

Register Number 1 9 5 0 0 1 0 4 6

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Computer Science and Engineering

Continuous Assessment Test – I

Question Paper

Degree & Branch	BE & Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1701- Distributed Systems				Regulation:	2018
Academic Year	2022-2023 ODD	Batch	2019-2023	Date	15-09-2022	FN / AN
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

KL2	1. Outline the two important key issues of distributed systems.	CO1
KL1	2. Define concurrent events.	CO1
KL2	3. Outline the properties of “happened- before relationship”.	CO1
KL3	4. Apply the logic of vector clock and comprehend the timestamp (3,4,2) at the system S2.	CO2
KL1	5. Define Cut.	CO1
KL3	6. Identify the reason for allowing the transit messages while recording global states.	CO2

Part – B (3×6 = 18 Marks)

KL2	7. Explain clock skew and clock drift with suitable examples and graphs.	CO1
KL2	8. Explain the types of global states and illustrate it using a time space diagram by marking them with appropriate cuts.	CO2
KL3	9. Apply Lamport's logical clock and vector clock algorithms for the given time-space diagram. Identify any set of events which portray the limitation of Lamport's logical clock, that could be solved by vector clocks.	CO2

Part – C (2×10 = 20 Marks)

P TO

KL3	<p>10. For the given time-space diagram, apply suitable algorithm for the causal ordering of messages.</p>	CO2
(OR)		
KL3	<p>11. For the given time-space diagram, apply suitable algorithm for the causal ordering of messages.</p>	CO2
(OR)		
KL3	<p>12. Apply Chandy Lampert's algorithm for global state recording in a fully connected bidirectional graph with three processes and demonstrate the method with necessary diagrams. Note: Include random transactions between the processes during the run of the algorithm.</p>	CO2

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Department of Computer Science and Engineering

Continuous Assessment Test – II

Question Paper

Degree & Branch	BE & Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1701- Distributed Systems				Regulation:	2018
Academic Year	2022-2023 ODD	Batch	2019-2023	Date	14-10-2022	FN / AN
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

KL2	1. Explain any two performance parameters of distributed mutex exclusion.	CO3
KL1	2. Define idle token.	CO3
KL2	3. Outline the message complexity of two non-token-based D-MUTEX algorithms.	CO3
KL2	4. Outline the difference between starvation and deadlocks.	CO3
KL3	5. Identify the maximum number of malicious processes when the total number of processes is 12 for the Byzantine agreement problem in the synchronous environment.	CO4
KL1	6. List any two applications of Byzantine consensus.	CO4

Part – B (3×6 = 18 Marks)

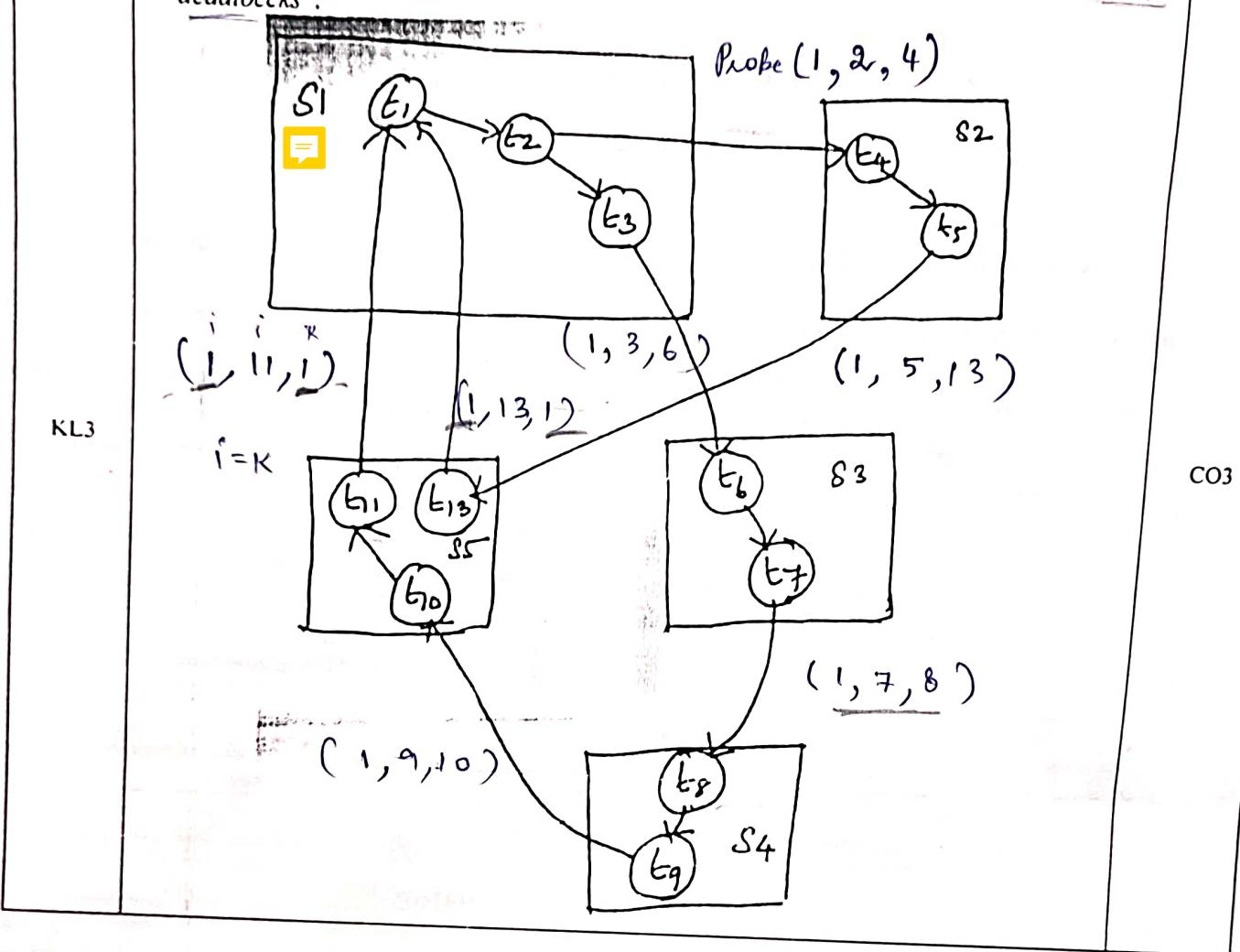
KL2	7. Illustrate the effect of Byzantine Consensus for Asynchronous non-malicious environment in which the source sends the commands as $1 \rightarrow 0$.	CO4
KL3	8. Consider 4 cohorts and 1 source in synchronous environment. Apply Byzantine consensus for the following cases and illustrate the result. i. Two of the cohorts are malicious. ii. Only the source is malicious.	CO4
KL2	9. Demonstrate the limitations of Path -Pushing algorithm with an example.	CO3

Part – C (2×10 = 20 Marks)

KL3	10. Apply the Lamport's non-token based distributed mutual exclusion algorithm for the scenario in which the order of request for critical section is as follows. $P1 \rightarrow (P2 \parallel P3) \rightarrow P4$	CO3
(OR)		
KL3	11. Apply the Ricart Agrawala's distributed mutual exclusion algorithm for the scenario in which the order of request for critical section is as follows. $P3 \rightarrow (P1 \parallel P2) \rightarrow P3$	CO3
KL3	12. Apply the token based distributed mutual exclusion algorithm for the scenario in which the order of request for critical section is as follows. $P1 \rightarrow P2 \rightarrow (P3 \parallel P4)$ <i>Note: Initially the token is held by process P3</i>	CO3

(OR)

13. Apply Edge chasing algorithm for the given scenario and identify the presence of deadlocks. Justify the fact "Edge Chasing Algorithm will not identify any phantom deadlocks".



-----ALL THE BEST-----

Register Number

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Department of Computer Science and Engineering

Continuous Assessment Test – III

Question Paper

Degree & Branch	BE & Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1701- Distributed Systems				Regulation:	2018
Academic Year	2022-2023 ODD	Batch	2019-2023	Date	12-11-2022	FN / AN
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

KL2	1. Outline the impact of lost messages on consistency and performance issues.	CO4
KL1	2. Define Orphaned messages.	CO4
KL1	3. Define Overlay Network	CO5
KL2	4. Outline the disadvantages of using Global State Recording Protocol for Checkpointing.	CO4
KL1	5. What is log-based checkpointing?	CO4
KL2	6. Compare stable log with volatile log.	CO4

Part – B (3×6 = 18 Marks)

KL2	7. Explain Peer to Peer systems. Outline the difference between the P2P and client server model.	CO5
KL2	8. Discuss the routing mechanism followed in Tapestry P2P system.	CO5
KL3	9. Consider 4 processes A, B, C & D, develop a scenario which demonstrate Domino's effect.	CO4

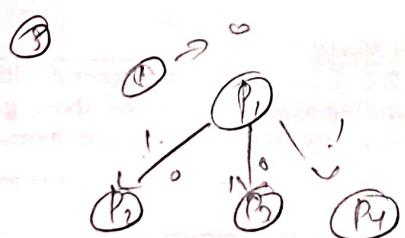
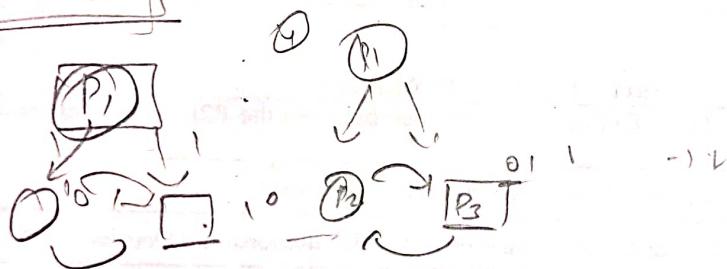
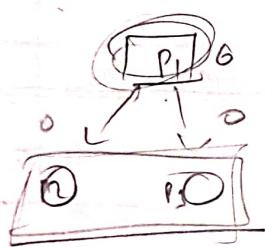
Part – C (2×10 = 20 Marks)

KL3	10. Consider a suitable topology with 4 processes A, B, C & D and assume process A initiates the task. Apply optimized coordinated checkpointing algorithm for the above given scenario and demonstrate the actions through necessary diagrams. Include messages wherever necessary.	CO4
(OR)		
KL3	11. Consider a suitable topology with 4 processes A, B, C & D and assume process A crashes. Apply synchronous recovery algorithm for the above given scenario and demonstrate the actions through necessary diagrams. Include messages wherever necessary.	CO4
KL3	12. Consider a suitable topology with 4 processes A, B, C & D and assume process A crashes. Apply asynchronous recovery algorithm for the above given scenario and demonstrate the actions through necessary diagrams. Include messages wherever necessary.	CO4

(OR)

KL3	13. Consider two processes A & B which are programmed to send messages to each other parallelly. Process A sends a message to B and crashes. Process B message gets delayed and delivered. Identify the issue that affects the consistency and simulate the sequence of actions for the given scenario.	CO4
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----- ALL THE BEST -----



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Computer Science and Engineering

Continuous Assessment Test – I

Question Paper

Degree & Branch	B.E & Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1702 Mobile Computing				Regulation:	2018
Academic Year	2022-23 ODD	Batch	2019-23	Date	16.09.2022	FN
Time: 8.15 am to 9.45 am	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

<KL1>	1. Why CSMA/CD scheme fails in wireless networks?	<CO1>
<KL2>	2. Compare wired networks and ad-hoc networks.	<CO1>
<KL1>	3. Why is physical layer in IEEE802.11 subdivided? What are its sublayers?	<CO1>
<KL1>	4. What are the three alternatives for the implementation of Home Agent (HA)?	<CO2>
<KL1>	5. Why structure of the cellular phone is in hexagon shape?	<CO1>
<KL1>	6. What are the two possibilities for the location of the Care-of Address (COA)?	<CO2>

Part – B (3×6 = 18 Marks)

<KL2>	7. Compare SDMA, FDMA, TDMA and CDMA.	<CO1>
<KL 3>	8. What is the reason for the failure of MAC schemes in wired networks? Identify the need for “specialized MAC schemes” in Wireless networks.	<CO1>
<KL2>	9. What is the basic prerequisite for FDMA? How does this prerequisite increase complexity compare to TDMA systems?	<CO1>

Part – C (2×10 = 20 Marks)

<KL 3>	<p>10. Assume two senders A and B want to send data. CDMA assigns the following unique and orthogonal key sequences: key $A_k = 010011$ for sender A, key $B_k = 110101$ for sender B. Sender A wants to send the bit $A_d = 1$, sender B sends $B_d = 0$. Apply CDMA technique to identify the value detected by the receivers of sender A and B respectively.</p>	<CO1>
(OR)		
<KL 3>	<p>11. Identify the benefits of reservation schemes. Outline how are collisions avoided during data transmission. Why is the probability of collisions lower, compared to classical Aloha?</p>	<CO1>
<KL 3>	<p>12. List the entities of mobile IP. Make use of these entities to describe data transfer from a mobile node to a fixed node and vice versa. Why and where is encapsulation needed?</p>	<CO2>
(OR)		
<KL 3>	<p>13. Identify how tunnelling works in general. How does it work for mobile IP using IP-in-IP, minimal, and generic routing encapsulation. Discuss the advantages and disadvantages of these three methods.</p>	<CO2>

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Computer Science and Engineering

Continuous Assessment Test – II

Question Paper

Degree & Branch	B.E & Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1702 Mobile Computing				Regulation:	2018
Academic Year	2022-23 ODD	Batch	2019-23	Date	15.10.2022	FN
Time: 8.15 am to 9.45 am	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

KL2	1. Explain the functions of AuC.		CO4
KL2	2. Summarize the limitations of GSM		CO4
KL2	3. Explain the reasons for handover in GSM.		CO4
KL2	4. Illustrate the steps in Mobile originated call		CO4
KL3	5. With the help of handover margin describe handover in GSM?		CO4
KL3	6. Identify the limitations of Indirect TCP and snooping TCP.		CO3

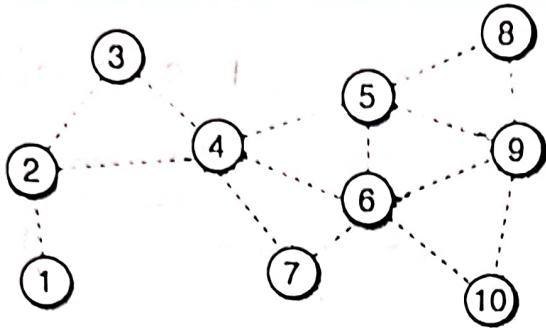
Part – B (3×6 = 18 Marks)

KL4	7. Analyse on how I-TCP isolates problems on the wireless link. List the main drawbacks of this solution.	CO3
KL3	8. Identify the operations of the different TCP congestion control algorithms for wired networks.	CO3
KL2	9. Illustrate the mobile services offered by GSM with a neat diagram.	CO4

Part – C (2×10 = 20 Marks)

KL3	10. Identify a routing protocol which exhibits both proactive and reactive approaches. Explain the protocol with a concrete example.	CO2
(OR)		
KL3	10. Consider the following scenario of mobile nodes whose zone radius is 2:	CO2

(W)



- a. Node 3 is the sender and node 9 is the receiver. Analyze the scenario and discover the path from 3 to 9. While discovering the path, examine what happens inside and outside the zone. (5 marks)
- b. Now assume that node 3 is sender and nodes 5,6, 8 are receivers of a group communication. Explain why the mobile routing protocol of the previous answer is not suitable. Suggest a more appropriate protocol, describing its principles and advantages in this scenario. (5 marks)

KL2	12. Identify the system used in 2G cellular telecommunication. With a neat diagram, explain its architecture.	CO4
(OR)		
KL2	13. Consider the following scenario: "A person makes a call from his landline to his friend who uses a mobile phone". Identify the call type of the GSM and explain with a neat diagram.	CO4

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Computer Science and Engineering

Continuous Assessment Test – III

Question Paper

Degree & Branch	B.E & Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1702 Mobile Computing				Regulation:	2018
Academic Year	2022-23 ODD	Batch	2019-23	Date	14.11.2022	FN
Time: 8.15 am to 9.45 am	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

KL2	1. Give four examples of Mobile OS.	CO5
KL2	2. What are the main elements of UMTS?	CO4
KL2	3. What is native APP?	CO5
KL2	4. Explain WURFL?	CO5
KL2	5. What is m-Dot in mobile web?	CO4
KL2	6. What is hardware Abstraction Layer?	CO5

Part – B (3×6 = 18 Marks)

KL3	7. Compare Mobile Web vs Native App Vs Hybrid.	CO5
KL3	8. Identify the steps involved in developing the calculator application using Android SDK.	CO5
KL3	9. Differentiate various mobile platform based on user preferences and features	CO5

Part – C (2×10 = 20 Marks)

KL3	10. Summarize the main features and architecture of third generation mobile phone systems. How do they achieve higher capacities and higher data rates?	CO4
(OR)		
KL3	11. Identify and explain type of handover when FDMA and TDMA is applied on third generation mobile phone systems. Explain the various handover schemes in UMTS.	CO4
KL2	12. Explain in detail about iOS protocol stack.	CO5
(OR)		
KL2	13. Explain in detail about Android protocol stack	CO5

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Department of Computer Science and Engineering

Continuous Assessment Test – I

Question Paper

Degree & Branch	B.E CSE				Semester	VII
Subject Code & Name	UCS1703 & GRAPHICS AND MULTIMEDIA				Regulation: 2018	
Academic Year	2022-23 ODD	Batch	2019-23	Date	19.09.2022	FN
Time: 90 Minutes 08.15 a.m. to 09.45 a.m.	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12Marks)

K1	1. What are the disadvantages of DDA algorithm?	CO1
K1	2. What are the major application areas of Graphics?	CO1
K2	3. Outline the use of frame buffer in a graphics system.	CO1
K2	4. Define affine transformation.	CO2
K1	5. What are homogeneous co-ordinates?	CO2
K1	6. What is a rigid body transformation? List out the basic transformations that are rigid body transformations.	CO2

Part – B (3×6 = 18 Marks)

K3	7. Apply DDA line drawing algorithm and digitize the line (0,2) to (4,5).	CO1
K2	8. Explain in detail the ellipse drawing algorithm.	CO1
K2	9. Differentiate random and raster scan systems.	CO1

Part – C (2×10 = 20 Marks)

K3	10. Make use of Bresenham's line drawing algorithm to digitize the line (35,40) to (43,45). (Or)	CO1
K3	11. Apply Midpoint Circle drawing algorithm and compute points on a circle with centre at (5,5) and radius of 8 units.	CO1
K3	12. Apply x-direction shearing with respect to a given y-reference line $Y_{ref} = -2$ and x-direction shearing factor = 2 for a unit square. (Or)	CO2
K3	13. A square has diagonal vertices (2,2) and (6,6). Apply scaling with a scaling factor $S_x=0.5$ and $S_y = 3$ on the square and discuss the position of the transformed square with respect to the coordinate origin.	CO2

* Picture definition

* discrete points

Random

(Dynamic memory cost)

* less cost efficient

* dependent on image complexity.

* jagged lines
* CRTs, Printers
Home TV sets

* line drawing commands.

Raster

* dependent on image complexity.

* smooth lines.

* Pen plotters, Asteroids,
CAD/CAM . etc..

Affine transformations:- An affine

transformation is an important class of linear 2-D geometric transformation which maps variables into new variables by applying a linear combination of translation, rotation, scaling and/or shearing operations.

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Continuous Assessment Test – II

Question Paper

Degree & Branch	B.E CSE				Semester	VII
Subject Code & Name	UCS1703 & GRAPHICS AND MULTIMEDIA				Regulation: 2018	
Academic Year	2022-23 ODD	Batch	2019-23	Date	17.10.2022	FN
Time: 08.15 a.m. to 09.45 a.m (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12Marks)

K1	1. Write the test conditions to clip a point.	CO2
K3	2. Apply character component clipping to the following strings against the rectangular clipping window. Clipping Object	CO2
K1	3. What is depth cueing? Give an example.	CO3
K3	4. Use homogenous coordinate representation to find (x_h, y_h, z_h, h) of the 3D point P [2,5,3] with h = 2. $P' = T_u, 10, 6]$	CO3
K1	5. What are super quadrics? Give two examples.	CO3
K1	6. What are blobby objects?	CO3

Part – B (3×6 = 18 Marks)

K2	7. Draw the diagram showing the graphics pipeline. Explain the concept of window to viewport transformation.	CO2
K3	8. Apply Sutherland-Hodgeman polygon clipping algorithm on the polygon given below. 	CO2

K3	9. Derive the composite transformation matrix for scaling a point $P(x,y,z)$ in x-direction by 3 and then rotating it by 45 degrees in anticlockwise direction about z-axis. For a line AB with endpoints A (1,1,5,2) and B (4.5,6,3), apply the composite transformation matrix to find its new vertices. [Use homogeneous co-ordinate representation with $h=1$]	CO3
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Part – C (2×10 = 20 Marks)

K3	10. Apply Cohen Sutherland clipping algorithm to clip the line A (2,11) B (9,2) with respect to a window with $X_{left} = 3$, $X_{right} = 10$, $Y_{bottom} = 4$, $Y_{top} = 9$.	CO2
OR		
K3	11. Apply the Liang-Barsky algorithm to clip the line P1 (-1, -2) P2 (2,4) with respect to a clipping window with $(X_{Wmin}, Y_{Wmin}) = (0,0)$ and $(X_{Wmax}, Y_{Wmax}) = (1,1)$.	CO2
K2	12. Illustrate the rotation on an object in 3D space about an arbitrary axis that does not pass through the origin and is not parallel to any of the principal axes. Derive the transformation matrix.	CO3
OR		
K2	13. Show that a three-dimensional composite transformation is not commutative, using an example.	CO3

(x, y) $(2, 11)$

$$\boxed{x = x_1 + (y - y_1)/m}$$

$$\begin{aligned} x &= 2 + (4 - 11) / -1.29 \\ &= 2 + 7 / 1.29 \\ &= 2 + 5.43 \\ &= 7.43 \end{aligned}$$

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Department of Computer Science and Engineering
Continuous Assessment Test – III
Question Paper

Degree & Branch	B.E CSE				Semester	VII
Subject Code & Name	UCS1703 & GRAPHICS AND MULTIMEDIA				Regulation: 2018	
Academic Year	2022-23 ODD	Batch	2019-23	Date	15.11.2022	FN
Time: 90 Minutes 08:15 a.m to 9.45 a.m	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12Marks)

K1	1. What parallel projection technique is applied when a unit cube is projected on to a screen with $\tan \alpha = 2$ and $\phi = 30$ degrees?	CO3
K1	2. What is a principal vanishing point? How many principal vanishing points can be identified on a 3D coordinate system?	CO3
K1	3. What is Luminance?	CO4
K3	4. Identify the CMY values for the RGB values (0.5,0.9,0.1).	CO4
K1	5. What is multimedia? Mention some applications where multimedia is used.	CO5
K1	6. What are the basic objects of multimedia systems?	CO5

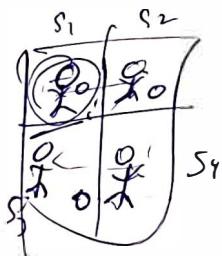
Part – B (3×6 = 18 Marks)

K2	7. Explain in detail the RGB and CMYK color models.	CO4
K3	8. Assume that you are the lead animator of a new short film. Define your problem statement and construct the steps involved in the design of that animation sequence.	CO4
K2	9. Explain in detail the multimedia architecture with a neat diagram.	CO5

Part – C (2×10 = 20 Marks)

K3	10. Consider a 3D coordinate system where y-axis is vertical and z-axis is pointing towards the viewer. A line with endpoints A(10,5,10) and B(20,10,20) is projected onto XY plane. Apply Cavalier projection with $\varphi = 30$ degrees and calculate the projected line endpoints.	CO3
(Or)		
K3	11. Consider a 3D coordinate system where y-axis is vertical and z-axis is pointing towards the viewer. A line with endpoints A (30,-20,40) B(20,-30,20) is viewed from the point P(0,0,10). Apply perspective projection and find where the endpoints AB would be projected on the screen. [Assume XY plane is the view plane/screen]	CO3

K3	<p>12. (i) In an animation sequence, keyframe k has 12 vertices and keyframe $k+1$ has 16 vertices. Apply in-betweening process by <u>equalizing vertex count</u>. (5)</p> <p>(ii) Construct a time-line for an animation showing constant speed to space 4 in-between frames with keyframe₁ placed at time 10 and keyframe₂ at time 25. Identify the time in the time-line to place the 3rd in-between frame. (5)</p>	CO4
K3	<p style="text-align: center;">(Or)</p> <p>13. Assume I, J, K as color primaries and do the following:</p> <p>(i) Construct the color gamut. Using the chromaticity diagram, identify how the dominant wavelength and complimentary color for any color C is calculated in the gamut. (5)</p> <p>(ii) Make use of additive and subtractive color models to show how a color C is defined in each. (5)</p>	CO4



$$f(x, y, z) = \sum_k b_k \cdot e^{-B_k r_k^2} - T = 0$$

$$r_k = \sqrt{x_{ik}^2 + y_{ik}^2} / b_k \quad T \sim$$

Polyhedra

Quadratic surfaces

Spherical surfaces

Spline surfaces

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Department of Computer Science and Engineering

Continuous Assessment Test – I

Question Paper

Degree & Branch	B.E. Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1704 – Management and Ethical Practices				Regulation:	2018
Academic Year	2022 – 2023 (ODD)	Batch	2019 - 2023	Date	20.09.2022	FN
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

K1	1. What are the roles a manager needs to perform in an organization?	CO1
K1	2. Define planning premises.	CO1
K2	3. Distinguish between policy and strategy.	CO1
K1	4. List the steps in decision making process.	CO1
K1	5. Specify the functions of management.	CO1
K1	6. Define MBO.	CO1

Part – B (3×6 = 18 Marks)

K2	7. Is management a science or Art? Discuss.	CO1
K2	8. Explain the evolution of management in detail.	CO1
K3	9. Compare and contrast <i>systems approach</i> and <i>contingency approach</i> for international business. Derive your inferences on both approaches when applied for marketing a product which was built in a start up company.	CO1

Part – C (2×10 = 20 Marks)

K3	10. Identify the main characteristics of the five different types of business organizations mentioned below with illustrations.	CO1
	i. Partnership ii. Corporation iii. Sole proprietorship iv. Cooperative v. Limited liability company	
Select an appropriate type of business form which is more applicable for IT corporate companies.		
(OR)		

K3	<p>11. Distinguish a strong cultured organization from a weak cultured organization. Identify the major steps involved to establish and maintain a strong organizational culture in a production -based company.</p>	CO1
K3	<p>12. Flipkart is an e-commerce company founded in the year 2007 by Sachin Bansal and Binny Bansal. The company is registered in Singapore, but has its headquarters in Bangalore, India. The company seeks to increase traffic (more clicks on their products) and boost sales and revenue through integration of Mobile Apps, Display, Pay Per Click and Search Engine Optimization. In order to dispel the fear of people related to shopping online, Flipkart was the first company to implement the popular 'Cash on Delivery' facility. All the products sold by the company under a particular category may have different return/replacement period. Flipkart allows multiple payment options such as cash on delivery, credit or debit card transactions, net banking, e-gift voucher and card swipe on delivery. The company operates both ways when an order is received. The products for which it holds inventory are dispatched by it directly. For the products they do not store in inventory, they just send the order received by them to the supplier who ships it. The company plans to spend about 75 crores on e-Commerce advertising in the year 2016. Flipkart reserves the right to terminate your membership and/or refuse to provide you with access to the website if it is brought to Flipkart's notice or if it is discovered that you are under the age of 18 years. This is because as per the Indian Contract Act, 1872, the minors, un-discharged insolvents, etc. are not eligible to use the website.</p> <p>In context of the above case, identify the different types of plans and explain them based on following aspects to be done by Flipkart.</p> <ul style="list-style-type: none"> a. Objectives b. Strategy c. Policy d. Method e. Procedure f. Budget g. Rule 	CO1
(OR)		
K3	<p>13. Consider the given scenario with different situations.</p> <p>SITUATION 1</p> <p>Suzy is a very pretty girl. She has a beautiful face and beautiful hair. She is not very happy with her body size. She weighs about fifteen pounds more than her friends. Suzy says, "My friends are so much prettier than I am. I am so fat. I wish I could be as skinny as they are." She also says, "It's not fair that you guys are so skinny and I am fat."</p> <p>When Suzy comes home from school she is starved to death. She is a picky eater. She doesn't like the things they serve at lunch, so she spends her lunch money in the candy and Coke machine at school. When she gets home from school, she makes herself an extra-large milkshake because she is so hungry.</p> <p>What choices does Suzy have about weighing more than she wants? Are there different choices that she could make about her diet to enable her to be the way she wants to be?</p> <p>SITUATION 2</p> <p>Fred loves clothes. His favorite activity is to go shopping at the mall and try on new clothes. He looks forward to the day when he has a job so he can buy all the clothes he wants.</p> <p>Next week is Fred's birthday and he will receive \$75.00 for his present. He saw a pair of jeans at the mall that were \$72.00; however, he also needs new shirts, new shorts, and some swim trunks for the summer. His \$75.00 could purchase all of these things or it could purchase the one pair of designer jeans.</p>	CO1

All the kids at school wear these jeans. Fred states, "If only I had a pair of these jeans, I would be popular." How could Fred make a wise decision? What would you do?

SITUATION 3

Katie loves clothes. She wishes she could have all the designer clothes she wants. Unfortunately, she can't; she has two brothers and three sisters, and her parents cannot afford to buy all their children designer clothes.

Katie has a few friends that have some designer jeans. Her friends let her borrow the jeans, even though this is against her parents' wishes. Her parents felt that Katie should not borrow them in case something were to happen to them. In that case, they would need to purchase an outfit to replace the damaged one.

One day on the way home from school, Katie tripped and fell on her knees. She tore holes in both knees of the designer jeans she had borrowed from her friend, Julie. Katie was crying, not only because she had injured her knees, but because the new jeans were ruined and they weren't even hers.

What is Katie going to do? Should she tell her parents? Should she tell Julie? What decisions should Katie have made prior to borrowing the jeans? Does Katie have an obligation to Julie?

SITUATION 4

Steve is fourteen and has taken piano lessons since he was five. He feels that he misses out on many fun activities because he has to practice everyday after school. He wants to quit piano lessons, but his mother will not allow him to; she says, "If you quit the piano now you'll be sorry when you get older." Steve wants to quit anyway.

What other options could Steve and his mother find? Is there a compromise that they can make to satisfy both of them?

Make use of the given scenarios to answer the following questions:

- a. Identify the problem in all these situations.
- b. Gather information: What information should the person (decision maker) gather that would be helpful to know before making a decision?
- c. Consider the outcome. What would be the results of the decision?
- d. Make the decision. What should the person do?
- e. Evaluate your decision. Why do you think this is the best decision possible?

-----ALL THE BEST-----

Register Number 195001076

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Computer Science and Engineering

Continuous Assessment Test – II

Question Paper

Degree & Branch	B.E. Computer Science and Engineering			Semester	VII
Subject Code & Name	UCS1704 – Management and Ethical Practices			Regulation:	2018
Academic Year	2022 – 2023 (ODD)	Batch	2019 - 2023	Date	18.10.2022
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions			Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

K2	1. Explain the need for motivation in an organization	CO2
K1	2. What is the need for Ethics in the Engineering?	CO3
K2	3. Outline the hurdles of effective communication.	CO2
K2	4. Compare and contrast morality and ethics.	CO3
K1	5. What is the purpose of organizing in management?	CO2
K2	6. Explain micro-ethics and macro-ethics with an example.	CO3

Part – B (3×6 = 18 Marks)

K2	7. Draw and explain the different types of Departmentalization	CO2
K2	8. Summarize the Kohlberg's and Gilligan's theory for moral autonomy.	CO3
K4	9. Rajiv is an IAS aspirant. He studied in two premier institutions and worked for a while in an IT company. He quit the job and started preparing for the civil services exams. In his first attempt he wrote mains but could not qualify for the personality test. In next two attempts, however, he gave interviews but fate had it that his name did not appear in the final list. In all three attempts he had scored less in Mains and in two interviews his score was average if not bad. Coming under General Merit, Rajiv had only four attempts to get into IAS. For the last attempt, he decided to take a break of one year and prepare extremely well giving no chance to fate. By then he had spent five years just for preparing for this exam with no job in hand.	CO2
K4	He did prepare well and easily sailed through the Preliminary and Mains exam. For his final interview, Rajiv, prepared himself very well. He read widely. He contacted his peers and well wishers, talked to them extensively and took feedback on his body language and communication skills. He took mock tests at prominent institutions and got a very positive feedback. His confidence was at an all time high. By the time interview call letter came, Rajiv was fully ready to face his final test to realize the dream of becoming an IAS officer.	CO3

	<p>On the previous day of his interview, Rajiv talked to his parents, girlfriend and teachers and sought their wishes. He had a sound sleep too.</p> <p>His interview was scheduled in the second session i.e in the afternoon. On the day of his interview, in the morning Rajiv was calm, composed and had a friendly chat with fellow aspirants who had stayed together in a friend's room.</p> <p>He had his lunch and left room in his bike half an hour before the scheduled time of his appearance at UPSC office.</p> <p>Rajiv was riding his bike with lots of thoughts in his mind. The road was almost empty. As he was riding, just in front of him, a speeding bike collided with the road divider. Seeing this, Rajiv stopped his bike for a minute and went near the accident scene. A man, crying with pain, was lying in a pool of blood and a girl child, around 5 year old, was lying unconscious next to the man. Rajiv looked around for help, but two or three cars sped away without stopping by.</p> <p>Rajiv had to be at UPSC office in 10 minutes. If not he would forever lose his dream of becoming an IAS officer.</p> <p>In this situation, how Rajiv could deal with moral dilemma? Analyse and justify your answer.</p>	
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Part – C (2×10 = 20 Marks)

K4	<p>10. Consider that a cultural event is organized in an educational institution where there are many events organized. The outcome of the event will be connected to the reputation of the institution. Consider the list of events and select the list of events which could be centralized and decentralized for the smooth conduct of cultural events. Analyse and comment on your answer.</p> <p><u>On the stage events</u></p> <ul style="list-style-type: none"> 1. Inauguration 2. Singing 3. Mimic a dance 4. Variety Show 5. Talent hunt 6. Indian dance 7. Movie Dub 8. Western Dance 9. Short Film 10. Fashion Show 11. Valedictory Function <p><u>Off the stage events</u></p> <ul style="list-style-type: none"> 1. Flower Arrangements 2. Mobile Case Designing 3. Nail Art 4. Mobile Photography 5. Bridal Mehendi 6. Design a Poster Ad for Midas 2019 7. Candle Art 8. Tatoo Art 9. Pot Paitning 10. Jewellery Designing. 	CO2
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(OR)

K4	<p>11. Examine the steps involved in job advertisement, selection, recruitment and orientation for recruitment and on-board process in an IT company. Discuss about the best strategies followed by the recruiters to select an appropriate candidate for a role.</p> <p>12. Analyze the given scenario and answer the question given.</p> <p>Peter Weaver doesn't like to follow the crowd. He thinks groupthink is a common problem in many organizations. This former director of marketing for a consumer products company believes differences of opinion should be heard and appreciated. As Weaver states, "I have always believed I should speak for what I believe to be true."</p> <p>He demonstrated his belief in being direct and candid throughout his career. On one occasion, he was assigned to market Paul's spaghetti-sauce products. During the brand review, the company president said, "Our spaghetti sauce is losing out to price-cutting competitors. We need to cut our prices!"</p> <p>Peter found the courage to say he disagreed with the president. He then explained the product line needed more variety and a larger advertising budget. Prices should not be cut. The president accepted Weaver's reasoning. Later, his supervisor approached him and said. "I wanted to say that, but I just didn't have the courage to challenge the president."</p> <p>On another occasion, the president sent Weaver and 16 other executives to a weeklong seminar on strategic planning. Weaver soon concluded the consultants were off base and going down the wrong path. Between sessions, most of the other executives indicated they didn't think the consultants were on the right path. The consultants heard about the dissent and dramatically asked participants whether they were in or out. Those who said "Out" had to leave immediately.</p> <p>As the consultants went around the room, every executive who privately grumbled about the session said "In." Weaver was fourth from last. When it was his turn, he said "Out" and left the room.</p> <p>All leaders spend time in reflection and self-examination to identify what they truly believe and value. Their beliefs are tested and fine-tuned over time. True leaders can tell you, without hesitation, what they believe and why. They don't need a teleprompter to remind them of their core beliefs. And, they find the courage to speak up even when they know others will disagree.</p> <ol style="list-style-type: none"> 1. What leadership traits did Weaver exhibit? 2. If you were in Weaver's shoes, what would you have done? 3. Where does courage come from? 4. List your three most important values. 	CO2
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	(OR)	
K4	<p>13. Consider the scenario given below, dissect and plan the activities which could be delegated by the manager to the team members.</p> <p>Jane is a senior manager at an IT firm and has a team member Amanda who reports directly to her. Things have not been smooth for them for the last few weeks. In the last project that Jane delegated to Amanda, she started to feel she would be better off doing it herself. While Amanda is willing to take on additional assignments, she just doesn't seem to be willing to be responsible for the assignment. She won't do anything without first checking in with Jane.</p> <p>The last time Amanda came into the office, Jane told her to forget what she is doing, and she'll give it to someone else who can handle the assignment. After Amanda left, Brian realized she didn't handle that well. Jane later sat down with Amanda to discuss the situation further and figured out how best to proceed in collaboration with Amanda. She apologized</p>	CO2

to Amanda for how she handled the last encounter and realized that she had to delegate the tasks differently to Amanda.

She asked Amanda to help her understand why she feels like she cannot take steps to complete an assignment. Through an honest conversation with Amanda, Jane learned how best to delegate to Amanda. Through a conversation, Jane learned more about her skills and experiences and where her comfort level is. This will enable Jane to manage delegated assignments more effectively.

-----ALL THE BEST-----

Register Number 195001076

Sri Sivsubramanlyn Nadar College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Computer Science and Engineering

Continuous Assessment Test – III

Question Paper

Degree & Branch	B.E. Computer Science and Engineering				Semester	VII
Subject Code & Name	UCS1704 – Management and Ethical Practices				Regulation:	2018
Academic Year	2022 – 2023 (ODD)	Batch	2019 - 2023	Date	16.11.2022	FN
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

K1	1. Summarize the three most important uses of ethical theories.	CO3
K1	2. Define the term safety. How is it related to risk?	CO3
K2	3. What is IPR and how it is different from a patent?	CO4
K2	4. Explain controlling access flow in cyber security ethics.	CO5
K2	5. “Is Cyber security the responsibility of only security team in an organization” Comment on your answer.	CO5
K2	6. Outline the types of ethical frameworks in cyber security. 	CO5

Part – B (3×6 = 18 Marks)

K2	7. Explain the different models of professional engineers.	CO3
K2	8. Explain the five phases in dealing with Intrusion from both attacker and defender perspective.	CO5
K3	9. Identify the key differences between the “Authority and Responsibility” when it is applied to top level and middle level managers with an example. Justify your answer.	CO4

Part – C (2×10 = 20 Marks)

K4	10. Examine the list of consensus and controversy behaviours that could exist in the production environments where employees form the unions in an organization.	CO3
(OR)		
K4	11. Analyze the given scenario and answer the given questions. A professor needing funding for her medical research on the causes and cures for a disease accepted a large, multi-year grant from a pharmaceutical company. The research tested the efficacy of medicines currently on the market, including a medicine produced by a pharmaceutical company. The research results suggested that the pharmaceutical company's medicine did have a positive effect, but the research also contained some ambiguous data that could be interpreted as demonstrating that the medicine has a negative side effect on some patients. As a condition of the grant, the professor was required to submit a preliminary draft of	CO3

	<p>the report to the pharmaceutical company, for review and feedback. The professor submitted the report as required, and the pharmaceutical company wrote back to ask whether the professor would consider deleting the ambiguous data, as it may reflect badly on the pharmaceutical company and it is not strong data to begin with. The professor has reached the end of the grant funding, and to continue the research would need to get additional funding, with one obvious source of funding being the pharmaceutical company.</p> <ul style="list-style-type: none"> i. Identify the ethical goals that guide a medical researcher's profession? ii. Does the professor have any ethical obligation to patients who might experience a negative side effect? iii. Is the professor in a conflict of interest, and if yes, exactly what is the conflict or conflicts? iv. Can the professor ignore what seems to be a conflict of interest, and just adopt the principle that any ambiguous data in this research can be deleted? v. Should the professor have taken the grant, knowing that the research would have to be submitted for review by the pharmaceutical company? 	
K4	<p>12. Make use of the statement: "<i>The responsibility of engineering is high in the design of product in the design stage itself before the event of an accident.</i>" Derive your inference with respect to the cause for Bhopal disaster.</p>	CO4
	(OR)	
K4	<p>13. Consider the scenarios given below, dissect and infer the type of discrimination is followed in the workplace.</p> <ul style="list-style-type: none"> i. Harris, Pritchard, Rabins' book... - On a business trip three engineers Jane (feminine), Joe (masculine), and Jim (the male engineer at the site being visited) and others go out after work for a social-type dinner. The site engineer Jim sits between Jane and Joe and other business types sit across the table. During dinner Jim mostly talks to Jane - mostly shop. Dinner is over and Jim gets up and says to Joe: "Sorry that we did not have more time to talk but Jane is a lot better looking". Write your opinion on this. ii. When I worked at company XYZ a supervisor and I were discussing some of my colleagues. We had just begun to discuss the only two female engineers who worked at XYZ and I asked why one of them had not been promoted. She had been doing good work for the company for years, and still was working on CAD, a job usually reserved for technicians and/or new engineers. His reply was (paraphrasing): "It's just as well, women are much better at tedious tasks than men." What should the engineer do? iii. I have not witnessed sexual harassment, but I do feel I have witnessed discrimination. I was hired to do research for the summer because I was "diverse," a woman in ECE. My qualifications were not considered for the application. Although this would seem advantageous, I sensed that I was inferior to my co-workers, since very few would talk to me or would just ignore me, even though I went above and beyond their expectations. What should the woman do? 	CO4

-----ALL THE BEST -----

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Sri Sivasubramaniya Nadar College of Engineering, Kalavakkum - 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Computer Science and Department

Continuous Assessment Test – I

Question Paper

Degree & Branch	B.E & CSE				Semester	VII
Subject Code & Name	UCS1729- Data Warehousing and Data Mining				Regulation:	2018
Academic Year	2022-23 (Odd)	Batch	2019-23	Date	21-09-22	FN
Time: 08:15 – 09:45am (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

K2	1. Explain the characteristics of data Warehouse?	CO1
K1	2. Compare datamart and data warehouse.	CO1
K2	3. Define intraquery parallelism and how it can be achieved.	CO1
K2	4. Define and explain about the final output of Knowledge Discovery from Data (KDD) process?	CO2
K3	5. Identify the learning method for the following use case. Justify your answer. A network provider wants to categorize customers into distinct groups in order to send the subscription offers.	CO2
K3	6. Apply pearson product moment correlation coefficient method for the following data and state whether the attributes are positively corelated or not. Let "X" attribute represents the weight and "Y" attribute represents the height. X: 6,8,10 and Y: 12,10,20	CO2

Part – B (3×6 = 18 Marks)

K3	7. Make use of the sales data of four companies C1, C2, C3 & C4 per quarter on the basis of product category (Men's, Women's, Electronics & Home). Out of the four companies, two companies are form India (C1 & C2) and two are from America (C3 & C4). Explain and Draw a neat diagram to represent the following OLAP operations on a data cube. i) Perform the Drill down operation by expanding the shopping categories. ii) Perform the Slice operations by slicing out two parameters such as product category, Sales Per Quarter.	CO1
K2	8. Explain the various steps involved in KDD process. Justify that data mining is an essential step in this process.	CO2
K3	9. Make use of a group of 12 sales price records given below: 5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215 Partition them into three bins by each of the following methods. i. Equal frequency partitioning ii. Smoothening by bin means iii. Smoothing by bin boundaries	CO2

Part – C ($2 \times 10 = 20$ Marks)

K2	10. (i) Explain the three-tier data warehouse architecture and its various components in building the data warehouse. (ii) Explain shared memory architecture.	(7) (3)	CO1
(OR)			
K2	11. Explain with a neat diagram, star-schema, snowflake and constellation schema for the data warehouse Big_university which consists of four dimensions such as student, course, semester, instructor and two measures count and avg_grade.		CO1
K3	12. (i) Apply chi squared test for the given information by constructing contingency table. In a sample of 2,000 families, 1,400 families are consumers of tea where 1236 of them are Tamil families and 164 are non-Tamil families. 600 families are not consumers of tea where 564 of them are Tamil families and 36 are non-Tamil. Use χ^2 – test and state whether there is any significant difference between consumption of tea among Tamil and non-Tamil families.(1 degree of freedom significance level is 10.828) (7) (ii) Explain various correlation analysis methods to handle different types of data and explain the major issues handled by correlation analysis due to data integration. (3)		CO2
(OR)			
K3	13. Make use of the following data for an attribute age: 13, 15, 16, 16, 19, 20, 20, 21, 22, 22, 25, 25, 25, 30, 33, 33, 35, 35, 35, 36, 40, 45, 46, 52, 70. a. Use min-max normalization to transform the value 35 for age onto the range [0.0,1.0]. b. Use z-score normalization to transform the value 35 for age, where the standard deviation of age is 12.94 years. c. Use normalization by decimal scaling to transform the value 35 for age. d. Comment on which method you would prefer to use for the given data.		CO2

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

$$\frac{3}{2} + 4 = \frac{11}{2} \times \frac{1}{2} = 2 \frac{1}{2} \quad \begin{array}{l} 2 \\ \hline 3 \\ \hline 1 \end{array} \quad \begin{array}{l} 4 \\ \hline 8 \\ \hline 3 \end{array}$$

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Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

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Computer Science and Department

Continuous Assessment Test – II

Question Paper

Degree & Branch	B.E & CSE				Semester	VII
Subject Code & Name	UCS1729- Data Warehousing and Data mining				Regulation:	2018
Academic Year	2022-2023 (ODD)	Batch	2019-2023	Date	19-10-22	FN
Time: 08:15 – 09:45am (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

K2	What is a null transaction problem? Explain with an example.	CO3
K1	List the approaches for mining multi-level association rules from the transactional databases.	CO3
K3	Consider the set of transactions of a shopping cart. T1: {Fresh_cream, Milk, Honey, Butter} T2: {Honey, Milk, Jam, Egg, Butter} T3: {Jam, Milk, Butter, Egg} T4: {Butter, Milk, Honey} The minimum support and confidence of a association rule is 60% and 80% respectively. Select among the following, which is NOT a valid association rule. <ul style="list-style-type: none"> Milk -> Butter Butter -> Milk Milk -> Honey Honey-> Milk 	CO3
K1	List the problem domains in which decision trees are most suitable.	CO4
K2	Explain two common approaches for tree pruning.	CO4
K3	Identify the information gain, when number of tuples in the dataset "D" is 10 of which 6 tuples represent the "positive" classes and 4 tuples represent "negative" classes.	CO4

Part – B (3×6 = 18 Marks)

K2	7. The following contingency table summarizes supermarket transaction data, where hotdogs refer to the transactions containing hotdogs, hotdog* refers to the transactions that do not contain hotdogs, hamburgers refer to the transactions containing hamburgers, and hamburgers* refers to the transactions that do not contain hamburgers.	CO3																
	<table border="1"> <thead> <tr> <th></th> <th>Hotdogs</th> <th>hotdogs*</th> <th>Σrow</th> </tr> </thead> <tbody> <tr> <td>hamburgers</td> <td>2000</td> <td>500</td> <td>2500</td> </tr> <tr> <td>hamburgers*</td> <td>1000</td> <td>1500</td> <td>2500</td> </tr> <tr> <td>Σcol</td> <td>3000</td> <td>2000</td> <td>5000</td> </tr> </tbody> </table>		Hotdogs	hotdogs*	Σrow	hamburgers	2000	500	2500	hamburgers*	1000	1500	2500	Σcol	3000	2000	5000	
	Hotdogs	hotdogs*	Σrow															
hamburgers	2000	500	2500															
hamburgers*	1000	1500	2500															
Σcol	3000	2000	5000															

- a) Show that the association rule "hotdogs \Rightarrow hamburgers" is strong for given minimum support threshold of 25% and a minimum confidence threshold of 50%.
- b) Show that the purchase of hotdogs are independent of the purchase of hamburgers using Lift (corelation analysis technique).

8. Make use of the following transactional database and find the closed and maximal patterns for 1-frequent itemset and 2-frequent itemsets.

TID	Items in the transactions
T1	{A,B,C,D}
T2	{A,D}
T3	{A,E}
T4	{C,E}

9. Consider the following table with the attributes such as Weather, Parents, Money and decision. Assume the attribute *decision* as class label. Construct the root node of the decision tree using Gini index as the attribute selection measure.

Weekend	Weather	Parents	Money	Decision
W1	Sunny	Yes	Rich	Cinema
W2	Sunny	No	Rich	Tennis
W3	Windy	Yes	Rich	Cinema
W4	Rainy	Yes	Poor	Cinema
W5	Rainy	No	Rich	Stay In
W6	Rainy	Yes	Poor	Cinema
W7	Windy	No	Poor	Cinema
W8	Windy	No	Rich	Shopping
W9	Windy	Yes	Rich	Cinema
W10	Sunny	No	Rich	Tennis

Part - C (2×10 = 20 Marks)

10. Apply the Apriori algorithm and trace the results for grocery store transactions given below with support threshold S=40% and confidence threshold C=50%. Show the candidate and frequent item sets for each database scan. Enumerate all the final frequent itemsets. Also indicate the association rules that are generated and highlight the strong ones.

Transaction	Item Occurrence
T1	Almonds, Biscuits, Coffee
T2	Almonds, Coffee, Dairy milk
T3	Almonds, Biscuits, Coffee, Dairy milk
T4	Almonds, Diary milk, Eggs
T5	Biscuits, Coffee

(OR)

11. Construct a frequent pattern growth tree for the database given below and find the frequent patterns which has minimum support of 60%

CO3

CO4

CO3

CO3

	<table border="1"> <thead> <tr> <th>TID</th><th>Items Brought</th></tr> </thead> <tbody> <tr> <td>T100</td><td>f,a,c,d,g,I,m,p</td></tr> <tr> <td>T200</td><td>a,b,c,f,l,m,o</td></tr> <tr> <td>T300</td><td>b,f,h,j,o</td></tr> <tr> <td>T400</td><td>b,c,k,s,p</td></tr> <tr> <td>T500</td><td>a,f,c,e,l,p,m,n</td></tr> </tbody> </table>	TID	Items Brought	T100	f,a,c,d,g,I,m,p	T200	a,b,c,f,l,m,o	T300	b,f,h,j,o	T400	b,c,k,s,p	T500	a,f,c,e,l,p,m,n	
TID	Items Brought													
T100	f,a,c,d,g,I,m,p													
T200	a,b,c,f,l,m,o													
T300	b,f,h,j,o													
T400	b,c,k,s,p													
T500	a,f,c,e,l,p,m,n													
K2	<p>12.(i) Explain the decision tree induction algorithm for all possible terminating conditions. (6)</p> <p>(ii) Outline the different attribute selection measures and explain their importance. (4)</p>	CO4												
	(OR)													
K2	<p>13. (i) Explain the rule-based classification for extracting rules from a decision tree using an example? (5)</p> <p>(ii) Explain the concept of rule induction using sequential covering algorithm and elaborate the rule quality measures? (5)</p>	CO4												

Register Number 1 9 5 0 0 1 0 7 6

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Computer Science and Engineering

Continuous Assessment Test – III

Question Paper

Degree & Branch	B.E. CSE				Semester	VII
Subject Code & Name	UCS1729 - Data Warehousing and Data Mining				Regulation:	2018
Academic Year	2022-2023 ODD	Batch	2019 -2023	Date	17-11-22	FN
Time: 08:15 – 09:45 a.m (90 Minutes)	Answer All Questions				Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

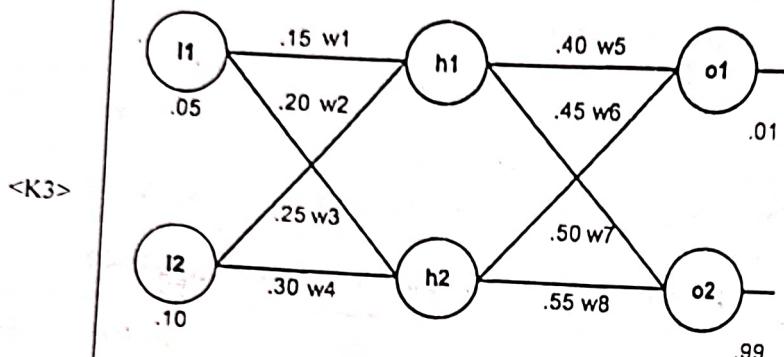
<K1>	1. Explain the terminating conditions for the backprogration algorithm?	<CO4>																		
<K2>	2. Compare lazy learners with eager learners.	<CO4>																		
<K3>	3. if the support vectors s1(1,0),s2(3,1) and s3(3,-1), s1 belongs to negative class and s2,s3 belongs to positive class find the weights w1, w2 and bias b for $\alpha_1=3.5$, $\alpha_2=.75$ and $\alpha_3=.75$	<CO4>																		
<K1>	4. List any two criteria for forming good cluster.	<CO5>																		
<K3>	5. Consider the data points. Find the cost of each non-medoid objects with the medoid M1(4,5) :	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>i</td> <td>x</td> <td>y</td> </tr> <tr> <td>0</td> <td>5</td> <td>6</td> </tr> <tr> <td>1</td> <td>4</td> <td>5</td> </tr> <tr> <td>2</td> <td>4</td> <td>6</td> </tr> <tr> <td>3</td> <td>6</td> <td>7</td> </tr> <tr> <td>4</td> <td>7</td> <td>8</td> </tr> </table>	i	x	y	0	5	6	1	4	5	2	4	6	3	6	7	4	7	8
i	x	y																		
0	5	6																		
1	4	5																		
2	4	6																		
3	6	7																		
4	7	8																		
<K1>	6. Explain the types of hierarchical clustering and the structure used to represent them.	<CO5>																		

Part – B (3×6 = 18 Marks)

<K2>	7. Explain the working of SVM for linearly separable data.	<CO4>																
<K3>	8. Explain the four terminologies TP,TN,FP,FN present in the confusion matrix? Given the confusion matrix for cancer detection, solve and compute the metrics such as precision, recall and F1-measure.	<CO4>																
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Classes</th> <th>Yes</th> <th>No</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>90</td> <td>210</td> <td>300</td> </tr> <tr> <td>No</td> <td>140</td> <td>9560</td> <td>9700</td> </tr> <tr> <td>Total</td> <td>230</td> <td>9770</td> <td>10,000</td> </tr> </tbody> </table>	Classes	Yes	No	Total	Yes	90	210	300	No	140	9560	9700	Total	230	9770	10,000	
Classes	Yes	No	Total															
Yes	90	210	300															
No	140	9560	9700															
Total	230	9770	10,000															
<K2>	9. Explain the Partitioning around medoid algorithm and discuss the advantages and disadvantages of the algorithm.	<CO5>																

Part - C (2×10 = 20 Marks)

10. Apply back propagation algorithm for the below given multilayered feed forward network and compute net inputs, outputs, error at each node with target of 0.01 at o1 and 0.99 at o2. After the first iteration, compute the updated weights and bias with 0.9 as a learning rate.



$$W_{ij}^{\prime} = W_{ij} + (\eta) Err_j O_i$$

$$\theta_i^{\prime} = \theta_i + (\eta) Err_j$$

$$b_1 = 1.35$$

$$b_2 = 0.60$$

$$I_j = \sum_i W_{ij} O_i + \theta_j$$

$$O_j = (1 + e^{-I_j})^{-1}$$

$$Err_j = O_j (1 - O_j) (T_j - O_j)$$

$$Err_j = O_j (1 - O_j) \leq Err_k W_{jk}$$

(OR)

11. Make use of the below dataset to classify the given sample $X = <\text{Youth, High, Normal, No}>$ using Naive Bayesian classifier and explain the classifier

R.No	Age	Temp	Cough	MajorIllness	Affected?
1.	Middle-Aged	High	Normal	No	No
2.	Middle-Aged	High	Normal	Yes	No
3.	Senior	High	Normal	No	Yes
4.	Youth	Mild	Normal	No	Yes
5.	Youth	Low	High	No	Yes
6.	Youth	Low	High	Yes	No
7.	Senior	Low	High	Yes	Yes
8.	Middle-Aged	Mild	Normal	No	No
9.	Middle-Aged	Low	High	No	Yes
10.	Youth	Mild	High	No	Yes
11.	Middle-Aged	Mild	High	Yes	Yes
12.	Senior	Mild	Normal	Yes	Yes
13.	Senior	High	High	No	Yes
14.	Youth	Mild	Normal	Yes	No

12. Write down the K-Means algorithm and perform K-Means clustering on the following dataset with $K=2$. Two data points 1 and 3 as initial cluster centres. Make use of Euclidean distance metric to measure the similarity between data points. Plot the clustered points in a graph.

DataPoint	X	Y
1	2.0	2.5
2	2.0	5.5

<K3>

<COS>

3	3.0	2.5		
4	3.0	4.5		
5	4.0	3.5		
6	6.0	7.0		

(OR)

13. Given a data set of five objects characterized by a single continuous feature.
 Construct dendrogram trees by applying the agglomerative algorithm using
 single-link.

	a	b	C	d	e
a	0	1	3	4	5
b	1	0	2	3	4
c	3	2	0	1	2
d	4	3	1	0	1
e	5	4	2	1	0

<CO5>