



## SCHOOL OF COMPUTING

I CIA –Feb 2023

Course Code: COM 117

B.Tech., (CSBS) – III Year Sem.: VI

Financial and Cost Accounting

Duration: 90 minutes Max Marks: 50

### Part A ( $10 \times 2 = 10$ Marks)

Answer ALL the Questions:

1. What is Marshalling of Balance Sheet? Give example.
2. (a) Draw the accounting equations. (b) Total assets of a firm are Rs.50 Lakhs and their outside Liabilities are Rs.42 Lakhs. Find out the owner's investment into the firm.
3. State the intangible and fictitious assets.
4. Write a note on "Prudence" with an illustration.
5. Draw the branches and leaves of GAAP.
6. Write a note on (a) Accrued income; (b) Unearned revenue;
7. List out the financial statement analytical tools.
8. Pass Journal Entries for the following transactions in a proper format:
  - 15.02.2023 Saravanan started business with Rs. 1,00,000.
  - 16.02.2023 Received cash from Balan Rs. 25,000.
  - 17.02.2023 Purchase of Machinery Rs. 50,000.
  - 18.02.2023 Sold goods to Jaleel on credit Rs.1,00,000.

Fill up the following Trial Balance:

Name of Accounts	Dr.	Cr.	Reason
Accumulated Depreciation on Machinery Rs.14000			
Prepaid Rent Rs.2000			
Accrued Expenses Rs.1500			
Unexpired Insurance Rs.8500			

- 9.
10. You are required to calculate the Trend Percentages taking 2020 as the base year and comment on its performance: (Rs. in Lakhs)

Particulars	2020	2021	2022	2023
Sales	300	340	420	480
Cost of Goods Sold	180	204	256	287
Office Expenses	40	42	45	50
Selling Expenses	20	25	30	40
Net Profit	60	69	89	103

**Part – B (3×10=30 Marks)**

**Answer ALL the questions:**

11. Draw the accounting cycle and explain its components with detailed formats.

12. From the following Trial balance of Thiru M. Sabarish as on 31-3-2017. Prepare Trading and Profit and Loss account and Balance Sheet.

<b>Debit Balances</b>	<b>Rs.</b>	<b>Credit Balances</b>	<b>Rs.</b>
Land and Building	42,000	Capital	62,000
Machinery	20,000	Sales	98,780
Patents	7,500	Return outwards	500
Stock 1-4-16	5,760	Sundry Creditors	6,300
Sundry debtors	14,500	Bills Payable	9,000
Purchases	40,675		
Cash in hand	540		
Cash at bank	2,630		
Return Inwards	680		
Wages	8,480		
Fuel and power	4,730		
Carriage outwards	3,200		
Carriage inwards	2,040		
Salaries	15,000		
General Expenses	3,000		
Insurance	600		
Drawings	5,245		
<b>Total</b>	<b>1,76,580</b>	<b>Total</b>	<b>1,76,580</b>

**Adjustments:** 1. Stock on 31-3-2017 was Rs. 6,800; 2. Salary outstanding Rs. 1,500;  
 3. Insurance Prepaid Rs. 150; 4. Depreciate Machinery @ 10% and patents @ 20%;  
 5. Create a provision of 2% on debtors for bad debts.

13. From the following Balance Sheets of Kandan Ltd as on 31.03.2022 and 2023, you are required to prepare report by using the financial statement analytical tools for the year ended 31.03.2023:

**Balance Sheets**

<b>Liabilities</b>	<b>2022 Rs.</b>	<b>2023 Rs.</b>	<b>Assets</b>	<b>2022 Rs.</b>	<b>2023 Rs.</b>
Share Capital	1,00,000	1,00,000	Goodwill	12,000	12,000
Reserve	14,000	18,000	Building	40,000	36,000
P & L a/c	16,000	13,000	Plant	37,000	36,000
Creditors	8,000	5,400	Investment	10,000	11,000
Bills Payable	1,200	800	Stock	30,000	23,400
Provision for Tax	16,000	18,000	Bills Receivable	2,000	3,200
Provision for Debts	400	600	Debtors	18,000	19,000
			Cash	600	200
			Bank	6,000	15,000
<b>Total</b>	<b>1,55,600</b>	<b>1,55,800</b>	<b>Total</b>	<b>1,55,600</b>	<b>1,55,800</b>

===== End of Question Paper =====



## SCHOOL OF COMPUTING

IICIA – March 2023

Course Code: COM 117

B.Tech., (CSBS) – III Year Sem.: VI

Financial and Cost Accounting

Duration: 90 minutes Max Marks: 50

### Part A ( $10 \times 1 = 10$ Marks)

**Answer ALL the Questions, each carries ONE mark. Answer in one sentence.**

1. What is capital gearing ratio?
2. Calculate Return on Investments (ROI) if the Operating Profit Rs.1,50,000; Capital Employed Rs.12,00,000; Tax Rs.50,000. *OP/CE*
3. Calculate Prime Cost, when the Direct Materials Rs.20,000; Direct Labour Rs.30,000; Direct Expenses Rs.10,000; Factory Overheads Rs.15,000. *-60,000*
4. What are the different methods of depreciating the assets in a manufacturing company?
5. What is meant by capital gearing ratio? *-gears up entire liability* *UTC 106*
6. Enlist the components for preparing fund flow statement.
7. Draw the format of cash flow statement.
8. What is gross working capital? *-total current assets* *FCA 18*
9. Write a note on BRS.
10. State the errors that do not affect the trial balance. *-error of complete omission*

### Part – B ( $10 \times 2 = 20$ Marks)

**Answer any TWO questions**

1. Differentiate between Fund Flow Analysis and Cash Flow Analysis.
2. Classify and present the different types of ratios. Brief the significance of each ratio.
3. Prepare a fund flow statement or cash flow statement for the following Balance Sheets:

Assets	2022Rs.	2023Rs.
Bank	15,380	26,020
Debtors	11,260	11,210
Stock	56,160	50,460
Fixed Assets	2,17,200	2,19,810
<b>Total Assets</b>	<b>3,00,000</b>	<b>3,07,500</b>
Liabilities	2022Rs.	2023Rs.
Creditors	20,000	16,500
Bills Payable	12,750	6,500
Debentures	1,00,000	1,00,000
Reserves	67,250	84,500
Paid up capital	1,00,000	1,00,000
<b>Total Liabilities</b>	<b>3,00,000</b>	<b>3,07,500</b>

**Part – C (1×20=20 Marks)**  
**Answer ANY ONE question.**

14. From the following given ratios and figures prepare a summarized Balance Sheet of XYZ Co. Ltd., for the year ended 31st December 2022:

- (a) Working Capital Rs.60,000
- (b) Reserves and Surplus Rs.40,000
- (c) Bank Overdraft Rs.10,000
- (d) Assets (fixed) proprietorship ratio 0.75
- (e) Current ratio 2.50
- (f) Liquid ratio 1.50

15. Comment on the financial position and performance of Perfect Company Ltd., from the following Balance Sheets and other relevant details:

Assets	2022 Rs.
Goodwill	1,20,000
Fixed Assets	2,80,000
Stock	80,000
Debtors	40,000
Bills Receivable	20,000
Cash	60,000
<b>Total Assets</b>	<b>6,00,000</b>
Liabilities	2023 Rs.
Equity Share Capital (Rs.100 each)	2,00,000
Reserves	40,000
Profit and Loss A/c	60,000
Secured Loan	1,60,000
Creditors	1,00,000
Provision for Tax	40,000
<b>Total Liabilities</b>	<b>6,00,000</b>
Net Sales	12,00,000
Gross Profit	6,50,000
Operating Profit	5,00,000
<b>Net Profit after Tax and Interest</b>	<b>2,00,000</b>

===== End of Question Paper =====



## SCHOOL OF COMPUTING

III CIA – May 2023

Course Code: COM 117

B.Tech., (CSBS) – III Year Sem.: VI

Financial and Cost Accounting

Duration: 90 minutes

Max Marks: 50

### Part A ( $10 \times 1 = 10$ Marks)

**Answer ALL the Questions, each carries ONE mark. Answer in one sentence.**

1. Define Cost Centre.
2. Differentiate between auditing and investigation.
3. Identify the types of functional budgets.
4. List out the significance of auditing.
5. Comment on the importance of IFRS.
6. Draw the format of cash budget.
7. What do you understand by batch costing?
8. Calculate BES from the following data: Sales Rs.5 Lakhs; Variable Cost Rs.3 Lakhs and Fixed Cost Rs.1 Lakh.
9. Bring out the limitations of funds flow statement.
10. State the meaning of environmental audit.

### Part – B ( $2 \times 10 = 20$ Marks)

**Answer any TWO questions**

11. Explain the various stages involved in environmental audit and its benefits to industry.
12. Examine the audit process for computerized accounting system.
13. The sales turnover and profit during two years were as follows:

Year	Sales Rs.	Profit Rs.
2022	2,80,000	30,000
2023	3,20,000	40,000

Calculate: (a) P/V Ratio; (b) BEP; (c) Sales required to earn a profit of Rs.80,000; (d) Profit when sales are Rs.2,40,000; (e) Margin of Safety for the year 2023.

**Part – C (1×20=20 Marks)**

**Answer ANY ONE question.**

14. (a) Brief on the industries in which the process costing is applicable. (b) A product passes through three processes 'A', 'B', and 'C' to its completion. During April 2023, 10,000 units of finished product were produced and the following expenses were incurred:

Particulars	Process A (Rs.)	Process B (Rs.)	Process C (Rs.)
Direct Materials	10,000	20,000	10,000
Direct Wages	50,000	40,000	30,000
Direct Expenses	5,000	6,000	10,000

Indirect expenses amounted to Rs. 60,000 which are to be apportioned to the processes on the basis of direct wages. Raw materials worth Rs. 60,000 were issued to Process 'A'. Ignore the question process stocks and prepare the process accounts, showing cost per unit in each process.

15. The following is the cost structure of Chandran Ltd:

Details	Level of activity		
	60%	70%	80%
Output (in units)	2400	2800	3200
Costs	Rs.	Rs.	Rs.
Materials	48,000	56,000	64,000
Wages	14,400	16,800	19,200
Factory overheads	25,600	27,200	28,800
Factory cost	88,000	1,00,00	1,12,000

The factory is considering an increase of production to 90% level of activity. No increase in fixed overheads is expected at this level. The management requires a statement showing all details of factory cost at 90% level of activity.

===== End of Question Paper =====



School of Computing  
First CIA Exam -Feb 2023

Course Code: CSE322  
Course Name: Computer Networking  
Principles and Components  
Duration: 90 minutes Max Marks: 50

PART A

Answer all the questions

**10\*2=20 Marks**

1. Assume six devices are arranged in a mesh topology. How many cables are needed?  
How many ports are needed for each device? *6 ports*
2. A light signal is travelling through a fiber. What is the delay in the signal if the length of the fiber-optic cable is 10 m, 100 m, and 1 Km (assume a propagation speed of  $2 \times 10^8$  m/s)?
3. Assume that a voice channel occupies a bandwidth of 4 kHz. We need to combine three voice channels into a link with a bandwidth of 12 kHz, from 20 to 32 kHz. Show the configuration, using the frequency domain. Assume there are no guard bands.
4. Synchronous TDM with four 1Mbps data stream inputs and one data stream for the output. The unit of data is 1 bit. Find (a) the input bit duration,
5. Differentiate half-duplex with full-duplex channel
6. Justify the functionality of session layer
7. Differentiate forward error control with backward error control schemes
8. Differentiate multi-level TDMA with the multi-slot TDMA
9. Consider the frame size is 1 Kbits and channel bandwidth is 1Mbps. Compute transmission time
10. Sketch the point-to-point and multi-point connections.

PART B

**3\*10=30 Marks**

Answer all

11. Consider CDMA with 4 nodes such as A, B, C and D. Chip sequences are [1,1,1,1], [1,-1,1,-1], [1,1,-1,-1], [1,-1,-1,1] respectively. Among four nodes, three stations A, B and D alone transmitting data '1','0','1' respectively. Construct the spread spectrum and extract the individual data bits from the spreading sequence. Justify its correctness. *The only*
12. Elucidate the functionalities of each layers of OSI reference model with neat architecture.
13. Consider the binary pattern '1011001011' and CRC as  $x^3+x+1$ . Compute checksummed frame. And assume that MSB of the checksummed frame is inverted during transit. Detect this error in the receiver side.

Course Code: CSE322

Course Name: Computer Networking

Principles and Components

Duration: 90 minutes Max Marks: 50

**PART A****Answer all the questions****10\*2=20 Marks**

1. Consider two-dimensional block parity for the data frame 1011 0010 1100 1111 with block size 4. Compute parity and invert 3<sup>rd</sup> bit of the first block. Detect and correct error in the receiver side.
2. Compute the hamming distance with frame-transmitted "10101010" and frame-received as "10101100"
3. Differentiate single bit error with burst error.
4. What is the demand of pipelining based protocol?
5. Justify the impact of piggybacking?
6. Consider 3-bits sequence number. What is the sender and receiver window size in Go-back-n protocol?
7. How long the vulnerable time with pure ALOHA?
8. Differentiate 1-persistent CSMA with non-persistent CSMA.
9. Differentiate hidden station problem with exposed station problem?
10. What is RTS and CTS in CSMA/CA?

**PART B****Answer any three****3\*10=30 Marks**

11. Consider the data frame "10010011001". Compute checksummed frame based on hamming code. Assume the third bit is inverted during transit. Detect this error in the receiver side using hamming code.
12. Assume that, in a Stop-and-Wait ARQ system, the bandwidth of the line is 1 Mbps, and 1 bit takes 20 ms to make a round trip. What is the bandwidth-delay product? If the system data frames are 1000 bits in length, what is the utilization percentage of the link? How many frames to be transmitted to increase the utilization percentage as 100? Argue the use of Stop-and-wait ARQ in LAN vs WAN.
13. A pure ALOHA and slotted ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the throughput if the system (all stations together) produces?  
a. 1000 frames per second   b. 500 frames per second  
c. 250 frames per second. Tabulate the results for both pure vs slotted ALOHA
14. A network using CSMA/CD has a bandwidth of 10 Mbps. If the maximum propagation time (including the delays in the devices and ignoring the time needed to send a jamming signal, as we see later) is 25.6  $\mu$ s, what is the minimum size of the frame? If collision occurs in the 4<sup>th</sup> attempt of the frame transmission, then compute minimum and maximum back-off time in the 4<sup>th</sup> attempt using binary exponential back-off algorithm.



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(UOE 3 of the UGC Act, 1956)

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School of Computing

First CIA Test –

February 2023

Course Code: INT313

Course Name: Computer  
System Security

Duration: 90 minutes

Max Marks: 50

### Part-A

**Answer all the Questions (10 x 2 =20 Marks)**

Identify the following as violation of Confidentiality, Integrity or Availability

1.
  - (a) An unauthorized access to the password file in the UNIX system
  - (b) A Denial of Service attack on the Web Server
  - (c) Modifying the price of items on an e-commerce site.
2. What are the broad classes of threats in Computer Systems?
3. What are the goals of Computer System Security?  
Let P be the set of all states and Q be the set of secure states. A
4. Security mechanism restricts the system to the set R. Define when the Security mechanism is *secure*, *precise* and *broad*.
5. Describe how implementing Security modifies the System Development lifecycle.
6. How is a Mandatory Access Control Model different from a Discretionary Access Control Model?
7. What are the components of an Access Control Matrix? How do we obtain an Access Control List or a Capability Ticket from the Access Control Matrix?

- Let I be some information. Under what conditions I has the property of Confidentiality with respect to the set of entities X?. Under what conditions I has the property of Integrity with respect to X?
- State the Simple Security Property and \*-property of the Preliminary version of Bell Lapadula Model.
- Consider the classifications: {Top Secret, Secret, Confidential} and the Categories {EUR,US}. List all the lattice points and the security labels that can be created using the above classifications and Categories.

### Part-B

#### Answer all the Questions (3 x 10 =30 Marks)

(a) 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 UserC Resources:file1,file2,program1 and program2. UserA has read permission to file1 and read and execute permission to program1. UserB and UserC have read permission only to all resources.

(b) Describe states and transitions of a computer system and discuss the conditions required to maintain a secure state when transitions are applied to the states.

(a) When resources are classified as Top Secret,Secret,Confidential and Unclassified, Justify the "No reads up" and "No writes down" rules of the Bell Lapadula Model. Why does enforcing these rules protect the confidentiality property of the information?

(b) Using the classifications and Categories of Q10, Give examples of the *dom* relationship between the Security Labels.

(a) Discuss the role of trust with respect to the following:

(i) Applying a security patch to the Computer Operating System  
(ii) A formal verification that a given program P is correct

(b) Discuss why assurance is needed in the various stages of the System Development Life Cycle.



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**School of Computing  
Second CIA Test – March 2023**

**Course Code: INT313**

**Course Name: Computer System Security**

**Duration: 90 minutes**

**Max**

**Marks: 50**

### **Part-A**

**Answer all the Questions (10 x 2 =20 Marks)**

1. What are the international Standards related to the Computer System Security?

Discuss how the Lipner Full Integrity Model is able to combine the “No Read Up, No

2. Write Down” policy of Bell Lapadula Model with that of the “No Write up, No read down” policy of the Biba Model.

3. Let the security labels of User A is (A,Set1) and the security label of User B is (B,Set2).
- When is User A said to dominate user B based on the security levels?

4. What is the function of Integrity Verification Procedures and Transformation Procedures in the Clark-Wilson Model?

5. When is a system said to be non-interference secure?

Give examples for the following: (a) Principle of Least Common Mechanism

6. (b)Principle of Separation of Privilege

7. Distinguish between Users Groups and Roles in Computer Systems.

What is the purpose of the Domain Name System? What are the attacks on the Domain Name System?

9. Given a statement  $x:=y$ , which of the following must be true for information flow to take place? (i)  $x \leq y$ (ii)  $y \leq x$

10. Discuss how isolation of programs can be achieved in Computer Systems.

### **Part-B**

**Answer all the Questions (3 x 10 =30 Marks)**

Discuss the following Integrity Policies:

11. (i) Low Water mark Policy  
(ii) Ring Policy  
(iii) Biba Model

Discuss the following terms in relation to the Chinese Wall Model: objects, Company dataset, Conflict of Interest class. Discuss the simple security property and the

12. CW=\*property for the Chinese Wall model. Compare the Chinese Wall and the Clark-Wilson Models

13. What are Covert Channels in Computer Systems? Explain the different types of Covert Channels in Computer Systems with examples. How can Covert Channels in Computer Systems be detected, analyzed and mitigated?



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U.S. No. 10672, U.S.C. Act 105-512

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**School of Computing**  
**Third CIA Test – May 2023**

Course Code: INT313

Course Name: Computer System Security

Duration: 90 minutes

Max Marks: 50

#### **Part-A**

**Answer all the Questions (10 x 2 =20 Marks)**

1. What are the phases in the Security Life Cycle?
2. Explain the following X.509v3 Distinguished Name:  
*/O=University of California/OU=Davis campus/OU=Department of Computer Science/CN=Matt Bishop*
3. Compare the NonInterference and Nondeducibility properties in Computer systems.
4. Explain how a covert channel can be created by using files. What type of covert channel is this?
5. What is Assurance? What are the various types of Assurance?
6. What are viruses? What are the various types of viruses?
7. What is the flaw hypothesis methodology for vulnerability analysis? Given an example.
8. What is Auditing? What are the components of the Audit System Structure?
9. What are the components of the Enterprise Security Policy Specification?
10. What are the important components in the security architecture of an Operating System?

#### **Part-B**

**Answer any two Questions (2 x 10 =20 Marks)**

11. Discuss the following Access Control Models: (i) Discretionary Access Control Model (ii) Role Based Access Control Model. (iii) Mandatory Access Control Model.
12. Explain the following Security Policies: (i) Bell Lapadula Model (ii) Chinese Wall Model (iii) Clark-Wilson Model.
13. Discuss the Trusted Computing Security Evaluation Criteria standard. Explain the Functional Requirements, Assurance Requirements, Evaluation Classes and the Evaluation Process.

**Part-C**

**Answer all the Questions (1 x 10 =10 Marks)**

Consider a private organizational network which hosts a mail server, database server and Web Server. Draw the network organization consisting of the inner firewall, outer firewall and the demilitarized zone. The access to the public web server is done through SSH connection to the Administrative host only. The private network consists of Development Workstations and user workstations.

14. (i) Discuss the policy for authorizing user access to the servers and Workstations.  
(ii) Discuss the policy for creating and maintaining passwords for users in the servers and Workstations.  
(iii) Discuss the policy regarding secure program development including prevention of Malware.  
(iv) It is needed to improve the security of this network by installing Intrusion Detection Systems. Discuss the type of IDS and the placement of IDS in the network and how the IDS alerts will be handled.



# SASTRA

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ARTS &amp; SCIENCE / MANAGEMENT / TECHNICAL

School of Computing

First CIA Exam - Feb 2023

Course Code: INT314

Course Name: Artificial Intelligence and  
Logical Reasoning

Duration: 90 minutes

Max Marks. 50

Answer all questions

PART A

5 x 2 = 10 Marks

1. You are going to create a login with CAPTCHA. Name the test. Identify the types of intelligence the agent should possess.
2. Tom and Jerry applied 2 different uninformed searching algorithms for a particular scenario. Recall the key measures metrics.
3. Anand developed a medical diagnostic agent to help rural people by diagnosing acute diseases. Identify PEAS of that agent.
4. Define Agent and Rational Agent
5. The environment of automatic car is competitive or cooperative? Analyze.

Answer all questions

PART B

4 x 10 = 40 Marks

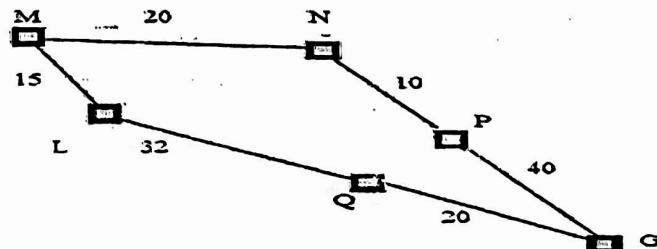
6 a) You are playing time based chess game with an agent. Discuss the type of its environments in which the chess agent is involved. (5)

b) 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)

7. a) Assume that you are planning to build utility based agent. Discuss the components which are to be present. (5)

b) Discuss: At which situations you will apply BFS? (5)

8 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)



9. Chitty is going to develop a model based reflex agent. Help him by constructing the algorithm and block diagram. Give your reasons in building that model. (10)



School of Computing  
Second CIA Exam – Mar 2023

Course Code: INT314

Course Name: Artificial Intelligence and  
Logical Reasoning

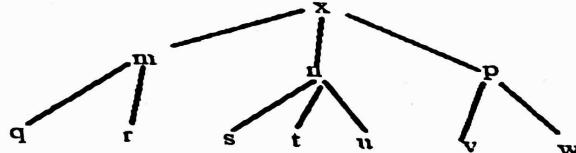
Duration: 90 minutes

Max Marks: 50

Answer ANY THREE questions

PART A     $3 \times 10 = 30$  Marks

1. a) Laurel(Min) and Hardy(Max) are playing Chess game. They have decided to follow the strategy of min-max algorithm. As a friend you need to articulate the steps and the logic behind this algorithm enable them to choose the winning path. (5)  
b) Discuss the processes involved in genetic algorithm. (5)
2. a) How the agent will come out of the shoulder during Hill climbing?  
Discuss methods. (5)  
b) Compare the performance metrics of uninformed search strategies. (5)
3. Apply DFS to the following graph and find the path for the goal node t (10)  
graph TD; x --- m; x --- n; x --- p; m --- q; m --- r; n --- s; n --- t; n --- u; p --- v; p --- w;



4. The state space is infinite and uninformed. At the same time, you know the level approximately within which you can get goal node. To find the solution path, which search method will you apply?  
Provide the algorithm for that search method. (10)

Answer ANY TWO questions

PART B

$2 \times 10 = 20$  Marks

1. Answer the following questions (10)
  - a) You are playing chess with Deep Blue. How do you relate this scenario with zero sum game.
  - b) You are asked to give knowledge about CSP to Chitti, the bot, How will you define?

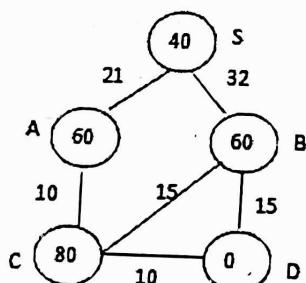
- c) Your younger brother Mahesh wants to explore Sudoku puzzle. Help him by describing the type of constraint you have to use and Justify.
- d) Calculate Manhattan distance for the following.

Start node.      Goal node

3	5	6	6	5	3
8	4	1	2	1	4
	2	7		7	8

- e) The number non attacking positions for each queen in 8 queen problem are given (for 4 strings of positions.). They are 38,43,25,12. Calculate and define fitness function.
2. Your friend wants to reach Railway Station in a city from your college (S). 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 should be given and discuss the process.

(10)



3. 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. ( $\alpha, \beta$  values are to be mentioned)

