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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 μs, 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]

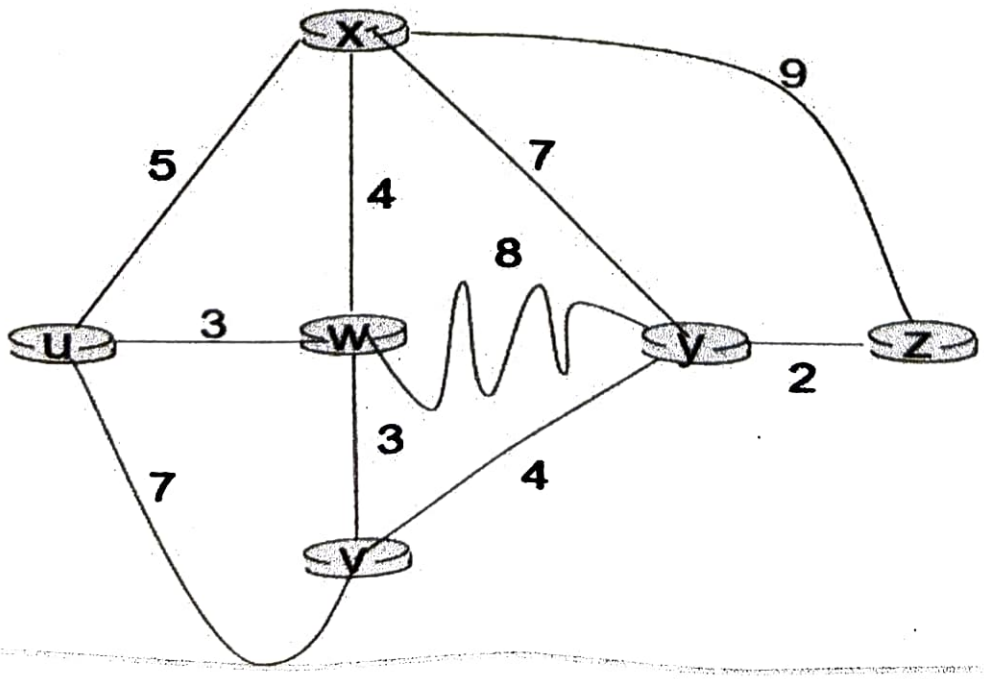
b) Write the range of Private IP addresses. [2M]

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 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.
   (a) 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 Certificates? What are the different types of certificates?
8. How does information flow takes place in the following Programming Language statements?
   (a) y=x+z (b) if x=1 then y=0 else y=1
9. What are the methods to acihieve 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 (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.

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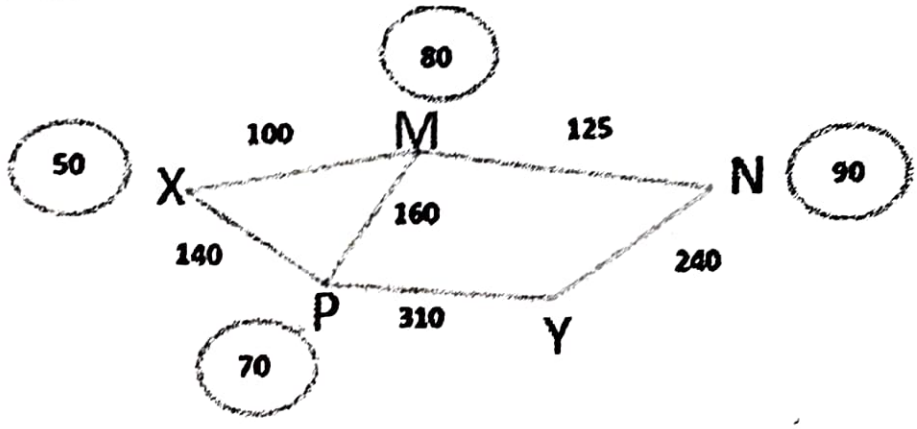
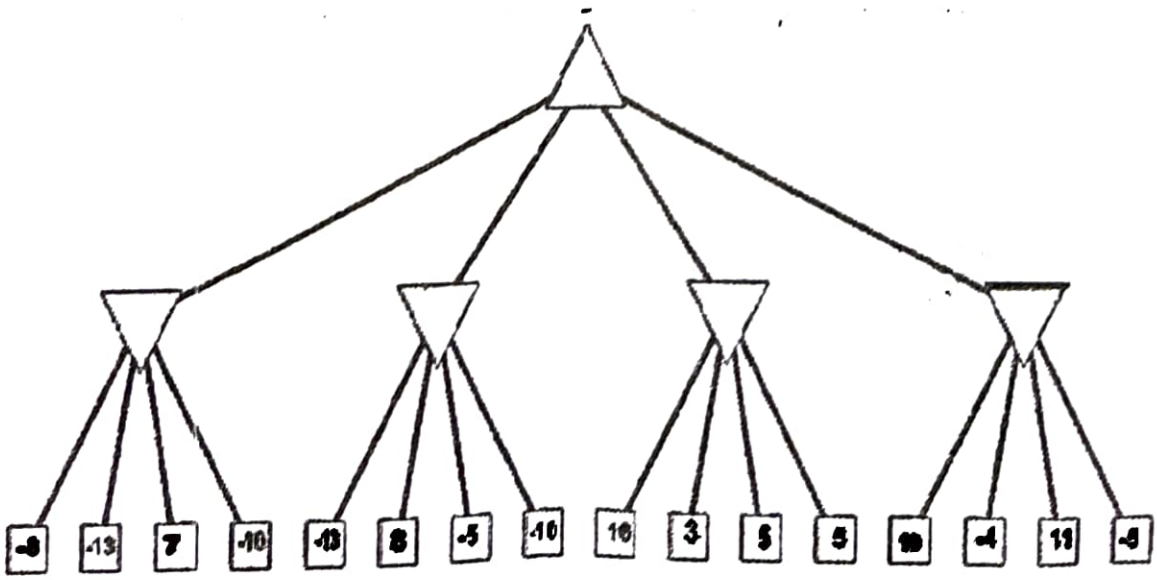
School of Computing
Second CIA Exam – Mar 2025
Course Code: INT314
Course Name: Artificial Intelligence and Logical Reasoning
Duration: 90 minutes
Max Marks: 50

Answer ANY FOUR questions **PART A** **4 x 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 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.
Mother(Alice)$\leftrightarrow$(Child(Bob)$\wedge$Parent(Alice,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: $\exists x(Bird(x)\wedge\neg CanFly(x)$ (4)

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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)

Direct materials	8,000
Direct wages	6,000
Direct expenses	2,500
Administrative overheads	4,000
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 and 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

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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 **2X10=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
Second CIA Exam – March 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 **10x 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 **3x10 = 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.

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