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School of Computing First CIA Exam – Feb 2025

Course Code: INT314

Course Name: Artificial Intelligence
and Logical Reasoning

Duration: 90 minutes Max Marks: 50

Answer all questions

PART A

$8 \times 5 = 40$ Marks

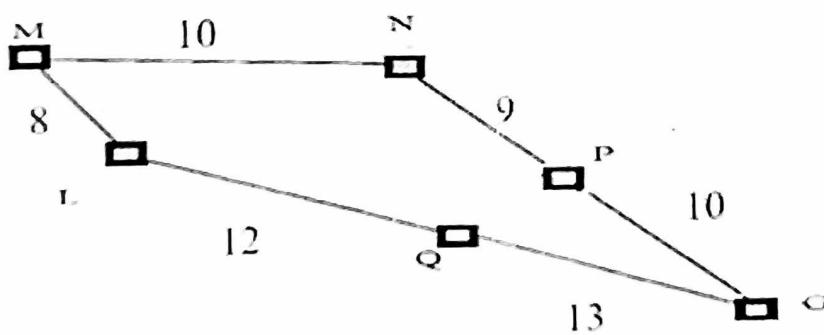
1. You are building food delivery agent within SASTRA. Discuss the type of its environments. (5)
2. You have to develop an agent to work in a blind environment. Develop the steps of Breadth First Search algorithm to give instruction to the agent to do a task. (5)
3. Assume that you are planning to build Learning agent. Discuss the components which are to be present. (5)
4. Discuss the type of environments you mentioned in question 1. (5)
5. Compare the performance metrics of all uninformed search strategies. (5)
6. Anand developed a part-picking robot to identify defective part. Identify PEAS of that agent. (5)
7. Draw the block diagram of Goal based Agent. (5)
8. Discuss how bidirectional search is better than BFS and DFS. (5)

Answer all questions

PART B

$1 \times 10 = 10$ Marks

9. The courier delivery bot has to travel in the given state space. The possible states and costs are given in the graph. M-Start, G-Goal. How UCS can be applied and least cost path be found? (10)

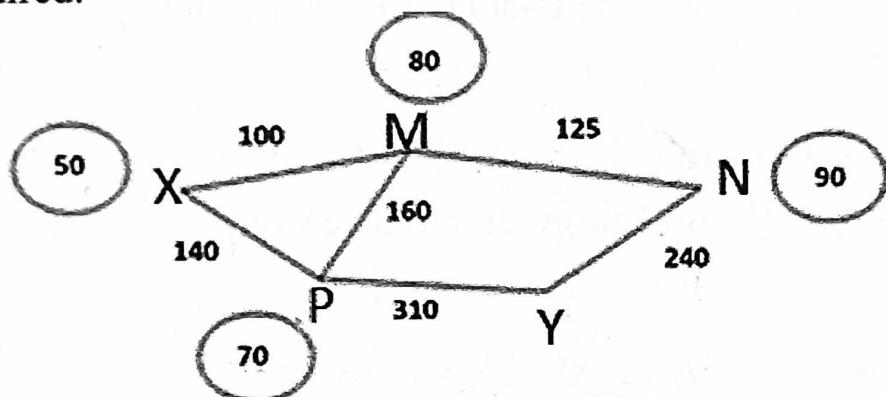




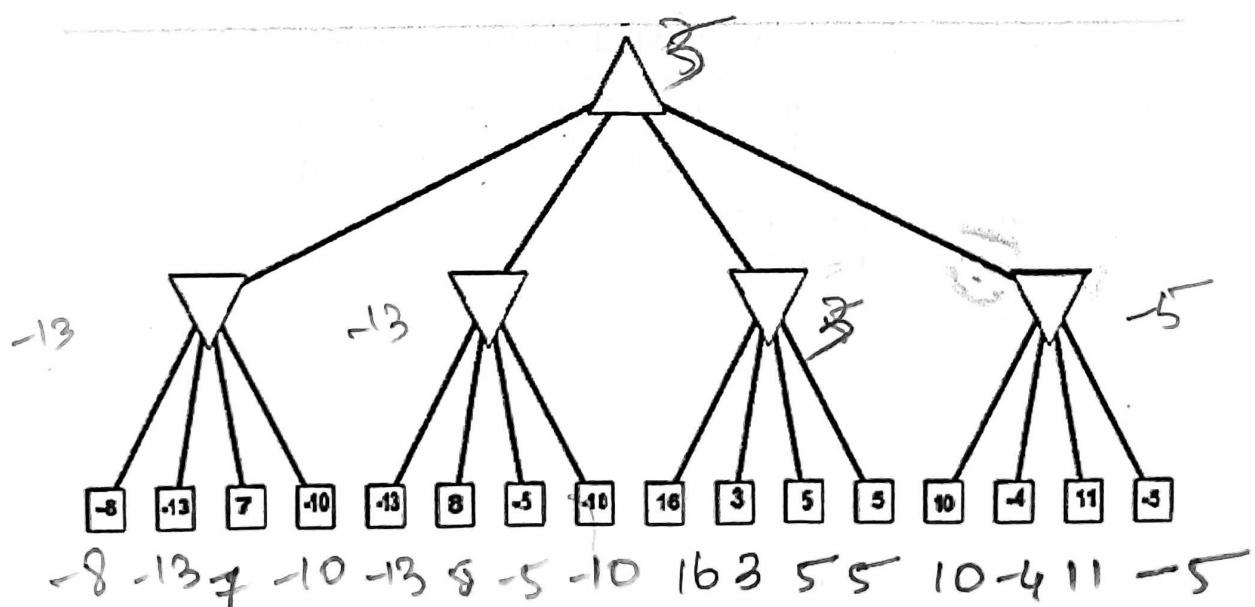
Answer ANY FOUR questions

PART A $4 \times 10 = 40$ Marks

1. Bot wants to reach railway station in a city from your college (X). The SLD values are given in circle. Path costs are given in edges. First find the goal from these values. Then apply A* search to get minimal cost. Step by step process along with formula and tree are required. (10)



2. Consider the following tree is a part of Tic-Tac-Toe game played by two players. Apply alpha-beta pruning process to reduce the number of branches or nodes to be searched by. (α, β values are to be mentioned) (10)



3. Illustrate 'for all' and 'there exists' Quantifiers of FOL statements. (10)
4. a) Convert the following sentences into FOL statements
"There is a course that is hard and interesting"
"A number x is even if and only if x is divisible by 2" (5)
- b) Differentiate Greedy best first search, A star search and Memory bounded A star search. (5)
5. a) If agent struck at a point and unable to reach the goal, how can you help as per hill climbing. (7)
- b) Remove implication from the following FOL statement.
 $\text{Mother}(\text{Alice}) \leftrightarrow (\text{Child}(\text{Bob}) \wedge \text{Parent}(\text{Alice}, \text{Bob}))$ (3)

Answer the question

PART B1x 10 = 10 Marks

6. Answer the following questions

- a) Illustrate Manhattan distance as heuristic value. (2)
- b) Define Crossover of genetic algorithm using 8-queen problem. (2)
- c) Recall any two properties of knowledge representation. (2)
- d) Convert the following sentence into equivalent existential quantifier sentence: Convert the following sentence into equivalent existential quantifier sentence: $\exists x(\text{Bird}(x) \wedge \neg \text{CanFly}(x))$ (4)



School of Computing
Third CIA Exam – May 2025

Course Code: INT314

Course Name: Artificial Intelligence and
Logical Reasoning

Duration: 90 minutes

Max Marks: 50

Answer ANY FOUR questions

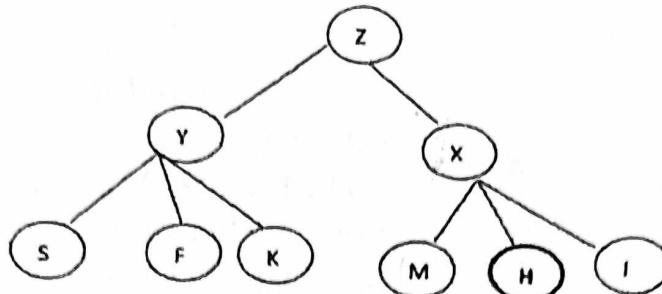
PART A

$4 \times 10 = 40$ Marks

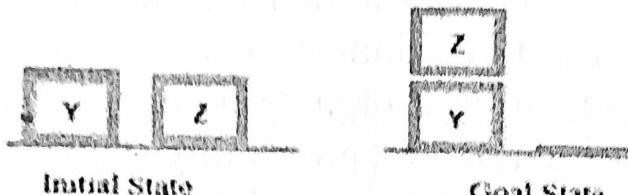
1. You're analyzing customer behavior to understand who is likely to buy organic food. You observe three things: Whether a person is health conscious, Whether a person buys organic food, Whether the person uses reusable bags. From the full joint probability distribution table find
 - a. What is the probability that a customer is health conscious? (2)
 - b. What is the probability of reusable bags? (2)
 - c. What is the probability that a customer buys organic given they are health conscious? (3)
 - d. What is the probability that a customer is health conscious given they use a reusable bag? (3)

| Health Conscious | Organic | Reusable Bag | Probability |
|------------------|---------|--------------|-------------|
| Yes | Yes | Yes | 0.20 |
| Yes | Yes | No | 0.05 |
| Yes | No | Yes | 0.10 |
| Yes | No | No | 0.05 |
| No | Yes | Yes | 0.05 |
| No | Yes | No | 0.05 |
| No | No | Yes | 0.15 |
| No | No | No | 0.35 |

2. Illustrate Instance and ISA Relationships of FOL. (10)
3. A bot is searching a spare part in the available rooms. The part is available in the bold-rounded room. Apply Depth First Search and analyze the searching process in a table using the order of fringe queue. (10)



4. a) Construct goal stack planning for the given block world example. (10)



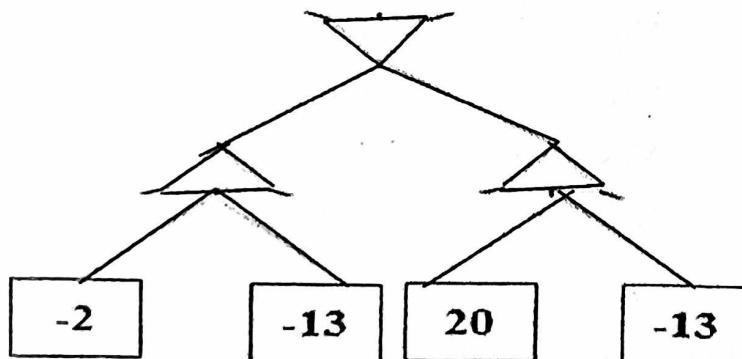
5. a) Recall Minimax algorithm. (7)
b) Recall hill climbing algorithm. (3)

Answer the question

PART B

1x 10 = 10 Marks

6. a) Recall the steps of resolution refutation proof of FOL. (5)
b) Define Modus Ponens. (3)
c) Apply Alpha beta pruning to the given tree, find alpha, beta values, root value and pruned branches. (2)





School of Computing
First CIA Exam - Feb 2025
Course Code: ENG316
Course Name:
BUSINESS COMMUNICATION & VALUE SCIENCE - IV

Duration: 90 minutes Max Marks: 50

PART A

Answer the following questions **2X10=20 MARKS**

Q1. Imagine you have been working as a Marketing Manager at a company for the past three years. Due to personal reasons, you have decided to resign from your position. You want to leave on good terms and maintain a professional relationship with your employer. Write a **formal resignation letter** to your supervisor. Remember to follow the principles of communicative writing: clarity, conciseness and a professional tone.

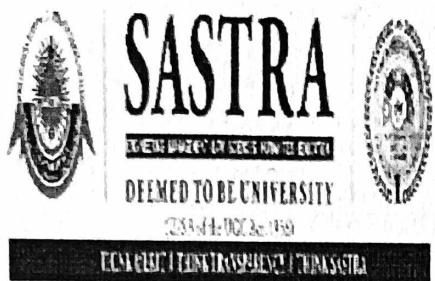
Q2. A company is planning to install a network of electric vehicle (EV) charging stations across the country. As the founder, draft the **Vision and Mission**, outlining the company's purpose and long-term aspirations.

PART B

Answer the following questions **2x15=30 MARKS**

Q3. A tech company is about to launch a new smartphone designed for seniors, featuring simplified interfaces, larger buttons, and health-related apps. As the **CEO** of the company draft an **executive summary** to present to potential investors, highlighting market opportunity, expected growth, and funding requirements.

Q4. In your sales department, an ongoing contest designed to boost numbers has resulted in increased tension among team members. Two particularly competitive employees, John and Lisa, have been at odds, each accusing the other of unfair tactics to win. Their rivalry has escalated to the point where it is affecting the atmosphere of the entire team, leading to divisions and reduced cooperation. Provide **solutions (at least TWO)** to resolve this workplace conflict.



School of Computing
Second CIA Exam -March 2025

Course Code: ENG316

Course Name:

**BUSINESS COMMUNICATION &
VALUE SCIENCE - IV**

Duration: 90 minutes Max Marks: 50

PART A

Answer the following questions

$2 \times 10 = 20$ MARKS

Q1. You are part of a team project where one of your teammates, Sarah, was responsible for creating the presentation slides. After reviewing the slides, you notice that the design is clean, and the information is well-organized. However, there are a few minor grammatical errors that need correction.

Using the **SBI Model (Situation-Behaviour-Impact)**, provide positive feedback to Sarah about her work on the presentation slides.

Q2. You recently attended a group meeting where your colleague, John, facilitated the discussion. John did an excellent job keeping the conversation on track and encouraged everyone to share their opinions. However, there were a few moments when some participants didn't have the chance to speak as much due to time constraints.

Using the **SBI Model (Situation-Behaviour-Impact)**, provide positive feedback to John on his performance as the meeting facilitator.

PART B

Answer the following questions

2x15=30 MARKS

Q3. Imagine you are working on a project with a colleague, Emily, who has been feeling stressed and overwhelmed by her workload. She seems to be getting frustrated more easily during team meetings and has difficulty managing her emotions when things don't go as planned. You want to offer some support and guidance to help her manage her emotions effectively and ensure her emotional well-being at work.

Using your knowledge of **emotional intelligence (EQ)**, provide **solutions**(at least 3) to Emily that could help her improve her emotional well-being and create a more positive and productive work environment.

Q4. Imagine you are a team leader at work, and you have multiple deadlines approaching for different projects. You are also responsible for leading team meetings, addressing client emails, and helping your team members with their tasks. Lately, you have been feeling overwhelmed because you're finding it difficult to juggle all the responsibilities, leading to stress and a decline in productivity.

Using your knowledge of **time management**, suggest **practical solutions**(at least 3) to help you better manage your time at work and create a more balanced and productive workday.



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**School of Computing
III CIA Exam – MAY 2025**

Course Code: ENG316

Course Name:

**BUSINESS COMMUNICATION & VALUE
SCIENCE – IV**

Duration: 90 minutes

Max Marks: 50

PART A

Answer the following questions

$2 \times 10 = 20$ MARKS

Q1. You have been part of a volunteer group for a local community project for over a year. Recently, due to increasing personal commitments, you are no longer able to contribute the time and energy the group requires. You want to step back respectfully while showing appreciation for the experience. Write a message to the group coordinator explaining your decision. Remember to follow the principles of communicative writing: clarity, conciseness and a professional tone.

Q2. You recently worked on a group presentation for a university course. One of your teammates, Priya, took the lead in organizing the presentation structure and assigning roles. She was well-prepared, communicated clearly, and helped the group stay focused on deadlines. However, during the actual presentation, she spoke for a bit longer than the allocated time, leaving less room for others to contribute.

Using the **SBI Model (Situation–Behavior–Impact)**, provide constructive and positive feedback to Priya on her role as the team leader during the group project.

PART B

Answer the following questions

2x15=30 MARKS

Q3. A startup focused on sustainable fashion is preparing to launch a new clothing line made entirely from recycled and biodegradable materials. The brand targets environmentally conscious young adults and emphasizes ethical labor practices and transparent sourcing. As the CEO of the company, draft an executive summary to present to potential investors, highlighting the market opportunity, sustainability trends, target audience, and funding requirements.

Q4. Imagine you are a university student enrolled in multiple demanding courses this semester. You also have part-time work commitments, club meetings, and personal responsibilities. Lately, you've been feeling overwhelmed trying to keep up with assignments, study sessions, and extracurricular activities, which has started to affect your academic performance and overall well-being.

Using your knowledge of time management, suggest at least three practical strategies to help you organize your tasks, reduce stress, and maintain a healthy study-life balance.



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**School of Computing
First CIA Exam – Feb 2025**

Course Code: MGT222
Course Name: Behavioral Economics
Class: III B. Tech Sem: VI
Duration: 90 minutes Max Marks: 50

PART A

Answer the following questions

$10 \times 2 = 20$ Marks

1. What are the core differences between traditional economics and behavioral economics?
2. How does bounded rationality impact decision-making, and what does it imply for consumer behavior?
3. Define the concept of "heuristics," and how people use them in decision-making processes.
4. How does the framing effect impact decision-making and judgments?
5. How do social preferences, such as fairness and reciprocity, influence economic behavior?
6. How do behavioral economics principles apply to public policy and interventions?
7. What is the role of status quo bias in consumer decision-making?
8. How does utility relate to consumer choice theory?
9. How do psychologists measure utility in terms of subjective well-being?
10. Infer how the brain's structure influences decision-making in cognitive neuroscience.

PART B

Answer all the Questions

$3 \times 10 = 30$ Marks

11. Analyze some common experiments used in behavioral economics to study decision-making processes.
12. Examine how behavioral economics and choice theory relate to real-world issues like savings, health behavior, and consumer protection.
13. Determine how policy-makers can use utility theory to evaluate the trade-offs between environmental sustainability and economic growth.



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School of Computing

Second CIA Exam – March 2025

Course Code: MGT222

Course Name: Behavioral Economics

Class: III B. Tech

Sem: VI

Duration: 90 minutes

Max Marks: 50

Answer the following questions

PART A

$10 \times 2 = 20$ Marks

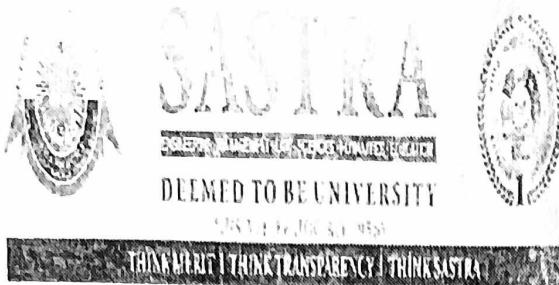
1. Interpret Decoy effect.
2. What is retail therapy?
3. What is self-evaluation bias?
4. What is the role of game theory in behavioral economics?
5. What is the endowment effect?
6. Explain the ‘peacock’s tail’ syndrome.
7. Infer Ellsberg paradox.
8. Relate Magical beliefs.
9. Define bargaining in behavioral economics.
10. What is overconfidence bias?

PART B

Answer all the Questions

$3 \times 10 = 30$ Marks

1. Explain different types of biases affecting strategic decision-making.
2. Describe Game theory, Prisoner’s dilemma, and Nash equilibrium, highlighting their application in real-world strategic decisions.
3. Explain the concept of market entry decisions influenced by behavioral factors. Define environmental protection in the context of behavioral economics.



PART A

Answer the following questions

$2 \times 10 = 20$

1. What is the role of emotions in decision-making?
2. Explain instantaneous utility.
3. What is ambiguity aversion?
4. What is fairness in economic decision-making?
5. How do heuristics influence decision-making?
6. What is prospect theory?
7. What is geometric discounting?
8. How does utility function relate to decision-making?
9. How does probability weighting affect decision-making?
10. How does behavioral economics explain consumer addiction?

PART B

Answer any two of the following Questions

$2 \times 10 = 20$

11. Explain the impact of digital platforms on irrational decision-making.
12. Examine Discount Utility model and the Standard Economic Model of decision-making.
13. Discuss ambiguity aversion. Compare and contrast it with risk aversion. Use Ellsberg's paradox to explain how real-life decisions violate the predictions of expected utility theory.

PART C

Read the case and answer the following question : $1 \times 10 = 10$

Case Study - India's Digital Health Incentive Scheme (2023–2024)

India has been grappling with a rising burden of non-communicable diseases (NCDs) such as diabetes and hypertension. Despite government campaigns and the availability of free screenings, participation in preventive health checkups remained low, especially in rural and low-income areas. The National Health Authority (NHA) and NITI Aayog collaborated with behavioral economists to explore how present bias and intertemporal choice failures affected health decisions. Most people

avoided checkups due to the perceived immediate costs (time, effort, fear) versus uncertain future benefits.

Intervention: The Digital Health Incentive Scheme (2023)

In 2023, the government launched a pilot Digital Health Incentive Scheme under the Ayushman Bharat Digital Mission (ABDM) to encourage preventive care.

Key features included:

A ₹100 digital wallet credit for every verified health checkup uploaded to the individual's ABHA (Ayushman Bharat Health Account) ID.

- Gamified elements: Users could unlock badges and levels for regular participation.
- A commitment interface allowing users to book appointments in advance and receive reminders.
- Default enrollment for public healthcare users.

(As of Jan 2024)

Over 2.5 million people participated within the first 6 months in pilot states like Maharashtra and Tamil Nadu. Participation in routine screenings increased by 38% compared to 2022 levels. Health workers reported reduced resistance to checkups due to the immediate financial reward and digital gamification. The program succeeded in addressing intertemporal choice failures where people undervalued long-term health by offering small, immediate incentives and nudging them toward better choices without mandating action. It shows how behavioral economics can improve public health outcomes in real, scalable ways

Answer the following question:

14. Explain how did present bias influence people's decisions before the scheme was introduced, and in what ways did the structure of incentives and defaults help align their short-term motivations with long-term health outcomes?



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School of Computing

First CIA Examination – Feb 2025

Course Code: CSE322

Course Name: Computer Networking
Principles & Components

Duration: 90 minutes Max Marks: 50

Answer all the questions

5*10 = 50 Marks

1. Explain the core functionalities of each layer in ISO-OSI reference model with a neat diagram.
2. a) Discuss the essential features and real-world applications of different types of transmission modes. [8M]
b) A full mesh network has 10 devices. How many links are required? [2M]
3. a) Assume we need to transmit the following 4-bit words: 1010 1101 0110 1001. Calculate checksum [4M]
b) Four channels are multiplexed using TDM. If each channel sends 100 bytes/s and we multiplex 1 byte per channel. Show the frame traveling on the link, the size of the frame, the duration of a frame, the frame rate, and the bit rate for the link. [6M]
4. a) We have four sources, each creating 250 characters per second. If the interleaved unit is a character and 1 synchronizing bit is added to each frame, find
 - i. data rate of each source,
 - ii. duration of each character in each source,
 - iii. frame rate,
 - iv. duration of each frame,
 - v. number of bits in each frame, and
 - vi. data rate of the link. [6M]

b) List out the advantages and disadvantages of DSSS. [4M]

5. a) A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x^4+x+1 . What is the actual bit string transmitted? [5M]

b) Given 4-bit Data: D1=1, D2=0, D3=1, D4=1

Determine the parity bits (P1, P2, P3) and then construct the transmitted code. Suppose a bit error occurs, changing the code to: 1110110[D4->P1]. Detect and correct the error using Hamming Code. [5M]



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School of Computing
Second CIA Examination – Mar 2025
Course Code: CSE322
Course Name: Computer Networking
Principles & Components
Duration: 90 minutes Max Marks: 50

PART-A

Answer any 4 questions

5*10 = 50 Marks

1. a) If transmission delay and propagation delay in a sliding window protocol are 1 msec and 49.5 msec respectively, then: [6M]
 - i. What should be the sender window size to get the maximum efficiency?
 - ii. What is the minimum number of bits required in the sequence number field?
 - iii. If only 6 bits are reserved for sequence numbers, then what will be the efficiency?b) List out the advantages and disadvantages of Piggybacking. [4M]
2. a) There are 5 stations in slotted LAN. Each station attempts to transmit with a probability $P=0.2$ in each time slot. What is the probability that ONLY one station transmits in a given time slot? [2M]b) Write short notes on Binary (Exponential) Backoff algorithm. [4M]c) In a CSMA/CD network running at 1 Gbps over 2 km cable with no repeaters, the signal speed in the cable is 400000 km/sec. What is minimum frame size? [4M]
3. a) Compute the CSMA/CD efficiency for the given parameters: Propagation delay (tp) = 5 μ s, Frame size = 1500 bytes, Data rate = 10 Mbps. [4M]b) In Go back 4, if every 6th packet that is being transmitted is lost and if total number of packets to be sent is 10, then how many transmissions will be required? Show with a timeline diagram. [6M]

4.a) A 10 MB (Megabyte) file needs to be sent over a packet-switched network. The network link has a transmission rate of 10 Mbps (Megabits per second), and the packet size is 1 KB (Kilobyte). The propagation delay is 10 ms (milliseconds), and each packet has a processing delay of 2 ms at the router. Assume no queuing delay. [6M]

Find:

- i. Number of packets required to transmit the file
- ii. Time taken to transmit one packet
- iii. Total transmission time for the entire file

b) Under what conditions would circuit switching be a better network design than packet switching? [4M]

5.a) Suppose you have a packet of 1700 bytes to be transmitted over an MTU of 1500 bytes. Show how IP fragmentation is done highlighting all the fields in Fragmentation. [4M]

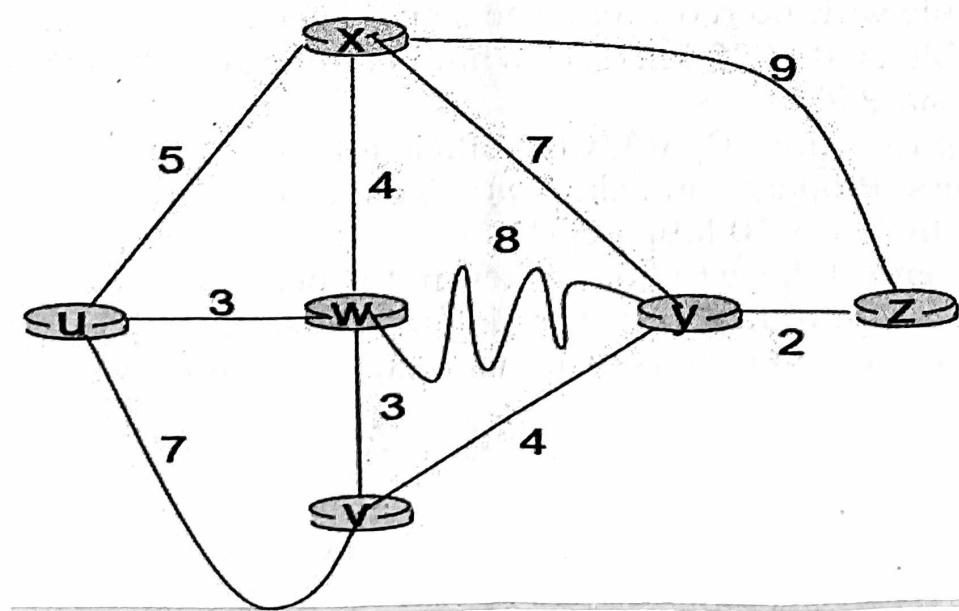
b) Write the range of Private IP addresses. [2M]

c) Illustrate DORA Process in DHCP with a neat example. [4M]

PART-B

6.a) How many subnets can be created and how many hosts can be connected to each subnet for the IP Address 172.16.0.0/20. Identify the class and Specify the Customized subnet mask. [3M]

b) Apply Djikstra's algorithm to find the shortest path from U to all other nodes in the following network diagram. Show the MST diagram. [7M]





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School of Computing
Third CIA Examination – Apr 2025

Course Code: CSE322

Course Name: Computer Networking
Principles & Components

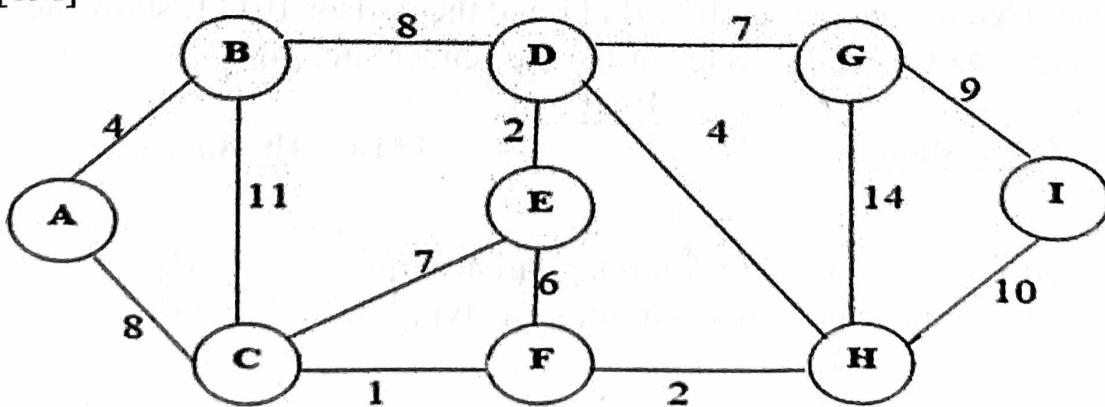
Duration: 90 minutes Max Marks: 50

PART-A

Answer any 4 questions

4*10 = 40 Marks

1. a) Suppose a TCP connection is transferring a file of 5000 bytes. The first byte is numbered 10001. What are the sequence numbers for each segment if data are sent in five segments, each carrying 1000 bytes? [2M]
b) Consider an instance of TCP's AIMD algorithm where the window size at the start of the slow start phase is 4 MSS and the threshold at the start of first transmission is 32 MSS. Assume that time out occurs during the 6th transmission and starts with 1 MSS. Find the congestion window size at the end of 9th transmission[8M]
2. a) Subnet the IP address 180.20.0.0 into 380 hosts in each subnet. Identify Class, Default Subnet Mask, Customized Subnet Mask. Also Find out the No. of possible subnets, Usable IP Range, Network Address and Broadcast Address only for first 4 subnets. [7M]
b) Write short notes on Count-to-infinity problem. [3M]
3. a) Apply Dijkstra's Routing Algorithm to find the shortest path. Assume node "A" as Root Node. Show the minimum spanning tree. [8M]



b) A packet has arrived in which the offset value is 100, the value of HLEN is 5, and the value of the total length field is 100. What are the numbers of the first byte and the last byte? [2M]

4.a) A path in a digital circuit-switched network has a data rate of 1 Mbps. The exchange of 1000 bits is required for the setup and teardown phases. The distance between two parties is 5000 km. Answer the following questions if the propagation speed is 2×10^8 m:

- i. What is the total delay if 1000 bits of data are exchanged during the data-transfer phase?
- ii. What is the total delay if 100,000 bits of data are exchanged during the data-transfer phase?
- iii. What is the total delay if 1,000,000 bits of data are exchanged during the data-transfer phase? [6M]

b) What are the propagation time and the transmission time for a 2.5KB (kilobyte) message (an email) if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at 2.4×10^8 m/s. [4M]

5.a) There are only three active stations in a slotted Aloha network: A, B, and C. Each station generates a frame in a time slot with the corresponding probabilities $p_A = 0.2$, $p_B = 0.3$, and $p_C = 0.4$ respectively.

- i. What is the probability that any station can send a frame in the first slot?
 - ii. What is the probability that station A can successfully send a frame for the first time in the second slot?
 - iii. What is the probability that station C can successfully send a frame for the first time in the third slot? [6M]
- b) Given the dataword 101001111 and the divisor 10111, show the generation of the CRC codeword at the sender site. [4M]

PART-B

Answer ALL questions

1*10 = 10 Marks

6.a) Discuss DNS name resolution with neat diagrams. [6M]

b) List out the components & message types of SNMP. [4M]



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School of Computing
Third Year B.Tech CSBS
FIRST CIA Test – February 2025

Course Code: INT313

Course Name: Computer System Security

Duration: 90 minutes Max Marks: 50

Answer All Questions

PART A**10 x2 = 20 Marks**

1. Identify the following as violation of Confidentiality, Integrity or Availability
 - (a) Escalation the User privilege in a Linux system.
 - (b) Denial of Service attack on Database server
 - (c) Unauthorized login to computer systems.
 - (d) Changing Permission of files owned by other users.
2. What are the threats to Computer system security?
3. What are the different stages in the Secure system Development Lifecycle.
4. Distinguish between Trust and assurance in Computer Systems Security.
5. What is an Access Control List? How do we obtain access Control List from the Access Control Matrix?
6. When is an Information I said to have Confidentiality property with respect to users X?
7. Define Security Levels and Categories. How is the dominance relation used in the definition of the Bell Lapadula model?
8. What are the various types of Security Policies used in Computer Systems?
9. When is system defined by using states and transitions said to be secure?
10. How is read access provided in the Bell Lapadula Model?

Answer all the Questions

PART-B**3 x 10=30 Marks**

11. Provide a sequence of Commands to create an access control matrix with the following users and resources and the associated permissions:
Users: UserA, UserB, and User C Resources: file1, program1 and process 1. UserA has read and write permission to file1 and read and execute permission to program1. UserB and UserC have read permission only to all resources. Show the access control matrix after adding these privileges.
12. When resources are classified as Top Secret, Secret, Confidential and Unclassified. Describe the Simple Security Policy and *-Property of the Bell Lapadula Model assuming security Levels and clearances. How does this model change when categories are added?
13. Assume that the Security Labels are classified with a range having a lower value and higher value. Discuss how reads and writes are to be performed in the Bell Lapadula model with an example.



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School of Computing

Third Year B.Tech CSBS

Second CIA Test – March 2025

Course Code: INT313

Course Name: Computer System Security

Duration: 90 minutes

Max Marks: 50

Answer All Questions**PART A****10 x2 = 20 Marks**

1. Classify the following as either confidentiality Policy or Integrity Policy or both.
Bell Lapadula Model (b) Biba Model (c) Chinese Wall Model (d) Clark-Wilson Model
2. What are the requirements for read and write in the Low Water Mark Integrity Model?
3. Define the following in the Chinese Wall Model: (a) Company /dataset (b) Conflict of Interest class
4. What are the main components of the Clark-Wilson Model?
5. Discuss the security Certification provided by the Common Criteria.
6. Discuss the Principle of separation of privilege with an example.
7. What are the different forms of identity on the web?
8. How does information flow takes place in the following Programming Language statements?
 $y=x+z$ (b) if $x=1$ then $y=0$ else $y=1$
9. What are the methods to achieve isolation of processes in Computer Systems?
10. What is meant by a non-interference secure system? Give an example.

Answer all the Questions**PART-B****3 x 10=30 Marks**

11. Compare the following models on the basis of key objectives, information flow, access control and whether conflicts of interest is addressed: Bell Lapadula, Biba, Lipner, Clark-Wilson and Chinese Wall model.
12. Explain the following Design Principles with examples: (a) Least Privilege (ii) Least common mechanism (iii) Fail-Safe Defaults (iv) Least common mechanism (v) Complete Mediation
13. Discuss the following forms of identity in Computer Systems" (a) User, Group, and Role (b) Host and Domains (c) Naming and Certificates
14. Discuss deterministic non-interference with an example. Discuss whether composition non-interference secure systems will be secure or not.



SASTRA

ENGINEERING MANAGEMENT LAW SCIENCES HUMANITIES EDUCATION

DEEMED TO BE UNIVERSITY

(U/S 3 of the UGC Act, 1956)

THINK MERIT | THINK TRANSPARENCY | THINK SASTRA



School of Computing
Third Year B.Tech CSE(CSBS)
Third CIA Test – May 2025

Course Code: INT313

Course Name: Computer System Security

Duration: 90 minutes

Max Marks: 50

Answer All Questions

PART A

10 x 2 = 20 Marks

1. Briefly explain the threats to Computer System Security.
2. What is multilevel security? Explain with an example
3. Distinguish between Discretionary, Mandatory and Role Based Access Control methods
4. Compare Bell Lapadula and Biba Models based on how privileges are assigned for read and write operations.
5. Briefly explain the significance of the Lipner's Integrity Matrix model?
6. What are the international standards pertaining to Computer system Security?
7. What are the different types of malicious program that affect computer systems?
8. What is auditing? What are the components of the Audit system Structure?
9. What are the vulnerabilities present UNIX and Windows operating System?
10. What are the security goals for Data Base systems?

Answer any two Questions

PART-B

2 x 10=30 Marks

11. Explain the concepts of states and transitions by taking the access control matrix as an example. How can we secure the computer systems this concept?
12. Explain the concepts of Deterministic Noninterference and Nondeducibility by considering a two-bit machine as an example.
13. What is Computer Forensics. Describe the steps in performing Computer Forensics after an incident.

Answer the following Questions

PART-C

1 x 10=10 Marks

14. What is isolation in Computer Systems? What are the techniques for achieving isolation in computer Systems. Describe each technique in detail.



School of Computing
First CIA Exam – Feb 2025
Course Code: COM117
Course Name: FINANCIAL &
COST ACCOUNTING
Duration: 90 minutes Max Marks: 50

PART A

Answer the following questions

5x2=10

1. Define the terms "assets" and "liabilities."
2. What are the steps in the accounting cycle?
3. Name two common methods of calculating depreciation.
4. Write the meaning of BRS.
5. Mention any two financial statements prepared by businesses.

PART B

Answer the following questions

2x12=24

6. Explain the various concepts and conventions of GAAP.
- 7(a) Pass journal entries for the following transactions: (6 Marks)

| Date | Particulars | Amount |
|-----------|---------------------------------------|--------|
| 6.1.2020 | Ganesh started the business with cash | 50,000 |
| 7.1.2020 | Purchased goods from Ram | 40,000 |
| 8.1.2020 | Goods sold for cash | 12,000 |
| 15.1.2020 | Furniture purchased for cash | 5,000 |
| 18.1.2020 | Salary paid to manager | 6,500 |

7 (b). Enter the following transactions in a simple cash book of Kumar
(6 marks)

| Date | Particulars | Amount |
|------|------------------------------|--------|
| 2 | Cash in hand | 11,200 |
| 5 | Received from Ramesh | 300 |
| 7 | Paid rent | 30 |
| 8 | Sold goods for cash | 300 |
| 10 | Paid Mohan | 700 |
| 27 | Purchased furniture for cash | 200 |
| 30 | Paid salaries | 100 |

PART C

Answer the following questions (16 Marks)

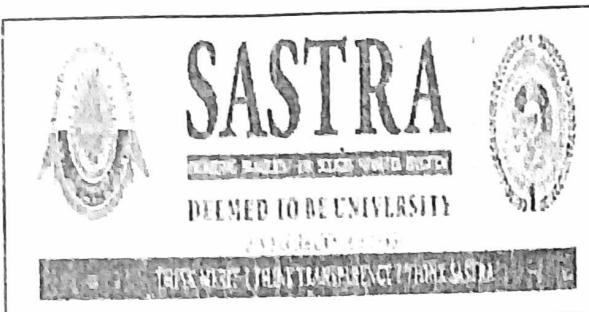
8(a). From the following balances as on 31st December, 2020, prepare Trading and profit and loss account. (12 Marks)

| Particulars | Amount | Particulars | Amou nt |
|----------------------------------|--------|--|------------|
| Stock on 01.01.2017 | 9,000 | Bad debts <i>p/l</i> | 1,200 |
| Purchases | 22,000 | Sundry expenses <i>p/l</i> | 1,800 |
| Sales | 42,000 | Discount allowed <i>p/l</i> | 1,700 |
| Expenses on purchases <i>p/l</i> | 1,500 | Expenses on sale <i>p/l</i> | 1,000 |
| Bank charges paid <i>p/l</i> | 3,500 | Repairs on office furniture <i>p/l</i> | 600 |

Adjustments:

- i) Closing stock on, 31st December, 2020 was Rs. 4,500
- ii) Manager is entitled to receive commission @ 5% of net profit after providing such commission.

8(b) How reliable are financial statements in assessing a company's financial health? (4 Marks)



School of Computing
 Second CIA Exam – March 2025
 Course Code: COM117
 Course Name: FINANCIAL &
 COST ACCOUNTING
 Duration: 90 minutes Max Marks: 50

PART A

Answer the following questions

5x2=10

1. Define cost
2. Explain the term Prime cost
3. Write the meaning of activity-based costing.
4. Calculate Economic order quantity: Annual requirements – 3,600 Kgs; Cost of placing and receiving one order – ₹.10; Annual carrying and storage cost – ₹.20 per unit.
5. Summarize the features of budget.

PART B

Answer the following questions

2x12=24

- 6(a). From the following particulars prepare cost sheet: (8 Marks)

| | | |
|----|--------------------------|--------|
| PL | Direct materials | 8,000 |
| PL | Direct wages | 6,000 |
| PL | Direct expenses | 2,500 |
| AO | Administrative overheads | 4,000 |
| FO | Factory overheads | 5,000 |
| | Sales | 40,000 |

- 6(b) Explain the elements of cost. (4 Marks)

7. Two components X and Y are used as follows:

| Particulars | X | Y |
|-----------------------|-----------|-----------|
| Normal usage per week | 150 Units | 200 Units |
| Re-order quantity | 900 | 1,500 |

| | | |
|------------------------|----------|---------|
| Maximum usage per week | 225 | 250 |
| Minimum usage per week | 75 | 100 |
| Re-order period(week) | 12 to 18 | 6 to 12 |

Calculate for each component (i) Re-order level (ii) Minimum level (iii) Maximum level (iv) Average level

PART C

Answer the following questions (16 Marks)

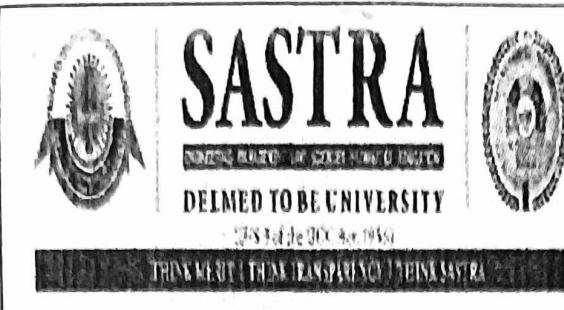
- 8.(a) The purchases and issues of material X during March 2014 were as follows: (8 Marks)

| Date | particulars | Units | Price Per unit (₹) |
|------|-------------|-------|--------------------------|
| 3 | Purchases | 700 | 24 |
| 8 | Purchases | 1000 | 27 |
| 9 | Issues | 600 | |
| 11 | Issues | 900 | |
| 18 | Purchases | 1,000 | 25 |
| 24 | Purchases | 500 | 30 |
| 31 | Issues | 1100 | |

Prepare stores ledger a/c under (i) Simple average method (ii) Weighted average method.

- 8 (b) Prepare a production budget for Somu Ltd., from the following data: (8 Marks)

| Particulars | Product | | |
|--|---------|--------|--------|
| | X | Y | Z |
| Stock on 1.1.2000 (Units) | 10,000 | 16,000 | 14,000 |
| Stock on 31.12.2000 (Units) | 17,000 | 15,000 | 10,000 |
| Estimated sales during the year 2000 (Units) | 80,000 | 70,000 | 90,000 |



School of Computing
Third CIA Exam – May 2025
Course Code: COM117
Course Name: FINANCIAL &
COST ACCOUNTING
Duration: 90 minutes Max Marks: 50

PART A

Answer the following questions

(5x2=10 Marks)

1. Define cost unit
2. Explain the term Accounting Packages
3. Write the meaning of Integrated report.
4. State the meaning of environmental Audit.
5. Define Marginal costing

PART B

Answer the following questions

(2x12=24 Marks)

- 6(a). Discuss the importance of ratio analysis in understanding and interpreting financial statements.

(OR)

- 6(b). Ganesh is a trader dealing in readymade garments. For the following transactions, pass journal entries for the month of April, 2024

1. Commenced business with cash ₹ 5,00,000
- 2 Purchased goods from S and Co. on credit ₹ 50,000
- 3 Cash deposited into bank ₹ 1,40,000
- 4 Bought a Land from L and Co. for cash ₹ 1,95,000
- 5 Cash withdrawn from bank for office use ₹ 15,000
- 6 Cash withdrawn from bank for personal use ₹ 14,000
- 9 Goods sold for cash ₹ 30,000
- 10 Goods purchased from Vijay ₹ 200000
12. Stationery purchased for and paid through net banking ₹ 5000
17. Dividend directly received by bank ₹20,000
- 18 Money withdrawn from ATM ₹ 30,000
- 20 Salaries paid ₹ 50,000

- 7(a) A company shows the following results for two periods:

| Period | Sales ₹ | Profit ₹ |
|--------|---------|----------|
| 1 | 20,000 | 1,000 |
| 2 | 10,000 | 400 |

Compute: (i) Profit volume ratio (ii) Fixed cost (iii) BEP (iv) Profit when sales are ₹30,000

(OR)

7(b) Distinguish between financial accounting and cost accounting

PART C

Answer the following questions (16 Marks)

8(a) As an auditor, how would you assess the reliability and accuracy of financial data produced by a newly implemented ERP system? (8 Marks)

8(b) Calculate the Profitability ratios. Profit and loss a/c of X Ltd., is given below (8 Marks)

Profit and loss account

| Particulars | ₹ | Particulars | ₹ |
|----------------------------|-----------|------------------|-----------|
| To opening stock | 2,00,000 | By sales | 16,00,000 |
| To purchases | 12,00,000 | By closing stock | 3,20,000 |
| To administration expenses | 1,20,000 | By Dividend | 4,000 |
| To selling expenses | 80,000 | | |
| To financial expenses | 40,000 | | |
| To loss on sale of assets | 5,000 | | |
| To Net profit | 2,79,000 | | |
| | 19,24,000 | | 19,24,000 |