

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2 B. Sc. Engineering Examinations 2012-2013

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) Describe different post-purchase behavior. (15)
(b) Discuss the characteristics where business market varies from consumer market. (20)
2. (a) What do you understand by buying center? Discuss the roles it plays in purchase decision making process. (14)
(b) What different criteria we have to consider while choosing brand elements? (14)
(c) Variable cost of a certain product is \$8 per unit, while the fixed cost is \$120,000. The expected sale is 30,000 units. If the marketer desires a 25% return on sales, then find the markup price. (7)
3. (a) Discuss different roles that brands can play as a part of a portfolio. (8)
(b) Describe different service differentiation techniques. (15)
(c) Discuss product-mix pricing with necessary examples. (12)
4. (a) Discuss five gaps that can cause unsuccessful service delivery in case of a hospital. (10)
(b) Describe different pricing objectives with necessary examples. (15)
(c) Discuss different price discounts and allowances with necessary examples. (10)

SECTION – B

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

5. (a) Briefly explain the significance of five forces that determine the intrinsic long-run attractiveness of a market with relevant examples. (15)
(b) Discuss the competitive strategies available for the market leaders. Provide atleast one real life example for each of the strategies. (20)
6. (a) Define 'Marketing Myopia' with relevant examples. What are the ways of overcoming this problem? (8)

IPE 427

Contd ... Q. No. 6

- (b) Anil started a wedding retail shop at the beginning of this year where everything necessary for a wedding to take place i.e., ornaments, bridal sharee, grooms dress, catering service, community centre booking, etc., are available under one roof. He has already achieved a huge success from this retail shop. What core concept of marketing Anil is following here? Justify your answer. (6)
- (c) Define different states of demand with appropriate examples. (8)
- (d) What are the different types of needs customers naturally have among them? (6)
- (e) Why grassroot marketing is preferred to load marketing? (7)
7. (a) Briefly explain the patterns of target market selection with appropriate examples. (12)
- (b) List down the ways of segmenting consumer markets. Explain 'Psychographic' segmentation with relevant examples. (13)
- (c) What are the different research approaches and instrument available for the market researchers? (10)
8. (a) How customer's 'Perception' effects his/her buying behavior? Explain. (18)
- (b) Describe different ways to initiate price cuts and price increases. (17)
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SECTION – A

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

1. (a) What is AHP method? Describe its purpose. What is consistency Index? (8)
 (b) Two different options of transportation network are followed in the USA and Japan. What are those and why do they follow those? (12)
 (c) Describe Incentive obstacle and Pricing obstacle. (15)

2. (a) Explain “Manufacturer storage with direct shipping and in-transit merge” (15)
 (b) Describe Rail and Water as modes of transport. (20)

3. (a) Differentiate Supply chain strategies following by Wal-Mart and 7-Eleven, in tabular form. (15)
 (b) Describe the statement – “The choice of a distribution network has very long term consequences” (20)

4. (a) “Reputation of supplier” is an important attribute for supplier selection. Calculate the consistency Ratio for the following AHP matrix. Note that a vendor is a supplier. (15)

	Vendor 1	Vendor 2	Vendor 3
Vendor 1	1	3	3
Vendor 2	$\frac{1}{3}$	1	1
Vendor 3	$\frac{1}{3}$	1	1

- (b) Aj Pump Company Ltd. buys valves from Horwood Valve Ltd. at a price of \$10/piece. Annual demand of valves at Aj Ltd. is 730,000 pieces. They (Aj Ltd.) have been asked to buy the pumps with a lot size of 29,200 pieces, which is one packet of valves. They (Aj Ltd.) decided to maintain safety stock, which amounts to 30% of average lead time demand. Holding cost is 20% of the value of stock. While shipment (from Horwood to Aj Ltd.) time is 3 days, Horwood needs additional one day to process the order in the office. Calculate total inventory holding cost. (20)

IPE 451

SECTION – B

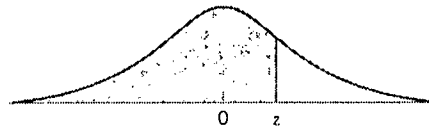
There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) When quantity discounts are justified in a supply chain? (10)
(b) Why is it appropriate to include only the incremental cost when estimating the holding and order cost for a firm? (10)
(c) Drugs Online (DO) is a retailer that sells vitaherb, a popular vitamin diet supplement. Demand for vitaherb is 120,000 bottles per year. The manufacturer currently charges \$3 for each bottle and DO incurs a holding cost of 20%. DO currently orders in lots of $Q^* = 6,324$ bottles. The manufacturer has offered a discount of \$0.15 for all bottles purchased by retailers over the coming month. How many bottles of vitaherb should DO order given the promotion? (15)
6. (a) Describe the two types of ordering policies and the impact that each of them has on safety inventory. (10)
(b) Explain how a reduction in lead time can help a supply chain reduce safety inventory without hurting product availability? (10)
(c) Weekly demand for corn flex boxes at a Wal-Mart store is normally distributed, with a mean of 2500 boxes and a standard deviation of 500. The replenishment lead time is two weeks, and the store manager has decided to review inventory every four weeks. Assuming a periodic review replenishment policy, evaluate the safety inventory that the store should carry to provide a CSL of 90%. Evaluate the Order-up-to-level (OUL) for such a policy. (15)
7. (a) A company buys materials from 3 closely related suppliers. Annual demands of all of those 3 materials are 10000 pieces each. Holding cost for all is 20% of value of material. Purchase price is \$50/piece for each of the 3 types of materials. Common ordering cost is \$500/order. Supplier specific ordering costs are also equal, which is \$125 per order. Weights of all 3 materials are 10 kg/piece. A truck has a maximum allowable carrying of 21,900 kg at a time. Calculate, under capacity constraint of truck- (10+10)
(i) Procurement lot size per supplier per order
(ii) Annual ordering and holding cost per supplier
(b) Define product substitution. Explain two instances where substitution may occur. (15)
8. (a) What are the key processes under customer relationship management (CRM)? (20)
(b) Explain the impact of e-business on grocery industry. (15)
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APPENDIX II

Cumulative Standard Normal Distribution

$$\Phi(z) = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} e^{-u^2/2} du$$



z	0.00	0.01	0.02	0.03	0.04	z
0.0	0.50000	0.50399	0.50798	0.51197	0.51595	0.0
0.1	0.53983	0.54379	0.54776	0.55172	0.55567	0.1
0.2	0.57926	0.58317	0.58706	0.59095	0.59483	0.2
0.3	0.61791	0.62172	0.62551	0.62930	0.63307	0.3
0.4	0.65542	0.65910	0.66276	0.66640	0.67003	0.4
0.5	0.69146	0.69497	0.69847	0.70194	0.70540	0.5
0.6	0.72575	0.72907	0.73237	0.73565	0.73891	0.6
0.7	0.75803	0.76115	0.76424	0.76730	0.77035	0.7
0.8	0.78814	0.79103	0.79389	0.79673	0.79954	0.8
0.9	0.81594	0.81859	0.82121	0.82381	0.82639	0.9
1.0	0.84134	0.84375	0.84613	0.84849	0.85083	1.0
1.1	0.86433	0.86650	0.86864	0.87076	0.87285	1.1
1.2	0.88493	0.88686	0.88877	0.89065	0.89251	1.2
1.3	0.90320	0.90490	0.90658	0.90824	0.90988	1.3
1.4	0.91924	0.92073	0.92219	0.92364	0.92506	1.4
1.5	0.93319	0.93448	0.93574	0.93699	0.93822	1.5
1.6	0.94520	0.94630	0.94738	0.94845	0.94950	1.6
1.7	0.95543	0.95637	0.95728	0.95818	0.95907	1.7
1.8	0.96407	0.96485	0.96562	0.96637	0.96711	1.8
1.9	0.97128	0.97193	0.97257	0.97320	0.97381	1.9
2.0	0.97725	0.97778	0.97831	0.97882	0.97932	2.0
2.1	0.98214	0.98257	0.98300	0.98341	0.98382	2.1
2.2	0.98610	0.98645	0.98679	0.98713	0.98745	2.2
2.3	0.98928	0.98956	0.98983	0.99010	0.99036	2.3
2.4	0.99180	0.99202	0.99224	0.99245	0.99266	2.4
2.5	0.99379	0.99396	0.99413	0.99430	0.99446	2.5
2.6	0.99534	0.99547	0.99560	0.99573	0.99585	2.6
2.7	0.99653	0.99664	0.99674	0.99683	0.99693	2.7
2.8	0.99744	0.99752	0.99760	0.99767	0.99774	2.8
2.9	0.99813	0.99819	0.99825	0.99831	0.99836	2.9
3.0	0.99865	0.99869	0.99874	0.99878	0.99882	3.0
3.1	0.99903	0.99906	0.99910	0.99913	0.99916	3.1
3.2	0.99931	0.99934	0.99936	0.99938	0.99940	3.2
3.3	0.99952	0.99953	0.99955	0.99957	0.99958	3.3
3.4	0.99966	0.99968	0.99969	0.99970	0.99971	3.4
3.5	0.99977	0.99978	0.99978	0.99979	0.99980	3.5
3.6	0.99984	0.99985	0.99985	0.99986	0.99986	3.6
3.7	0.99989	0.99990	0.99990	0.99990	0.99991	3.7
3.8	0.99993	0.99993	0.99993	0.99994	0.99994	3.8
3.9	0.99995	0.99995	0.99996	0.99996	0.99996	3.9

SECTION – A

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

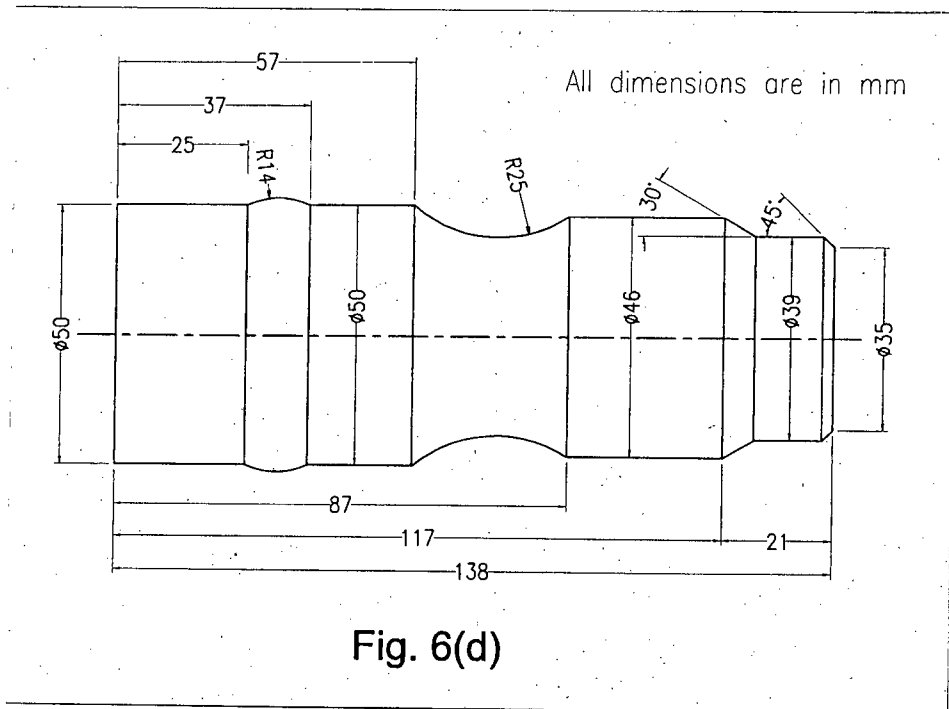
1. (a) What do you understand by Concurrent Engineering (CE) approach to product development? What are the pros and cons of this approach? Briefly explain different phases of CE. (18)
 (b) Using a neat sketch briefly explain the architecture of a Computer Aided Design (CAD) system. What are the strengths and weaknesses of conventional design representations? (17)
2. (a) What are the three schemes used for three-dimensional modeling? Discuss their relative advantages and disadvantages. Also discuss different techniques used for generating surfaces with appropriate examples and sketches. (20)
 (b) With appropriate examples explain Constructive Solid Geometry (CSG) representation of solid modeling. (15)
3. (a) Explain the necessity of parametric equations for representing models in CAD systems. Derive the equation of cubic polynomials with Hermite basis functions. (3+15=18)
 (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. (4+13=17)
4. (a) What are the similarities between object transformation and coordinate transformation? Explain object transformation and coordinate transformation using appropriate drawing and equations for rotation, scaling and translation. (17)
 (b) Write short notes on: (18)
 - (i) Bezier Surface
 - (ii) Interactive modelling
 - (iii) Pure primitive instancing.

IPE 409/IPE

SECTION – B

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

5. (a) What are the three different types of tool positioning models in CNC machining? Explain with example. (12)
- (b) How can you distinguish "Part offset" from "Tool offset"? With neat sketch, show these offset setting. (8)
- (c) Servo motor with feed back control system is used for CNC positioning — not the stepper motor with open loop control — why? (8)
- (d) What is the difference between in-process gauging and off-line gauging in measuring part co-ordinates? Which one do you prefer and why? (7)
6. (a) Indexing table is a part of 5-axis machining center. However, a 3-axis machining center does not require an indexing table — why? (7)
- (b) There are four different CNC input and storage media. Show their working principles. (8)
- (c) Briefly discuss two different types of probes in CMM. (7)
- (d) For the following circular part (Fig. 6(d)), show the tool path in G-M code using single point cutting tool: (13)



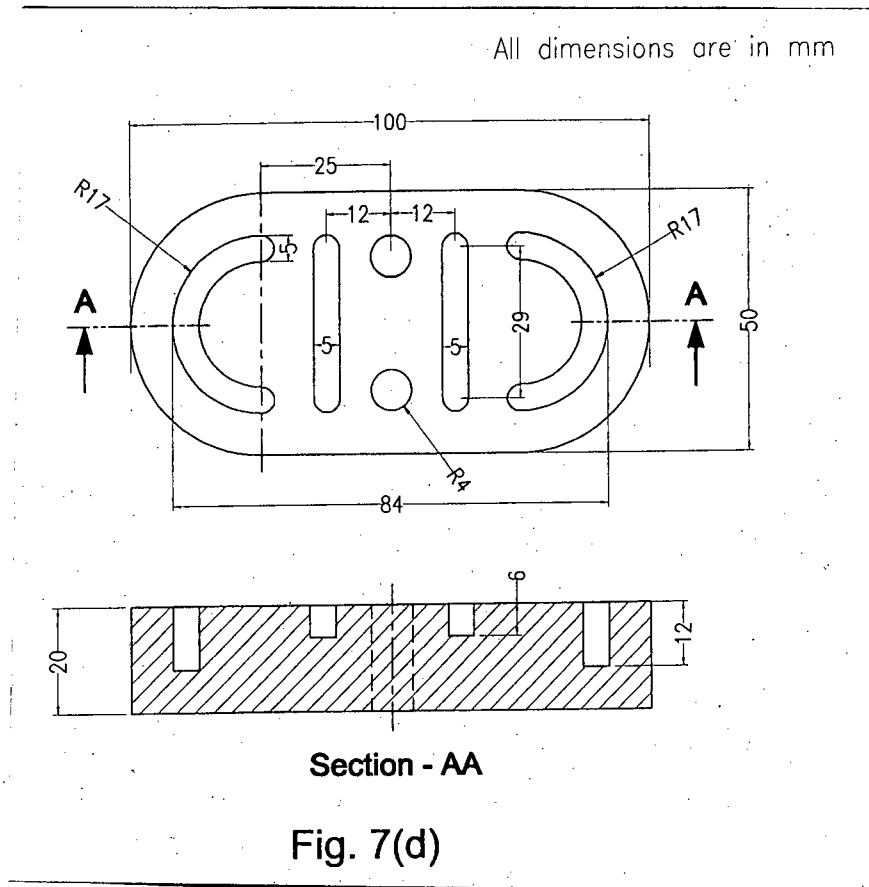
7. (a) If both I, J command and R command stay in the same block, which one will be executed by the machine controller? (5)
- (b) With appropriate application, show different types of CNC positioning and motion control system. (9)

IPE 409/IPE

Contd... Q. No. 7

(c) Briefly discuss the working mechanism of tool holder attachment into spindle head. (6)

(d) Write a G-M code for machining the following part, Fig. (7(d)), using any suitable tool(s): (15)



8. (a) Distinguish "Models of the design process" from "Models of design". Briefly explain the design process proposed by Ohsuga. (2+5=7)

(b) What do you understand by neutral format for data exchange? List names of few neutral formats used to exchange data from one system to another system. Discuss ISO's contribution in defining neutral format. (13)

(c) Which neutral format is proposed by Auto Desk? Draw a typical polyline consisting of two lines and an arc. Provide the "ENTITIES" section for this polyline using Auto Desk's proposed neutral format. (2+13=15)

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

L-4/T-2/IPE

Date : 06/08/2015

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2 B. Sc. Engineering Examinations 2012-2013

Sub : **IPE 411** (Industrial and Business 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) Describe the functional approach to management. (10)
(b) What skills are necessary at different management levels? Explain. (12)
(c) What are the rewards and challenges for being a manager? (13)
2. (a) Contrast traditional and contemporary organization. (10)
(b) How managerial decisions are affected by organizational culture? (12)
(c) Explain different stages of group development. (13)
3. (a) Explain managerial decision making process with an example. (10)
(b) Compare Programmed Versus Non-programmed Decisions. (12)
(c) What are the factors that affect the width of span to control organizational staff? (13)
4. (a) Explain the types of growth strategy in an organization. (9)
(b) Describe the three major types of corporate strategies and how the BOG matrix is used to manage those corporate strategies. (12)
(c) Mention the benefits and limitations of Product, Process and Functional departments. (14)

SECTION – B

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

5. (a) Describe the different performance appraisal methods. (10)
(b) What are the barriers to effective communication? How can those barriers be overcome? (11)
(c) Write short notes on equity theory and expectancy theory. (14)
6. (a) Contrast formal and informal communication. (10)
(b) How might planning in a not-for-profit organization such as the “Save the Children” differ from planning in a for-profit organization such as “Coca-Cola”? (10)
(c) Explain the management role describe by Henry Mintzberg. (15)

Contd P/2

IPE 411

7. (a) Explain the five-step behavior modification model. **(15)**
(b) Explain theory X and Y to describe human behaviour for motivation. **(20)**
8. (a) Explain “Managerial Grid” theory of Leadership. **(10)**
(b) What are the different job design approaches to motivation? **(10)**
(c) Write a short note on Theory of Cognitive Dissonance. **(15)**
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BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-2 B. Sc. Engineering Examinations 2012-2013

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 – AThere are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) Suppose the order of elements stored in an array is as follows: (7 1/3)

11	45	11	70	58	21	- 39	- 40	12
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Sort the array using Merge Sort so that the elements are stored in ascending order. Show each step of your simulation.

- (b) Briefly describe the followings with examples. (2 1/2 + 2 1/2 = 5)

(i) Black Box Test

(ii) White Box Test

- (c) Describe ACID with respect to DBMS using appropriate examples. (6)

- (d) Give a comparison of TCP and UDP. State where these protocols are used. (3 1/2 + 1 1/2 = 5)

2. (a) Consider the following database. (9 × 2 = 18)

Movie (movieTitle, movieYear, movieLength, inColor, studioName, producerCert#)

StarsIn (moviTitle, moviYear, starName)

MovieStar (starName, address, gender, birthdate)

MovieExec (ProducerName, address, producerCert#, netWorth)

Studio (studioName, address, presC#)

Give an expression in SQL for each of the following queries.

- (i) Find all movies made after 1970 that are in color.
- (ii) Find all stars that appeared either in a movie made in 1984 or a movie named "The Terminator".
- (iii) Find two stars who share an address.
- (iv) Find the names and addresses of all female movie stars who are also movie executives with a net worth over \$10,000,000.
- (v) Find all movies that are longer than the movie named "Three Idiots"
- (vi) Find the producers who have produced movies in which Shahrukh Khan acted.
- (vii) Find the average net worth of all movie executives.
- (viii) Find the total length of produced films by each of the producers who made at least one film prior to 1974.
- (ix) Find movie titles that appear more than once.

- (b) Describe CIA with respect to information security giving appropriate examples. (5 1/3)

CSE 441

3. (a) Give a comparison of array and linked list. (4)
- (b) Briefly describe the following with examples. (4)
- (i) Physical data independence
- (ii) Logical data independence
- (c) How many layers are there in the hybrid reference model? Briefly describe the functionalities of each layer. (1 1/2 + 7 1/2 = 9)
- (d) Describe Digital Signature signing and verification process with appropriate examples. (6 1/3)
4. Briefly describe the followings with respect to information security. (5 × 1 1/2 = 7 1/2)
- (i) Computer Virus
- (ii) Backdoor
- (iii) Spyware
- (iv) Botnet
- (v) Keyloggers
- (b) Describe data encapsulation in different layers of a network. (4 5/6)
- (c) Briefly describe the followings with examples. (2+3+2=7)
- (i) Secret Key Cryptography
- (ii) Public Key Cryptography
- (iii) Denial of Service (DoS) attack
- (d) Briefly describe the followings with examples. (2+2=4)
- (i) DDL
- (ii) DML

SECTION – B

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

5. (a) Why do computer use binary number system and human use decimal number system? (3+3=6)
- (b) Convert the following decimal number to hexadecimal number system. Test whether the conversion is correct by again converting the hexadecimal number to decimal number. (299.2926)₁₀ (7 1/3)
- (c) Suppose the order of elements stored in an array is as follows:
- 11, - 5, - 1, 7, 58, 21, - 39, 30, - 4, 12
- Sort the array using “Selection Sort” so that the elements are stored in descending order. Show each step of your simulation. (10)

CSE 411

6. (a) What is memory interleaving? Explain its advantages with an example. (4 1/3)
- (b) Define virtual memory. Describe the overlay and paging method in details with necessary figures. (1+6=7)
- (c) Draw the memory hierarchy of a computer mentioning the volatile and non-volatile units. Write a short note on the fastest memory unit. (3+5=8)
- (d) What is the average time to read or write a 512-byte sector for a typical disk rotating at 12,000 RPM? The advertised average seek time is 8 ms, the transfer rate is 60 MB/sec, and the controller overhead is 0.2 ms. Assume that the disk is not idle so that there is waiting time of 2 ms. (4)
7. (a) Define Kernel mode and user mode of an operating system. (2)
- (b) Write short note on each of the following OS services (6)
- (i) Resource Allocation
 - (ii) File Systems
 - (iii) Protection and Security
- (c) Draw the state transition diagram of a task and describe the life of a task with the help of the diagram. (5 1/3)
- (d) Define various types of software quality characteristics. Describe the different phases of software development using "waterfall" and "prototyping" model. (3+7=10)
8. (a) Write the differences between RISC and CISC architecture? Describe serial and parallel data transfer methods. (3+6=9)
- (b) What is a daisy chain? Explain with an example. (1+2=3)
- (c) Suppose the operation status of a computer system is as follows where the duration is given in millisecond unit: (5)

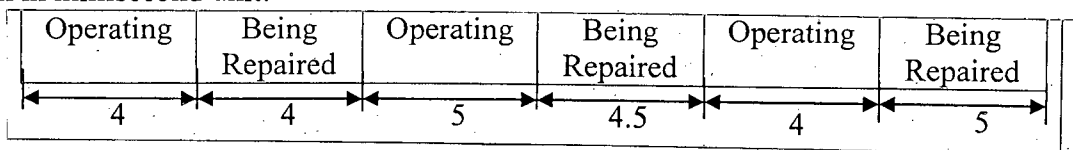


Figure for question 8(c)

Find the Mean Time Between Failure and Mean Time to Repair.

- (d) Calculate the availability of the entire system given in the following figure. Here, the availability of each unit is denoted by α . (6 1/3)

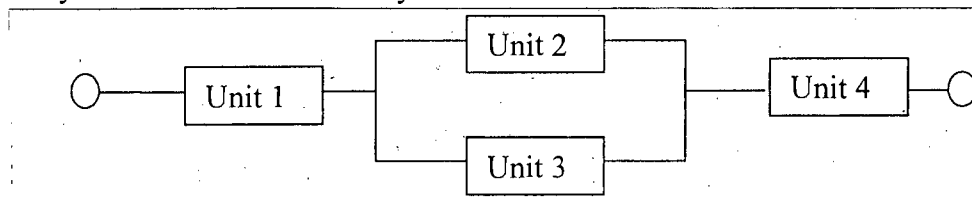


Figure for question 8(d)
