

    (c) What are the major types of teams found in organizations? What are Super teams? **(7)**

    (d) Explain the stages of team development. **(10)**

IPE 411

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) What are the implications of culture? Briefly describe the dimensions of organizational culture with relevant example. **(20)**

   (b) What do you mean by stakeholders of an organization? Who are the stakeholders of an organization? How can managers manage stakeholder relationship? **(15)**

6. (a) How do you think Corporate Strategies are managed? Describe elaborately with relevant examples. **(20)**

   (b) Describe with examples the ways in which an organization can grow. **(15)**

7. (a) What are the common selection tools used in recruitment? Describe them. **(15)**

   (b) What are the common barriers to communication? Elaborate them with relevant examples. Name the ways of overcoming them. **(20)**

8. (a) What are the common performance appraisal methods? Write about them. **(15)**

   (b) Which are the factors responsible for determining level of compensation and benefits? **(12)**

   (c) State some decruitment options. **(08)**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA
L-4/T-2   B. Sc. Engineering Examinations 2010-2011
Sub : IPE 427 (Marketing Management)
Full Marks : 210.   Time : 3 Hours
The figures in the margin indicate full marks.
USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A
There are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) What are the objectives of defensive strategy? Illustrate with example the defensive strategies a dominant firm might use.   **(20)**

   (b) What are the two factors that a firm must look in evaluating different market segments? Briefly explain different patterns of target market selection.   **(15)**

2. (a) Most companies are turning to micro marketing at one of four levels – explain these levels with appropriate example.   **(20)**

   (b) Many companies prefer to follow rather than challenge the market leader – justify this statement.   **(15)**

3. (a) What are the roles of a brand portfolio? Differentiate between 'Brand Reinforcement' and ' Brand Revitalization'.   **(20)**

   (b) Explain the service quality model and highlight the main requirements for delivering quality services.   **(15)**

4. (a) Define product mix. What are the possible ways a company can lengthen its product line?   **(20)**

   (b) What is loss leader pricing? What are the additional factors a company must consider before selecting the final price?   **(15)**

SECTION – B
There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) Marketing and selling are synonymous terms. Do you agree? Give reasons.   **(10)**

   (b) Define marketing mix. Explain different components of marketing mix.   **(15)**

   (c) What is relationship marketing? Give one example of each of the following:

      Experiences and ideas to be marketed.   **(5+5)**

6. (a) The corporate management of a blank compact disc (CD) manufacturing company notices a gap between their desired future sales and projected sales. The company wants to grow much faster than its current business will permit. How can it fill the strategic planning gap using assessing growth opportunities?   **(20)**

HUM 313(NAME)

Contd ... Q. No. 6

    (b) What is SWOT analysis? Pizza Hut (American restaurant chain and international franchise) wants to open an outlet in Hatirpul (near BATA signal). Now present a SWOT analysis for this purpose. **(15)**

7. (a) How could you define consumer behavior? Briefly describe the personal characteristics that have very direct impact on consumer behavior. **(20)**

    (b) "People can emerge with different perceptions of the same object because of three different perceptual processes" - Justify this statement. **(15)**

8. (a) Define "The Buying Center". Explain with example the different roles played by the members of the buying center. **(20)**

    (b) Illustrate with example how "solution selling" can alleviate price pressure. **(15)**

L-4/T-2/IPE   **Date : 01/01/2013**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2   B. Sc. Engineering Examinations 2010-2011

Sub : **IPE 451** (Supply Chain Management)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) What is Cycle Service Level?   **(5)**

    (b) CSL = Prob (Demand during lead time $L \geq$ RoP). Is the above statement true?
    Justify.   **(10)**

    (c) In a supply chain with demand uncertainty, standard deviation of demand during
    lead time is 1000 pieces, standard deviation of cycle demand is 500 pieces, safety stock
    is 2500 pieces.

        (i)   What is CSL?   **(10)**

        (ii) What is the probability of stockout?   **(10)**

2. (a) Show that the difference in average cycle inventory in two stages of a multiechelon
    supply chain is Q, under two situations — (i) there is no replenishment synchronization,
    (ii) there is replenishment synchronization.   **(15)**

    (b) Grainger Inc. is considering the aggregation of inbound shipments to lower costs.
    Truckload shipping costs $700 per truck along with $100 per pickup. Average annual
    demand from each supplier is 6000 units. Each unit costs $30, and Grainger incurs a
    holding cost of 15 percent.

        (i)   What are the optimal order frequency and order size if Grainger decides to
        aggregate 3 suppliers per truck?   **(12)**

        (ii) What should be a truck capacity?   **(8)**

3. (a) What are the five types of obstacles against coordination in the supply chain?
    Explain in brief.   **(15)**

    (b) Daily demand for calculator at Autocal Inc., a small manufacturer of scientific
    calculators, is normally distributed with mean of 200 pieces and standard deviation of
    100 pieces. Autocal Inc. produces all components of a calculator except its battery,
    which they buy from a supplier. The supplier of battery takes an average lead time of 3
    days. Autocal targets a Customer Service Level of 87.08 percent. They currently
    maintain 1.5 days' safety stock for this CSL. Autocal is working with their supplier (of
    battery) to reduce the standard deviation of lead time, since both demand and lead time
    are uncertain.   **(20)**

    What value of standard deviation of lead time will give them the opportunity to achieve
   the target CSL?

IPE 451

4. (a) Differentiate Outsourcing and Off-shoring. **(15)**

(b) Write short notes on any three: **(3×6⅔=20)**

    (i) Supply chain surplus

    (ii) Consistency Ratio of AHP method in supplier selection

    (iii) Markdown allowance

    (iv) Quantity flexibility contract.

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) Discuss Push/Pull view of supply chain processes with example. **(15)**

(b) What do you mean by cost-responsiveness efficient frontier? **(10)**

(c) Explain "Zone of strategic fit". **(10)**

6. (a) Why is it necessary to understand the implied uncertainty of demand and supply, in order to achieve strategic fit? Explain the point with respect to Product Life Cycle. **(15)**

(b) Explain, how strategic scope can be expanded from intracompany-intraoperation scope to intercompany-interfunctional scope. **(20)**

7. (a) Write the name of supply chain Drivers. Explain how these drivers affect the decisions for strategic fit in supply chain. **(20)**

(b) Describe the factors which influence distribution network design. Describe the relationship of transportation, facility and inventory cost with number of facilities. **(15)**

8. (a) Explain — "the choice of distribution network has very long-term consequences". **(10)**

(b) Explain how E-business affected PC sell by Dell in the USA. **(15)**

(c) Explain "Water as a transportation mode". **(5)**

(d) "Toyota follows two different milk run techniques in Japan and the USA." Explain in brief. **(5)**

Table A. Standard Normal Distribution Values (Areas under the normal curve).
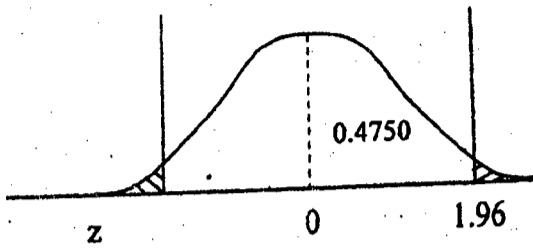
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0/09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990