MCA SEM III (CBSGS)

Paper / Subject Code: 56205 / Software Project Management

Mar 2018.

(3 Hours) [Total Marks : 80]

N.B. : 1) Question No.1 is **compulsory.**
2) Attempt any **four** from the remaining **six** questions.
3) Answer to sub-questions should be grouped together.

Q.1.	(a)	Explain the knowledge areas of PMBOK	(10)
	(b)	What are the different organizational structures? Explain	(10)
Q.2.	(a)	What is outsourcing? Explain the process of procurement management.	(8)
	(b)	Explain Business case	(7)
Q.3.	(a)	Explain Make Buy Analysis and Earned Value Analysis	(8)
	(b)	Explain Ethical leadership style	(7)
Q.4.	(a)	Explain Six Sigma Quality Control in detail	(8)
	(b)	What is change management? Explain.	(7)
Q.5.	(a)	What are the different ways to close a project? Explain	(8)
	(b)	Explain Risk register	(7)
Q.6.	(a)	Explain the methods of quantifying risk.	(8)
	(b)	Explain different phases of project life cycle	(7)

Q.7. Write short note on (any three) (15)
(a) Information distribution
(b) Statistical Sampling
(c) Qualities of IT project Manager
(d) Project Metrics
(e) Control Charts

Q. P. Code: 37733

(3 Hours) **Total Marks 80**

N.B. **(1) Question 1 is compulsory**
(2) Attempt any four questions from question 2 to 7
(3) Use of Scientific calculator is not allowed.
(4) Use of simple calculator is allowed.
(5) Figures to right indicate full marks.

Q.1. (a) Explain Bresenham's line drawing algorithm and Rasterize the line whose end points are A (1,1) and B (8,5) using Bresenham's line drawing algorithm (10)

(b) How region filling algorithm is developed for polygons and curved boundary objects? (10)

Q.2 (a) What are projections? Explain various types of projections (8)

(b) What are properties of the curve? Derive quadratic and cubic Bezier curve (7)

Q.3 (a) Derive the Liang Barsky's line clipping algorithm and use it to clip a line P1-P2 with P1(-75,-100), P2(175,50) against the window with $(X_{wmin}, Y_{wmin}) \equiv (0,0)$ and $(X_{wmax}, Y_{wmax}) \equiv (150,100)$ (8)

(b) Explain the Z-Buffer algorithm for hidden surface removal and compare it with A- buffer algorithm (7)

Q.4 (a) What is 2D viewing transformation? Derive the window to viewport transformation equation (8)

(b) Explain in detail Halftoning and Dithering techniques. (7)

Q.5 (a) Equalized the given Histogram (8)

Gray Level	0	1	2	3	4	5	6	7
Number of Pixel	790	1023	850	656	329	245	122	81

(b) What is a fractal? What are its different types? How is a fractal dimension measured? (7)

Q.6 (a) For the following image data of 8 bits per pixels. Obtain (8)

i) Image negative

ii) Thresholding result (Threshold value = 150)

120	135	215	220	125
135	20	187	50	80
250	115	55	120	45
30	180	200	46	20
60	119	120	255	135

(b) Explain with examples i) Inside – outside test. ii) Windowing number rule test. (7)

Q.7 Write a short note on **(any Three)** (15)

(a) Low pass Median Filter
(b) Scaling about pivot point
(c) Koch Curve
(d) Animation

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MCA

Paper / Subject Code: 56203 / Network Security

Nov - 2018

Sem-III - CBSGS

Q.P. Code: 37536

(3 Hours) [Total Marks: 80]

N.B: (1) Question **No.1** is compulsory.
(2) Answer any **four** from remaining **six** questions.

Q1. a) Discuss SSL as an internet protocol for secure exchange of information. (10)
b) Define Network Security. What are the mechanisms provided by Network Security? (10)

Q2. a) Explain in details the DES algorithm with reference to its overview and DES round. (8)

b) Compare SHA1 and MD5. (7)

Q3. a) What is KDC? How does a KDC work in multiple domains? (8)

b) Explain RSA algorithm with the help of a numeric example. (7)

Q4. a) Explain Deffie-Hellman Key distribution algorithm. What is Man in the middle attack? (8)

b) What is a Digital certificate? How is digital certificate issued and by whom? (7)

Q5.a) Explain with the help of a diagram the working of Kerberos 4. (8)

b)) Explain how SET ensures a secure e – commerce transaction. (7)

Q6. a) What do you mean by Intrusion detection system?

Explain different intrusion detection mechanisms. (8)

b) What is Firewall? Explain different types of firewall? (7)

Q7. Write short notes on: (Any 3) (15)

a) Ticket lifetimes

b) Cryptographic authentication

c) Smart cards

d) Discuss ECB.

Q. P. Code: 37493

(3 hours) **Total marks:80**

Note:

1. **Q.1 is compulsory**
2. **Attempt any four from remaining six questions**

Q1 (a) Draw an E R Diagram for the following, 10
A medium sized company deals with industrial applications of computers.
The company sells various products to its customers ranging from installation of hardware to customized software.
a) Company employs various experts, consultants and supporting staff.
b) Company is divided into departments headed by managers and all projects are developed in an inter-disciplinary way.
c) Each project has project team consisting of a selected group of employees from different departments
d) A project manager (also an employee of the company) is appointed who is entirely and exclusively responsible for the control of the project.

(b) Write schema definition of above E-R diagram and Normalize upto 3NF 10

Q2 (a) Differentiate the following. 8
i) Hierarchical and Network model
ii) Physical data independence and Logical data independence

(b) Explain in brief Granularity in Locks 7

Q3 (a) Explain Tree based indexing and Hash based indexing 8

(b) Define Locking Protocol. Explain Strict Two phase Locking protocol 7

Q4 (a) Define Decomposition? Explain Lossless and Dependency preserving decomposition. 8

(b) What is a transaction? Explain ACID properties for transaction 7

Q5 (a) Explain the architecture of database system and also explain how it is different from conventional file system 8

(b) Explain Bell-La Pedula model for security implementation 7

Q6 (a) Briefly Explain working of Query Optimizer. 8

(b) Define deadlock. Describe deadlock prevention techniques. 7

Q.7 Write short notes on **any three** of the following: 15
a. Data Dictionary
b. Shadow paging
c. Serializability
d. Role of checkpoint in crash recovery

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Q. P. Code: 37733

(3 Hours) **Total Marks 80**

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(b) Scaling about pivot point
(c) Koch Curve
(d) Animation

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MCA. / Paper / Subject Code: 56203 / Network Security / NOV-2018

Sem-III- CBSGS.

Q.P. Code: 37536

(3 Hours) **[Total Marks: 80]**

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a) Ticket lifetimes

b) Cryptographic authentication

c) Smart cards

d) Discuss ECB.

[Time: 3 hours] Marks: 80

Please check whether you have got the right question paper

Note:
1. Question 1 is compulsory.
2. Attempt **any 4** from the remaining 6 questions.
3. Figures to the right indicate marks.
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Q.1 a) Solve the following LPP using Graphical Method: [10]

Maximize Z = 2x1 + x2

Subject to $x1 + 2x2 \leq 10$

$x1 + x2 \leq 6$

$x1 - x2 \leq 2$

$x1 - 2x2 \leq 1$

$x1, x2 \geq 0$

b) The time estimate (in weeks) for the activities of a PERT network are given below: [10]

Activity	Optimistic time (to)	Most likely time (tm)	Pessimistic time (tp)
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

i) Determine the expected time and variance of each activity.

ii) Draw the project network.

iii) Determine project length and critical path.

Q.2 a) Solve the following LPP by using Simplex Method [8]

Maximize Z = 2x1 + 5x2

Subject to $x1 + 4x2 \leq 24$

$3x1 + x2 \leq 21$

$x1 + x2 \leq 9$

$x1, x2 \geq 0$

[TURN OVER

b) Cost of shipping milk from each plant to each distribution center is given in the following table in hundreds of rupees. Find the initial basic feasible solution for the following transportation problem by Vogel's approximation method. [7]

		Distribution Centers				
		1	2	3	4	Supply
Plants	1	2	3	11	7	6
	2	1	0	6	1	1
	3	5	8	15	9	10
Requirement		7	5	3	2	

Q.3 a) Solve the following LPP using Dual Simplex Method [8]

Minimize $Z = 2x1 + 2x2 + 4x3$

Subject to $2x1 + 3x2 + 5x3 \geq 2$

$3x1 + x2 + 7x3 \leq 3$

$x1 + 4x2 + 6x3 \leq 5$

$x1, x2, x3 \geq 0$

b) Determine the optimal sequence for the jobs and total elapse time. Also find the idle time for each machine. [7]

Job	1	2	3	4	5	6	7
M/C 1	3	12	15	6	10	11	9
M/C 2	8	10	10	6	12	1	3

Q.4 a) Solve the following LPP by using Big-M Method [8]

Maximize $Z = 3x1 - x2$

Subject to $2x1 + x2 \leq 2$

$x1 + 3x2 \geq 3$

$x2 \leq 4$

$x1, x2 \geq 0$

b) Find the optimal strategies and value of the game where pay-off matrix of the two players is given by [7]

		Player B		
		B1	B2	B3
Player A	A1	2	6	1
	A2	8	4	6
	A3	1	2	1

[TURN OVER

Q5 a) Draw the network diagram. Find total, free and independent floats. [8]

Activity	1-2	1-3	1-4	2-4	2-5	3-6	4-6	5-7	6-7	6-8	7-8	8-9
Duration	4	12	10	8	6	8	10	10	0	8	10	6

b) Solve the following assignment problem and find the optimum assignment that will result in minimum man hours needed. [7]

		Jobs				
		A	B	C	D	E
Workers	P	10	12	15	12	8
	Q	7	16	14	14	11
	R	13	14	7	9	9
	S	12	10	11	13	10
	T	8	13	15	11	15

Q6 a) A salesman wants to visit cities 1, 2, 3 and 4. He does not want to visit any city twice before completing the tour of all the cities and wishes to return to his home city, the starting station. Cost of going from one city to another in rupees is given in the table. Find the least cost route. [8]

		To city			
		1	2	3	4
From city	1	0	30	80	50
	2	40	0	140	30
	3	40	50	0	20
	4	70	80	130	0

b) A company has a machine whose cost is Rs. 30000. Its maintenance cost and resale value at the end of different years are as given below: [7]

Year	1	2	3	4	5	6
Maintenance Cost (Rs.)	4500	4700	5000	5500	6500	7500
Resale Value (Rs.)	27000	25300	24000	21000	18000	13000

What is the economic life of the machine and what is the minimum average cost?

[TURN OVER

Q.7 a) The state of natures and strategies of food products company are as follows: [8]

		States of nature		
		N1	N2	N3
Strategies	S1	700000	300000	150000
	S2	500000	450000	0
	S3	300000	300000	300000

Which strategy should the concerned executive choose on the basis of

i) Maximin criterion
ii) Maximax criterion
iii) Minimax regret criterion
iv) Laplace criterion

b) Explain the following terms with suitable example. [7]

i) Steps to construct Dual of primal LPP
ii) Pure and mixed strategies in game theory

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Sem- III - CBSGS.

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