Q.P. Code :06705

[Time: 3 Hours]   [Marks:80]

Please check whether you have got the right question paper.

N.B: 1. Q.1 is compulsory
            2. Attempt any four from remaining six questions

Q1 a) A large bank has several branches at different places.   10
        1) Each branch is managed by a manager
        2) Each branch maintains the account details of the customer
        3) The customer may open the saving current and FD accounts as single and joint operations.
        4) The bank also provides the loan for various purposes
        5) Bank keeps record of each transaction by the customer to his account.
        6) All the branches have employees for different operations.
    b) Write a schema definition and normalize all tables to 3NFfor the above ER diagram.
                                                                                  10

Q2 a) Explain Database architecture in detail and also explain users of databases.   08

    b) Explain granularity in locks   07

Q3 a) Write a short note on Tree based indexing and Hash based indexing   08

    b) Define Transaction. Explain ACID properties of transaction.   07

Q4 a) What is locking protocol? Explain Two phase locking protocol and strict two phase locking protocol in   08
       detail.

    b) Write a short note on query optimizer.   07

Q5 a) Explain Bell_LaPadulamodel and GRANT and REVOKE command.   08

    b) Define Decomposition? Explain Lossless and Dependency preserving decomposition   07

Q6 Differentiate following.(Any three)   15
    1. Specialization and Generalization
    2. Hierarchical model and Network model
    3. DBMS and RDBMS
    4. Weak entity and strong entity

Q7 Write a short note on following(Any three)   15
    1. Serializability of a transaction
    2. Shadow paging
    3. Levels of abstraction
    4. Deadlock prevention techniques

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Q.P. Code :05401

[Time: 3 Hours] [Marks:80]

Please check whether you have got the right question paper.

N.B:
1. **Question No.1 is compulsory.**
2. **Solve any four from Question 2 to Question 7.**
3. **Use of non-programmable calculators allowed.**
4. **Mixing of sub-questions is not allowed.**
5. **Figure to right maximum marks.**

1. (a) What do you understand by Translation and Reflection transformation? Explain these transformations with diagram.   10

   (b) What do you understand by line clipping? What is Cohen-Sutherland line clipping algorithm for line clipping? Explain.   10

2. (a) What are projections? How are they useful? Explain different types of projections.   08

   (b) Construct the Bezier curve of order three and with four polygon verticals A(1,1), B(2,3), C(4,3) and D(6,4).   07

3. (a) Consider a three bit image - $\begin{bmatrix} 5 & 3 & 6 \\ 0 & 7 & 4 \\ 6 & 5 & 1 \end{bmatrix}$ 08

What will be the output image of this after performing following operations-
1. Median filtering only at center location. Remaining values no changes.
2. Images Negative transformation.
3. Threshold T = 4.
4. Intensity Level Slicing with background a=3 and b=5.

   (b) What is visible surface detection? Differentiated between Z-buffer and A-buffer algorithm of visible surface detection.   07

4. (a) Find out the final co-ordinates of a figure bounded by the co-ordinates (1,1), (3,4), (5,7), (10,3) when rotated a point (8,8) by 30° in clockwise direction and scaled by two units in x-direction and three units in Y-direction.   08

   (b) What is fractal? What are different types of fractal? Explain the Kotch curve in brief.   07

5. (a) What is rasterization? Drive and write the Generalized Bresenham's line drawing algorithm.   08

   (b) Solve using Liang Barsky line clipping algorithm, where $(X_{wmin}, Y_{wmin})=(1,5)$ and $(X_{wmax}, Y_{wmax})=(3,9)$ for line segment P1(6,7) to P2(8,9).   07

6. (a) What is boundary fill algorithm to fill closed region? Explain its advantages and disadvantages.   08

   (b) Equalize the given histogram —   07

Gray Level	0	1	2	3	4	5	6	7
No. of Pixels	790	1023	850	656	329	245	122	81

7. Write short notes on the following **(any three)** 15
   (a) Gourd Shading
   (b) Image Averaging
   (c) Digital Image and its representation
   (d) Different between Raster-Scan System and Random-Scan Systems

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Q. P. Code: 27158

[3 hours]   Marks: 80

Note :
   a) **Question No. 1 is compulsory**
   b) Attempt **any four** from the remaining six questions
   c) Assumptions should be made whenever required and should be clearly stated
   d) Answers to sub questions should be answered together
   e) Illustrate answers with diagrams wherever necessary

Q1	A)	Differentiate between Symmetric and asymmetric encryption? Explain one round structure of DES?	10
	B)	What is authentication? Explain the token based mechanism used for authentication.	10
Q2	A)	Define a hash? Explain SHA -1 as a message digest algorithm	8
	B)	Explain the SSL to secure communication between the server and the web browser.	7
Q3	A)	Explain Kerberos as a third party authentication system.	8
	B)	Define a firewall. Explain the different types of firewalls.	7
Q4	A)	Explain the various network security principles and the possible attacks on them.	8
	B)	Explain the Diffie Hellman key Exchange mechanism.	7
Q5	A)	What is a digital certificate? Explain the creation and validation of the certificate	8
	B)	Discuss PEM and PGP as a mechanism for securing the E-mails.	7
Q6	A)	Who is a Certificating Authority? What are the advantages of CA's over KDC?	8
	B)	How does SET ensure that the transaction is secure between the customer, merchant and the financial institution?	7
Q7		Write short notes on **any three** of the following	15

        a) SSL
        b) IPSec
        c) Honeypots
        d) IDS

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Q.P. Code :07835

[Time: 3:00 Hours]

[Marks:80]

Please check whether you have got the right question paper.

N.B:
1. Question No.1 is compulsory.
2. Attempt any four questions from question 2 to 7.
3. Figure to the right indicates marks.
4. Use of scientific calculator is allowed.
5. mixing of sub-questions not allowed

Q.1   a) A travelling salesman has to cover 5 cities in his tour. He has to visit the cities one by one and return   10
to the starting city. The travelling cost (in thousand rupees) to each city from different cities in given in
the table. Which sequence of cities minimizes his total cost.

	A	B	C	D	E
A	-	2	5	7	1
B	6	-	3	8	2
C	8	7	-	4	7
D	12	4	6	-	5
E	1	3	2	8	-

b)For the following set of activities and different time estimates for a project.   10

Activity	Optimistic Time (days)	Pessimistic time (days)	Most Likely Time (days)
1-2	3	15	6
1-6	2	14	5
2-3	6	30	12
2-4	2	8	5
3-5	5	17	11
4-5	3	15	6
5-8	1	7	4
6-7	3	27	9
7-8	4	28	19

i)Draw a network diagram.
ii)Find the critical path and the expected duration of the project.
iii)Calculate the standard deviation of the project length.
iv)Find the probability that the project is completed in 31 days.

Q.2   a)Solve the following using Simplex Method.   08
Maximize Z = 12X1+3X2+X3
Subject to
        10X1+2X2+X3 < = 100
        7X1 +3X2+2X3< = 77
        2X1+4X2+X3 <=80
            X1,X2,X3>=0

1

b)Find the initial basic feasible solution for the given problem using Vogel's Approximation Method.   07

Destination

Source		A	B	C	D	Availability
	I	21	16	25	13	11
	II	17	18	14	23	13
	III	32	27	18	41	19
	Requirement	6	10	12	15	

Q.3   a)Solve the following using Big-M Method.   08
Minimize Z= 2X1 + 4X2
Subject to,

$$2X1+X2 \leq 18$$
$$3X1+2X2 \geq 30$$
$$X1+2X2 = 26$$
And X1, X2 $\geq$ 0

b)Consider the problem of assigning five jobs to five workers. The assignment cost are given as follows.   07
Determine the optimum assignment schedule and optimum assignment cost.

Jobs

		I	II	III	IV	V
	A	25	29	31	42	37
Workers	B	22	19	35	18	26
	C	39	38	26	20	33
	D	34	27	28	40	32
	E	24	42	36	23	45

Q.4   a)Solve the Following Using Dual Simplex Method
Maximize Z = -3X1 – X2
Subject to, X1 + X2 $\geq$1
        2X1+3X2$\geq$2
And X1,X2$\geq$0

2

b)Give the optimal job sequence involving three machines in the order ABC and find total elapsed time and the idle time for machine B and C.   07

Jobs	1	2	3	4	5
Machine A	7	12	11	9	8
Machine B	8	9	5	6	7
Machine C	11	13	9	10	14

Q.5 a)Solve the Following Problem using Graphical Method   08

Maximize $Z = 3X_1 + 2X_2$

Subject to $2X_1 + X_2 <= 40$

$X_1 + X_2 <= 24$

$2X_1 + 3X_2 <= 60$

And $X_1, X_2 >= 0$

b)The data collected in running a machine, the cost of which is Rs60,000 are given below: 07

Year	1	2	3	4	5
Resale Value (Rs.)	42000	30000	20400	14400	9650
Cost of spare (Rs.)	4000	4270	4880	5700	6800
Cost of labour(Rs.)	14000	16000	18000	21000	25000

Determine the optimum period of replacement of the machine?

Q.6 a)Explain the following terms: 08

i)Balanced Transportation problem and unbalanced Transportation problem with examples.

ii)Branch and bound method of solving Traveling Salesman Problem.

b)Given the following pay-off table. Decide the best decision using the criteria   07

i)Maximum ii)Maximax iii)Laplace iv)Hurwicz ($\alpha = 0.7$) and v)Minimin

Course of Action/States of Nature	S1	S2	S3
A1	30	60	20
A2	40	0	-20
A3	65	75	50

3

Q.7 a)Use matrix oddment method to solve the following 3*3 game: 08

0	1	2
2	0	1
1	2	0

b)For the project schedule given below draw the network diagram. Find total, free and independent floats. 07

Activi-ty	1-2	1-3	1-4	2-5	3-6	3-7	4-7	5-8	6-8	7-9	8-9	9-10
Durat-ion	2	2	2	4	5	8	4	2	4	5	3	4

4

[Time: 3 Hours]   [Marks:80]

Please check whether you have got the right question paper.

N.B: 1. Question No. 1 is compulsory
          2. Attempt any four from the remaining six questions.

Q.1 a) What is project Management? Describe project management framework in detail.   10

        b) What is outsourcing? Why and when organization should go for Outsourcing?   10

Q.2 a) Explain different phases of Project life cycle with suitable diagram.   07

        b) What are the processes for developing the Business case?   08

Q.3 a) List all the important tools and techniques used for schedule development. Explain any   07
            two in detail.
                                                                                          08
        b) Explain importance of performance reporting. What are different ways of performance
            reporting?

Q.4 a) What are traditional tools and techniques for quality control? Explain any two in detail.   07

        b) What are the processes involved in project scope management?   08

Q.5 a) What is change management? Why do people resist change?   07

        b) Explain in detail Human resource management in project.   08

Q.6 a) What are the skills required to become good project manager?   07

        b) What are the different leadership styles? Explain in detail.   08

Q.7 Write short notes on Any three:-   15

        a) Types of Cost Estimates

        b) Contract Statement of Work

        c) Approaches to Conflict

        d) Administrative closure.

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