

Total No. of Questions: 6

45 +

A +

Total No. of Printed Pages: 3

Enrollment No. ENR1C8304013



Programme: B.Tech.

Branch/Specialisation: CSE All

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of 1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which one is not one of the fundamental activities in a software process? 1
(a) Software Specification (b) Software Development
(c) Software cost negotiation (d) Software validation
- ii. Component based software engineering is not characterised with- 1
(a) Reduced cost and risks (b) Faster Delivery
(c) Reuse Oriented (d) Large amount of developed code
- iii. SRS must include characteristics except- 1
(a) Scope of the software product
(b) User characteristics
(c) Functional and non functional requirements
(d) Programming logics and algorithm
- iv. Which one of the following is not a step of requirement engineering? 1
(a) Elicitation (b) Design (c) Analysis (d) Documentation
- v. In Design phase, which is the primary area of concern- 1
(a) Architecture (b) Data
(c) Interface (d) All of these
- vi. Which architectural style goal is to achieve Integrity? 1
(a) Data Flow Architecture
(b) Call and Return Architecture
(c) Data Centered Architectures
(d) None of these

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... vmp • features

[2]

- vii. Among which testing category Alpha testing and Beta testing falls- 1
(a) Regression Testing (b) Unit Testing
(c) Acceptance Testing (d) Integration Testing
- viii. Who identifies, documents, and verifies that corrections have been made to the software? 1
(a) Project manager (b) Project team
(c) SQA group (d) All of these
- ix. Software Metrics helps to- 1
(a) Improve the process (b) Assess quality
(c) Control the project (d) All of these
- x. Software development cost does not include- 1
(a) Quality control cost (b) End user training cost
(c) Maintenance cost (d) Marketing cost
- i. Define Software engineering and its objectives. 2
ii. Justify that- Programs that are developed using evolutionary development are likely to be difficult to maintain. 3
iii. How does a spiral model represent a process suitable to represent a real time problem. 5
iv. Discuss the advantages and disadvantages of waterfall model, spiral model and component based development model. 5
- Attempt any two:
- i. Differentiate functional and non-functional requirements 5
ii. What is Requirement elicitation? Also define all the requirement elicitation techniques. 5
iii. Draw the Data flow diagram (level 0, level 1 and level 2) of an online food delivery system. 5
- i. What is the role of architectural design in SDLC. Classify various architecture styles. 3
ii. Explain software configuration management with suitable example. 7
iii. Describe all the software design principles in detail. 7
- i. Explain about test cases. What are the best practices for writing test cases. 4
 2

- unit 2

... vmp = features

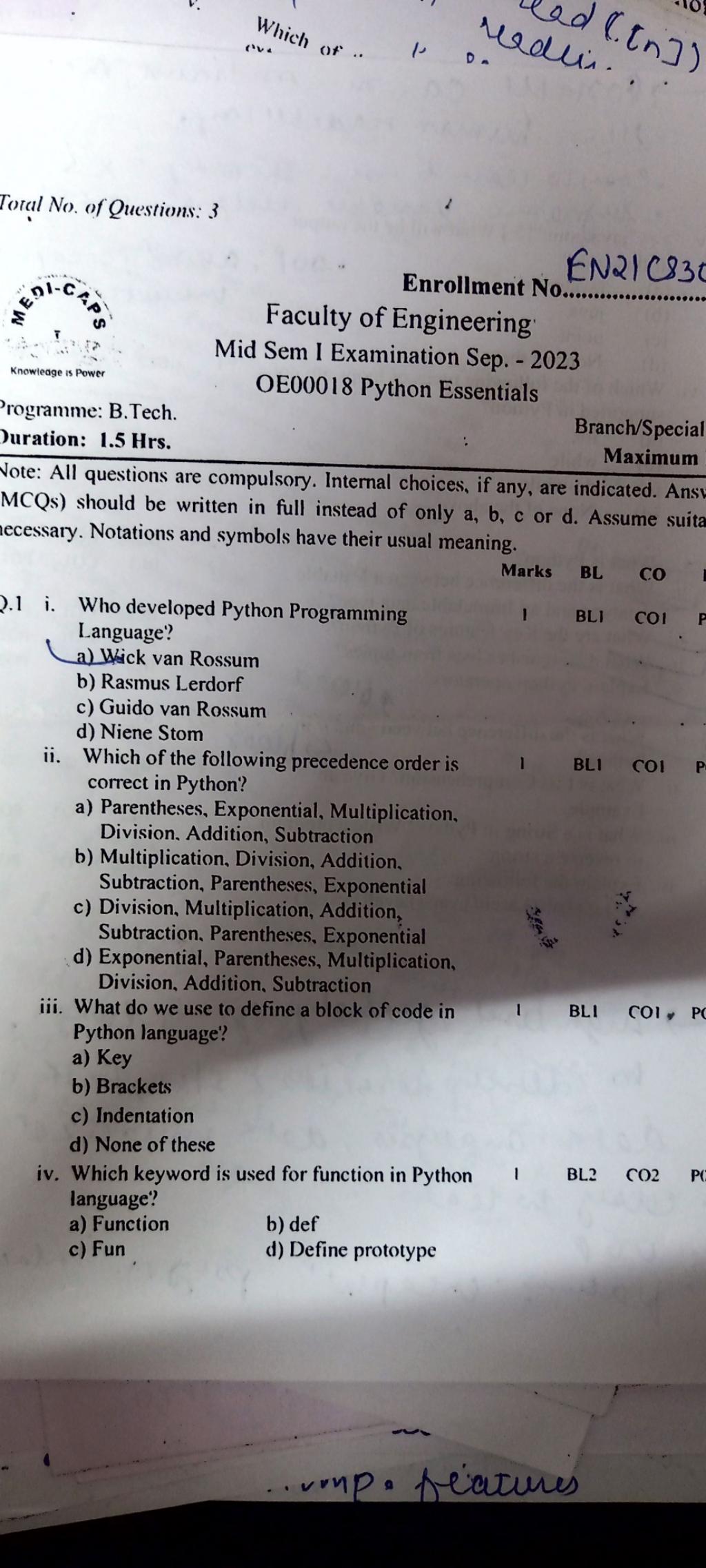
[3]

⑤

- ii. Differentiate Validation and Verification with the help of suitable example. 6
iii. Explain various black box and white box testing technique. 6

Attempt any two:

- i. Write a short note on COCOMO Model. ④ 5
ii. Write a short note on Process and Product metrics. ④ 5
iii. Explain size oriented and function oriented metrics. 5



No. of Questions: 3



Enrollment No..... ENR12830403

Faculty of Engineering

Mid Sem II Examination November - 2023

OE00018 Python Essential

Programme: B.Tech.

Branch

Duration: 1.5 Hrs.

Ma

- | Question | Marks | BL |
|---|-------|----|
| i. Which Statements read ten characters from a file (file object is 'f').
a. f.read() b. f.read(10)
c. f.reads(10) d. None of the mentioned above | 1 | BL |
| ii. Readline() method returns -----
a. String b. List
c. Tuple d. None of the mentioned above | 1 | BL |
| iii. What does single-level inheritance mean?
a. A single subclass derives from a single superclass
b. Multiple base classes inherit a single derived class
c. A single superclass inherits from multiple subclasses
d. None of the mentioned above | 1 | BL |
| iv. The assignment of more than one function to a particular operator is _____
a. Operator over-assignment
b. Operator overriding
c. Operator overloading
d. Operator instance | 1 | BL |

ii.

file-object.read([n])
" " readline([n])
" " readlines([n])

v. Which of the following is the correct extension of the Python file? I BL 2 CO 4

- a. python b. py
c. p d. pl

vi. All classes have a function called?

- a. __init__() b. __init__ c. init d.
init()

I BL 3 CO 4 1-7,
8-12

i.	Describe the different <u>access modes</u> of the files with an example	5	BL 2	CO 3	1-5, 8-12
ii.	Write Python Program to Count the Occurrences of Each Word and Also Count the Number of Words in a "quotes.txt" File	7	BL 2	CO 3	1-5, 8-12
iii.	Discuss the following methods associated with the file object a) read() b) readline() c) readlines() d) tell() e) seek() f) write()	7	BL 3	CO 3	1-5, 8-12
i.	Discuss inheritance in Python programming language.	5	BL 3	CO 4	1-7, 8-12
ii.	Write Python Program to Demonstrate Multiple Inheritance with Method Overriding	7	BL 3	CO 4	1-7, 8-12
iii.	Write Python program to demonstrate the Overriding of the Base Class method in the Derived Class.	7	BL 4	CO 4	1-7, 8-12

→ handle = ^{position}open(^{file}, mode)
mode :
at beginning of file
only text file for reading
→ Read only (r) : if file not exist, it raises error
Read & write (r+) : for read & write
beginning of file
↓
Append & read (a+) : for read & write. file is end at file position
created if it doesn't exist
write only (w) : only writing. creates file if
file not exist
write and read (w+) :
↓ handle : beginning

→ imp. features

- v. Which of the following is not a dynamic programming?
a. Overlapping sub p.
b. Optimal sub
c. Recur.

Total No. of Questions: 3



Enrollment No. EN21CS3

Faculty of Engineering

Mid Sem II Examination April -2023

CS3CO13 Design Analysis & Algorithm

Programme: B.Tech.

Branch/Specialisation

Duration: 1.5Hrs.

Maximum

Note: All questions are compulsory. Internal choices, if any, are indicated. Ans (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data Notations and symbols have their usual meaning.

Q.P

Marks BL

I BL3

- i. Given items as {value,weight} pairs $\{ \{40,20\}, \{30,10\}, \{20,5\} \}$. The capacity of knapsack=20. Find the maximum value output assuming items to be divisible.

a) 60 b) 80 c) 100 d) 40

- ii. Dijkstra algorithm is also called the shortest path problem.

a) Multiple source b) Single source
c) Single-destination d) Multiple destination

- iii. Which of the following is true about Huffman Coding.

a) In Huffman coding, no code is prefix of any other code.
b) Huffman Codes may not be optimal lossless codes in some cases
c) Huffman coding may become lossy in some cases
d) None of these

- iv. Floyd Warshall's Algorithm is used for solving

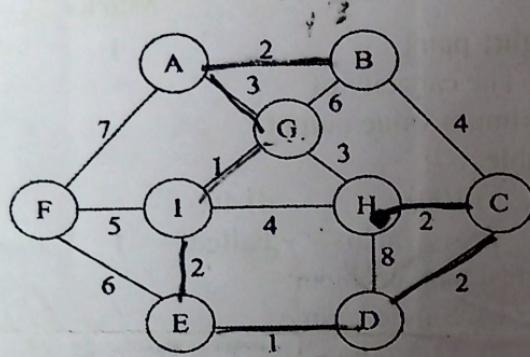
I BL1

a) All pair shortest path problems
b) Single Source shortest path problems
c) Network flow problems
d) Sorting problems

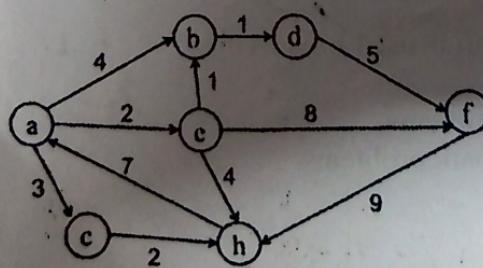
- v. Which of the following problems is NOT solved using dynamic programming? 1 BL1 CC
- 0/1 knapsack problem
 - Matrix chain multiplication problem
 - Edit distance problem
 - Fractional knapsack problem
- vi. Bellmann ford algorithm provides solution for problems. 1 BL1 C
- All pair shortest path
 - Sorting
 - Network flow
 - Single source shortest path

Attempt any two questions

- i. For the given graph find the Minimum Spanning Tree by Prim's Method (Start at vertex H) 6 BL3



- ii. Suppose we run Dijkstra's single source shortest-path algorithm on the following edge-directed weighted graph with vertex a as the source. 6 BL3
- In what order do the nodes get included into the set of vertices for which the shortest path distances are finalized?



- ✓ iii. A file contains the following characters with the frequencies as shown. If Huffman Coding is used for data compression, determine- 6 BL3

- Huffman Code for each character
- Length of Huffman encoded message (in bits)

Character	A	E	I	O	U	S	T
Frequencies	10	15	12	3	4	13	1

Attempt any two questions

- i. Find Longest common sub sequences of the following sequences: 6 BL2

$$X = \langle A, B, C, B, D, A, B \rangle$$

$$Y = \langle B, D, C, A, B, A \rangle$$

- ii. Let A_1, A_2, A_3 and A_4 be four matrices of dimensions $10 \times 5, 5 \times 20, 20 \times 10$ and 10×5 respectively. The minimum number of scalar multiplications required to find the product $A_1 A_2 A_3 A_4$ using matrix chain multiplication method? 6 BL3

- iii. For the given set of items and knapsack capacity = 5 kg, find the optimal solution for the 0/1 knapsack problem making use of dynamic programming approach. 6 BL3

$$\text{Consider: } n = 4, w = 5 \text{ kg}$$

$$(w_1, w_2, w_3, w_4) = (2, 3, 4, 5)$$

$$(b_1, b_2, b_3, b_4) = (3, 4, 5, 6)$$

Huffman

"D utilizes"
own own

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- ii. You are planning a backpack that can carry some own weight [4]

(3) $30 < \text{Preet}$

10	30	80	90	40
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Total No. of Questions: 3



90 > Preet Enrollment No. EN 21 CS3

Faculty of Engineering

Mid Sem-II Examination November-2023

CS3C042 Design and Analysis of Algorithm

Programme: B.Tech

Duration: 1.5 Hrs.

Branch/Specialization _____ Maximum Marks _____

Note: All questions are compulsory. Internal choices, if any, are indicated. Answer (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if required.

Notations and symbols have their usual meaning.

Q.1 i. In Huffman coding, which characters are assigned shorter codes? 1 01 3

- a. Characters with high frequencies
- b. Characters with low frequencies
- c. Characters with equal frequencies
- d. All characters are assigned the same code length.

ii. In the Fractional Knapsack problem, what is the key parameter used to decide which item to select next? 1 01 3

- a. Total value of the item
- b. Total weight of the item
- c. Value-to-weight ratio of the item
- d. Total capacity of the knapsack

iii. In a connected graph with 'n' nodes, how many edges does a spanning tree have? 1 01 3

- a. n
- b. $n - 1$
- c. $n + 1$
- d. $n(n-1)/2$

iv. In matrix chain multiplication, which value is computed to find the optimal parameterization? 1 01 4

- a. The product of all matrices in the chain.
- b. The maximum element of the matrices.
- c. The minimum number of scalar multiplications.
- d. The determinant of the first matrix in the chain.

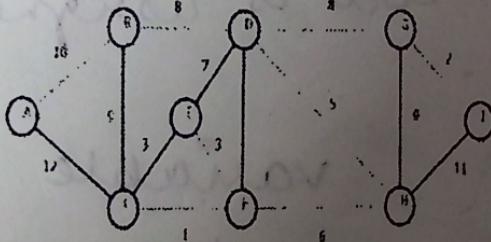
• tc

19 MV
utiliza

total
a limited capacity
of W kilograms. You want
to maximise
6

- v. Which of the following is not a characteristic of dynamic programming? 1 01
- a. Overlapping sub problem
 - b. Optimal substructure
 - c. Recursion
 - d. Divide and conquer
- vi. In multistage graphs, what do the stages represent? 1 01
- a. Different algorithms
 - b. Different colours assigned to nodes
 - c. Different layers or phases of a process
 - d. Different data structures

- Q.2 i. What is a Greedy Algorithm? 2 01
- ii. Given are some symbols and their frequencies 3 02
- A: $1/20$; B: $2/20$; C: $2/20$; D: $4/20$; E: $4/20$; F: $7/20$. Show a tree that Huffman algorithm can produce for these symbols and frequencies.
- iii. Consider the following graph 7 01



From this graph find MST By using Prim's Algorithm with algorithm.

- OR iv. Consider the following graph 7 01
-

Apply Dijkstra's Algorithm to find the shortest path from S to F with algorithm.

utilizer

unknown words

6+3

Total No. of Questions: 3



Enrollment No....

Faculty of Engineering

Mid Sem-I Examination September-2022

CS3CO42 Design and Analysis of Algorithms

Programme: B.Tech

Branch

Duration: 1.5 Hrs.

Note: All questions are compulsory. Internal choices, if any, are indicated in the question paper. Internal choices (MCQs) should be written in full instead of only a, b, c or d. Assume standard values wherever necessary.

Notations and symbols have their usual meaning.

- | Question | Marks | Branch |
|--|-------|--------|
| Q.1 i. Time Complexity of Insertion sort is | 1 | BL |
| (a) linear
(b) Quadratic
(c) Cubic.
(d) Exponential | | |
| ii. This algorithm scans the list by swapping the entries whenever pair of adjacent keys are out of desired order. | 1 | BL |
| (a) Insertion sort.
(b) Bubble sort.
(c) Shell sort.
(d) Quick sort. | | |
| iii. The O-Notation provides an asymptotic | 1 | BL |
| (a) Upper Bound
(b) Lower Bound
(c) Light Bound
(d) None of These | | |
| iv. On which algorithm is heap sort based on? | 1 | BL |
| (a) Fibonacci heap
(b) Binary tree
(c) Priority queue
(d) FIFO | | |
| v. Average case time complexity of Quick sort is _____ | 1 | BL |
| (a) $\Theta(n \log n)$
(b) $O(n \log n)$
(c) $O(n \log n)$
(d) $\Theta(\log n)$ | | |

[4] You are planning a backpacking trip and you have a limited capacity of W kilograms. You want to pack items that can carry a maximum weight of W kilograms. You want to maximize the total value of the items you can carry in your backpack without exceeding its weight.

3 kg, Value - \$150
 Weight - 2 kg, Value - \$100
 Weight - 1.5 kg, Value - \$80
 Weight - 1 kg, Value - \$60

Type of Computational Complexity that describes time required to execute algo.

- vi. The time complexity of binary search in best, worst cases for an array of size N is

1	BL _{O1}	C _{O2}	PO _{O1}	PSO _{O1}
	02, 01, 04	02, 03, 04		

- (a) N, N^2
 (b) $1, \log N$
 (c) $\log N, N^2$
 (d) $1, N \log N$

Amt of time taken by an algo to produce result as a function

Q.2

- i. Describe the time complexity.

2	BL _{O1}	C _{O1}	PO _{O1}	PSO _{O1}
	02, 01, 04	02, 03, 04		

- ii. If $f(n) = 5n^2 + 3n + 2$ then prove that $f(n)$ is $O(n^2)$.

3	BL _{O2}	C _{O1}	PO _{O1}	PSO _{O1}
	02, 01, 04	02, 03, 04		

- iii. What is performance Analysis? How we do performance Analysis?

7	BL _{O1}	C _{O1}	PO _{O1}	PSO _{O1}
	02, 01, 04	02, 03, 04		

OR

- iv. Solve the following recurrence relations by using Master's theorem

7	BL _{O2}	C _{O1}	PO _{O1}	PSO _{O1}
	02, 03, 04	02, 03, 04		

- i) $T(n) = 4T(n/2) + n$
 ii) $T(n) = 2T(n/2) + n \log n$

Q.3

- i. How merge sort is related to Divide and Conquer? Explain.

2	BL _{O1}	C _{O2}	PO _{O1}	PSO _{O1}
	02, 03, 04	02, 03, 04		

- ii. Define Greedy method.

2	BL _{O1}	C _{O2}	PO _{O1}	PSO _{O1}
	02, 03, 04	02, 03, 04		

- iii. Define recurrence equation for merge sort using substitute method

8	BL _{O2}	C _{O2}	PO _{O1}	PSO _{O1}
	02, 03, 04	02, 03, 04		

OR

- iv. Show the various steps involved in the quick sorting of $(23, 67, 12, 78, 33, 28, 97, 10, 6, 87, 39)$

8	BL _{O2}	C _{O2}	PO _{O1}	PSO _{O1}
	02, 03, 04	02, 03, 04		



→ Merge sort uses D/C as it uses recursive algo to achieve results. D/C breaks down big problem into smaller, manageable pieces. It then solves them recursively & puts their solⁿ together to solve original problem.

Total No. of Questions: 6

Total No. of Printed P

Enrollment No. GN.M.CS.200121



Faculty of Engineering
End Sem Examination Dec-2023
CS3CO42 Design & Analysis of Algorithms

Programme: B.Tech.

Branch/Specialisation: CS

Duration: 3 Hrs.**Maximum Marks**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answer Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable necessary. Notations and symbols have their usual meaning.

- Q.1**
- In asymptotic notation, which notation describes the lower bound of algorithm's running time?
 - (a) Θ -notation
 - (b) O -notation
 - (c) Ω -notation
 - (d) β -notation
 - Which of the following quadratic sorting techniques has the worst-case time complexity of $O(n^2)$, making it inefficient for large datasets?
 - (a) Merge Sort
 - (b) Quick Sort
 - (c) Heap Sort
 - (d) None of these
 - In the divide and conquer sorting technique, which algorithm uses pivot element to partition the array into two subarrays and then recursively sorts those subarrays?
 - (a) Bubble Sort
 - (b) Quick Sort
 - (c) Merge Sort
 - (d) Insertion Sort
 - What is the time complexity of Strassen's matrix multiplication algorithm for multiplying two $n \times n$ matrices?
 - (a) $O(n^{2.81})$
 - (b) $O(n^2)$
 - (c) $O(n^3)$
 - (d) $O(n \log n)$
 - In Huffman coding, what is the fundamental principle used to encode data efficiently?
 - (a) Arithmetic coding
 - (b) Run-length encoding
 - (c) Burrows-wheeler transform
 - (d) Prefix coding
 - What is the time complexity of Dijkstra's algorithm when implemented with a binary heap for priority queue?
 - (a) $O(V \log V)$
 - (b) $O((V+E) \log V)$
 - (c) $O(E + V \log V)$
 - (d) $O(V^2)$

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[2]

~~we~~. Manager is
key person
Management skills applies to managers at
all levels of organization

influenced by
values, beliefs, opinion
1 BLI CO₂ PO₂

Magnet: getting
information from people

[3]

- ii. Describe the steps involved in the heap sort algorithm. Include the processes of building the initial max heap, swapping elements, and maintaining the heap property. Provide the algorithmic implementation and analyze its time complexity. 8
- iii. Consider an unsorted array of integers that needs to be sorted using the quicksort algorithm. The array to be sorted is {5, 2, 9, 1, 5, 6, 13, 4, 21}. Apply the QuickSort algorithm to sort the given array step by step, showing the partitioning process at each step. Calculate the time complexity of the QuickSort algorithm for the given array considering the number of comparisons and swaps made during the sorting process. 8
- i. Explicate the concept of greedy technique in algorithm design and clarify when it is appropriate to use greedy techniques in problem-solving. Provide reasoning for your answer and illustrate your explanation with a relevant example. 3
- ii. You are given a set of characters and their frequencies: 7

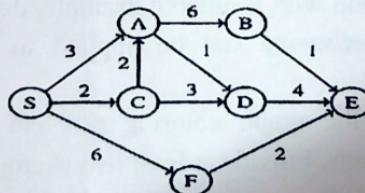
Character	Frequency
A	5
B	9
C	12
D	13
E	16
F	45

Show the step-by-step process of constructing the Huffman tree, including merging nodes and updating frequencies.

Calculate the Huffman codes for each character in the final tree.

Calculate the average encoding length of the characters in the resulting Huffman tree.

- iii. Consider the following graph representation: 7



Apply Dijkstra's algorithm to find the shortest paths from the source node S to all other nodes in the graph. Show the step-by-step process, including the initialization, updating of distances, and selection of nodes. Provide the final shortest paths and their respective distances.

- i. Explain the steps involved in multistage graph in dynamic programming and provide suitable example to illustrate each step. 4

P.T.O.

[2]

influenced by
values, beliefs, opinions
HLI CO₂ PO₂
getting by PPL

[4]

- ii. You are planning a backpacking trip and you have a limited capacity backpack that can carry a maximum weight of W kilograms. You want to carry some essential and indivisible items with you, each with its own weight and value. Your goal is to maximize the total value of the items you can carry in your backpack without exceeding its weight capacity.

Items:

Tent: Weight - 3 kg, Value - \$150

Sleeping Bag: Weight - 2 kg, Value - \$100

Cooking Stove: Weight - 1.5 kg, Value - \$80

Water Purifier: Weight - 1 kg, Value - \$50

Food Supplies (for the entire trip): Weight - 5 kg, Value - \$200

First Aid Kit: Weight - 0.5 kg, Value - \$30

Backpack Capacity: $W = 8$ kg

Using the 0/1 Knapsack problem solving technique, determine the optimal selection of items to carry in your backpack to maximize the total value. Provide a list of selected items and the total value that can be carried within the given weight capacity.

- R iii. Consider two sequences of characters: Sequence A with elements {A, B, C, D, E, F} and Sequence B with elements {B, D, F, G}. Determine the Longest Common Subsequence (LCS) of these sequences using dynamic programming. Provide the LCS and explain the steps you took to find it.

- 6
- i. Attempt any two:
- i. Provide a step-by-step explanation of the branch and bound algorithms, highlighting its key components and strategies. Illustrate your explanation with a suitable example, demonstrating how this algorithm design technique can be applied to solve a specific optimization problem.
- ii. Discuss the graph coloring problem in the context of real-world applications. Provide at least two examples of practical scenarios where graph coloring is used as a problem-solving technique. Describe how graph coloring algorithms can be employed to solve these real-world problems effectively.
- iii. Compare and contrast NP-Complete problems and NP-Hard problems. Provide examples of problems that belong to each of these classes and explain why they are categorized as NP-Complete or NP-Hard.

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I DK

P: Planning
O: Organising
S: Staffing
D: Directing

Total No. of Questions: 3

• 7 principles
given by L

C: Coordinating

• Explains desi

O: Operating

Enrollment No. EN21C

R: Reporting

Faculty of Engineering

B: Budgeting

Mid Sem - Examination September - 2023

EN3HS04 Fundamentals of Management, Economics & Acco

Programme: B. Tech

Branch/Specializat

Duration: 1.5 Hrs.

Maximum

Note: All questions are compulsory. Internal choices, if any, are indicated. A
MCQs) should be written in full instead of only a, b, c or d. Assume s
necessary. Notations and symbols have their usual meaning.'

	Marks	BL	CO
Q.1 i. _____ is known as "the father of scientific management."	1	BLI	COI
(a) Fredrick W. Taylor			
(b) Henry Fayol			
(c) Robert Owen			
(d) None of these			
ii. Management is _____ in order to create a surplus.	1	BLI	COI
(a) An art			
(b) A science			
(c) Both A & B			
(d) None of these			
iii. The three essential managerial skills includes _____.	1	BLI	COI
(a) Technical, Human, Organizational			
(b) Human, Leadership, Conceptual			
(c) Technical, Interpersonal, Motivating			
(d) Technical, Human, Conceptu			
iv. In the marketing process, the first step is to-	1	BLI	CO2
(a) Develop a research plan			
(b) Define research objectives			
(c) Both A & B			
(d) Implement a research plan			

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Total No. of Questions: 6

45+

Total No. of Printed Pages: 2

Enrollment No. EN21C3304041



Faculty of Engineering

End Sem Examination Dec-2023

EN3HS04 Fundamentals of Management, Economics & Accountancy

Programme: B.Tech.

Branch/Specialisation: All

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1
- i. Management deals with _____ .
(a) Internal environment (b) External environment
(c) Both (a) and (b) (d) None of these 1
 - ii. The most significant management skills are _____.
(a) Technical, Human and conceptual
(b) Technical, behavioural and Conceptual
(c) Systematic, Human and Conceptual
(d) Technical, Human and cognitive 1
 - iii. The promotion "P" of marketing is also known as _____.
(a) Product Differentiation (b) Distribution
(c) Cost (d) Marketing Communication 1
 - iv. The task of any business is to deliver _____ at a profit.
(a) Customer needs (b) Customer value
(c) Products and Services (d) Improved quality 1
 - v. Who is considered the founder of Microeconomics?
(a) Adam Smith (b) John Keynes
(c) Friedrich Hayek (d) Milton Friedman 1
 - vi. Goods produced to produce yet other goods is called-
(a) Final goods (b) Capital
(c) Investment (d) Resources 1
 - vii. Fixed assets are held by business for _____.
(a) Converting into cash (b) Generating revenue
(c) Resale (d) None of these 1

[2]

viii. Cost concept basically recognises _____.

- (a) Fair Market value (b) Historical cost
 (c) Realisable value (d) Replacement cost

ix. Long term finance is required for _____.

- (a) Current assets (b) Fixed assets
 (c) Intangible assets (d) None of these

x. _____ is a specific risk factor.

- (a) Market risk (b) Inflation risk
 (c) Interest rate risk (d) Financial risk

Q.2 i. (3) Define decision making process.

ii. What is the difference between management and administration?

OR iii. (6) Define management. Also explain the five major functions of management.

Q.3 i. (3) What is marketing?

ii. (6) Explain customer relationship management in detail.

OR iii. (6) What is the role of human resource manager in a business organization?

Q.4 i. (3) Write any three differences between micro and macroeconomics.

ii. (6) State and explain the law of variable proportion.

OR iii. (6) Describe in detail various types of market structure.

Q.5 i. (3) What is cost accounting?

ii. (6) Explain break even analysis with an example.

OR iii. (6) Explain the classification of cost in detail.

Q.6 i. (3) Define financial management.

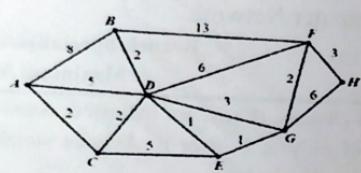
ii. (6) Explain profit maximization and wealth maximization in detail.

OR iii. (6) Explain investment decision and financing decision.

• It works as dialog controller. Allows communication in either half duplex or full duplex mode of communication.

- Q.2 i. What is Routing algorithm? Explain flooding.
 ii. Define Count to infinity problem with example.
 iii. Explain the dijkstra algorithm and find the shortest path from node A to H

2	BL2	CO2	PO2
3	BL3	CO3	PO3
7	BL5	CO5	PO5



authenⁿ | authzⁿ

- OR iv Explain the following terms
 a. Traffic shaping
 b. Link State routing.

7	BL7	CO7	PO7
---	-----	-----	-----

- Q.3 i. What is Authentication and Authorization?
 ii. Define the main function of session layer.
 iii. Draw and explain TCP header format in detail.

2	BL2	CO2	PO2
2	BL1	CO1	PO1
8	BL4	CO4	PO4
8	BL3	CO3	PO3

- OR iv Write short note on- (2 mark each)

- a. Process to process delivery
 b. User Datagram Protocol
 c. TCP flow control
 d. TCP Congestion Control

⑦ . 5th layer of osi model
 • establish, maintain, sync, terminate sessions

- Provides 2 users to simultaneously access same opnⁿ:
- Creates commⁿ channels called sessions b/w devices
- Looks for up & running servers on another network.
- Using IP packets to address & receive other network packets
- Token mgmt, authentication, authorization

P.T.

transmission
frames
data

node

Total No. of Pr

Enrollment No....EN2

Faculty of Engineering

End Sem Examination Dec-2022

Visits & marks all key nodes in a graph

v.	Which of the following algorithm is generally used CSP search algorithm?	1	BL1	CO2	PO1
a)	Breadth-first search algorithm				
b)	Depth-first search algorithm				
c)	Hill-climbing search algorithm				
d)	None of the mentioned				
vi.	Which of the following is not an application of artificial intelligence?	1	BL1	CO2	PO1
a)	Face recognition system	b) Chatbots			
c)	LIDAR	d) DBMS			
Q.2	i. Explain Artificial Intelligence.?	2	BL2	CO1	PO1
ii.	Explain BFS algorithm with an example?	3	BL3	CO1	PO1
iii.	Write difference between BFS & DFS?	7	BL2	CO1	PO1
OR	iv. What is the Production System? Explain Production System characteristics.?	7	BL2	CO1	PO1
Q.3	i. What is heuristic search explain with an example?	2	BL2	CO2	PO2
ii.	Explain Best first Search?	2	BL3	CO2	PO2
iii.	Explain A* and Hill Climbing algorithm with example?	8	BL3	CO2	PO3
OR	iv. What is meant by CSP (Constraint Satisfaction problem)? explain briefly by taking an example.	8	BL3	CO2	PO2

- Imp among attributes: any imp attr that exist among obj
- Non-imp attributes
- Imp. attributes: any imp attribute so that it occurs in almost every problem
- set of objects :
- finding its structure

Total No. of Questions: 6

Total No. of Printed Pages: 3

Enrollment No. EN21CS304041



Faculty of Engineering
End Sem Examination Dec-2023
CS3EA10 Artificial Intelligence

Decision tree: Inductive

* Specific examples → general rules

* Used to predict continuous dependent variables

Total No. of Questions: 3



Geer: Categorical

Enrollment No. Variables

Faculty of Engineering

Mid Sem- II Examination November -2023

CS3EA10 Artificial Intelligence

Programme: B.Tech

Branch/Specialization: CSE

Duration: 1.5 Hrs.

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- | | Marks | BL | CO | PO | PSO |
|---|-------|--------------------|----|----|-----|
| Q.1 i. Knowledge and reasoning also play a crucial role in dealing with _____ environments. | 1 | BL | CO | PO | |
| a) Completely Observable | | | | | |
| b) Partially Observable | | | | | |
| c) Neither Completely nor Partially Observable | | | | | |
| d) Only Completely and Partially Observable | | | | | |
| ii. A knowledge representation system should have the following properties. | 1 | BL | CO | PO | |
| i. Representation Adequacy | | | | | |
| ii. Inferential Adequacy | | | | | |
| iii. Inferential Efficiency | | | | | |
| a) i and ii only | | b) ii and iii only | | | |
| c) i and iii only | | d) i, ii and iii | | | |
| iii. Any instance in which two different objects are compared is a ... type of knowledge. | 1 | BL | CO | PO | |
| a) inheritable | | b) relational | | | |
| c) inferential | | d) procedural | | | |
| iv. A Hybrid Bayesian network contains | 1 | BL | CO | PO | |
| a) Both discrete and continuous variables | | | | | |
| b) Only Discrete variables | | | | | |
| c) Only Discontinuous variable | | | | | |
| d) Both Discrete and Discontinuous variable | | | | | |
| v. Which is true for Decision theory? | 1 | BL | CO | PO | |
| a) Decision Theory = Probability theory + utility theory | | | | | |

flowchart
internet
nodes by 'ter'
drawn upside down.

leaf node: indicates value of target att.

edge: split at 1 attribute

Path: assign et test to make final dec

Total No. of Questions: 6

Total No. of Printed Pages: 3

Enrollment No..... EN21CS3.04041



Faculty of Engineering
End Sem Examination Dec-2023

f/w-R- : starts with initial facts, slow, data ask many ques, uses all rules, driven by all data avail.

Bottom up

B/w-R- : general driven, top down, data is acquired on demand

- b) Decision Theory = Inference theory + utility theory
c) Decision Theory = Uncertainty + utility theory
d) Decision Theory = Probability theory + preference

vi. A process that is repeated, evaluated, and refined is called _____

- a) diagnostic b) descriptive
c) interpretive d) iterative

act : actions

1 BL CO PO
1 4 1

Q.2 i. Write various knowledge representation issues to provide the solution of any of two issues?

2 BL CO PO
2 2 3 3

ii. What is script? Construct a script for going to a bank to withdraw money.

3 BL CO PO
3 3 3 2

iii. Explain the resolution algorithm used for reasoning under predicate logic with an example?

4 BL CO PO
2 3 3

iv. Consider the following sentences:

1. John likes all kinds of food
2. Apples are food. Chicken is food
3. Anything anyone eats and isn't killed by is food
4. Bill eats peanuts and is still alive
5. Sue eats everything Bill eats.

Translate these sentences into formulas in predicate logic.

5 BL CO PO
2 3 3

OR v. What is conceptual dependency? give conceptual dependency representation for -

- a. John is doctor
b. While going home I saw a snake
c. John took the book from Mary

6 BL CO PO
2 4 2

Q.3 i. What is uncertain knowledge and reasoning?

7 BL CO PO
2 4 2

ii. Explain Bayes theorem with an example?

8 BL CO PO
2 4 2

iii. Differentiate monotonic and nonmonotonic reasoning?

9 BL CO PO
2 4 2

OR iv. Differentiate forward and backward reasoning ?

10 BL CO PO
2 4 2

adv: inexpensive to construct
fast at classifying unknown words
includes unimp. features

No. of Questions: 6

Total No. of Printed Pages: 3

Enrollment No..... EN21CS304041



Faculty of Engineering
End Sem Examination Dec-2023
CS3EA10 Artificial Intelligence

Programme: B.Tech.

Branch/Specialisation: CSE All

Duration: 3 Hrs.

Maximum Marks: 60

All questions are compulsory. Internal choices, if any, are indicated. Answers of MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- i. Which is true regarding BFS (Breadth First Search)? 1
(a) BFS will get trapped exploring a single path
(b) The entire tree so far been generated must be stored in BFS
(c) BFS is not guaranteed to find a solution, if exists
(d) BFS is nothing but Binary First Search
- ii. What is Artificial intelligence? 1
(a) Putting your intelligence into Computer
(b) Programming with your own intelligence
(c) Making a Machine intelligent
(d) Playing a Game
- iii. Best-First search can be implemented using the following data structure. 1
(a) Queue (b) Stack
(c) Priority Queue (d) Circular Queue
- iv. Heuristic function $h(n)$ is- 1
(a) Lowest path cost
(b) Cheapest path from root to goal node
(c) Estimated cost of cheapest path from root to goal node
(d) Average path cost
- v. Knowledge may be- 1
I. Declarative II. Procedural III. Non-procedural
(a) Only I above (b) Only II above
(c) Only III above (d) Both I and II above

[2]

vi. Translate the given statement into First-order logic.

"For every a, if a is a poet, then a is a writer"

- (a) $\exists a$ poet (a). writer (a). (b) $\forall a$ poet (a). writer (a).
(c) All of these (d) None of these

vii. Primitive in probabilistic reason are:

- (a) Nominal variable (b) Random variable
(c) Continuous variable (d) Discrete variable

viii. Bayes' theorem can be derived-

- (a) Calculate the value of $P(B|A)$ with the knowledge of $P(B)$
(b) The Marginal probability
(c) The conditional probability
(d) Using product rule and conditional probability of event A with known event B

ix. Which of the following is the general algorithm that can be applied on a game tree for deciding win or lose?

- (a) DFS/BFS Search Algorithms
(b) MIN/MAX Algorithms
(c) Greedy Search Algorithms
(d) Heuristic Search Algorithms

x. The initial value of alpha is?

- (a) Negative Infinity (b) 0
(c) Positive Infinity (d) 1

i. Discuss production systems. (2)

ii. Write down the steps of problem solving by searching. (2)

iii. Discuss the characteristics of AI problem. Can Towers of Hanoi problem be considered as AI problem? Justify your answer with suitable example.

iv. Illustrate the working of Breadth First Search. (4)

i. Define heuristic function. Give an example. (2)

ii. What is Greedy Best First Search? Explain with an example the different stages of Greedy Best First search.

iii. What is A* search? Explain various stages of A* search with an example. (6)

[3]

- | | | | |
|------|---|-----|---|
| i. | Difference between predicate and propositional logic. | (3) | 4 |
| ii. | Illustrate the use of first order logic to represent knowledge. | (5) | 6 |
| iii. | Explain in detail about forward & backward chaining algorithm with example. | | 6 |
-
- | | | | |
|------|---|-----|---|
| i. | State the Baye's rule equation. | (2) | 2 |
| ii. | Differentiate between following:
(a) Forward vs Backward Reasoning
(b) Monotonic and Non-Monotonic Reasoning | (2) | 2 |
| iii. | What is entropy? What is its significance in the decision tree learning? Explain decision tree learning algorithm. | | 6 |
| iv. | Define uncertain knowledge, prior probability and conditional probability. How it is useful for decision making under uncertainty about knowledge? Explain the method of performing exact inference in Bayesian networks briefly. | (9) | 6 |
- Attempt any two:
- | | | | |
|------|--|-----|---|
| i. | Explain with algorithm and example:
(a) Minimax algorithm
(b) Alpha-Beta Pruning | (5) | 5 |
| ii. | Explain how the problem of 8-puzzle can be solved with the help of heuristics. | | 5 |
| iii. | Define the term robotics. Write down the hardware component of robot and its path planning algorithms in certain and uncertain domain. | (3) | 5 |

- ? Portable : can run on linux, mac, windows
- HLL : human readable lang.
 - Easy to learn & use : short syntax & code
 - Dynamic : variable declared is not needed
- v. >>>"javatpoint"[5:] What will be the output
 BL2 CO2 PO2
- (a) javatpoint
 (b) java
 (c) point
 (d) None of these
- vi. Which of the following types of loops are not supported in Python?
 I BL2 CO2 PO2
- (a) for
 (b) while
 (c) do-while
 (d) None of the above

• OOP : Abstraction, encapsulation, inheritance

Q.2	i. What is Python?	2	BL1	CO1	PO1
	ii. What is the difference between a Mutable datatype and an Immutable data type?	2	BL1	CO1	PO1
	iii. What are the Key features of Python?.	3	BL1	CO1	PO1
OR	iv. What distinguishes lists from tuples?	5	BL1	CO1	PO2
	v. Explain Python operators.	5	BL1	CO1	PO2
Q.3	i. What is the difference between / and // in Python?	2	BL2	CO2	PO1
	ii. What is List Comprehension? Give an Example.	4	BL2	CO2	PO1
	iii. What is a String in Python? Write a program to reverse a string.	6	BL2	CO2	PO2
OR	iv. Explain the following: str(), globals(), ascii(), vars(), eval(), exec()	6	BL2	CO2	PO3

→ high level, general programming lang., used to develop web sites & S/W, task automation, data analysis, data visualization.

- easy to learn
- OOP
- features: encapsulation, poly m. inheritance

Q.3 i. What is the primary objective of Matrix Chain Multiplication Problem?

2 01 4 01 01
.02 .02
.03 .03
.04 .04

ii. What are the differences between Dynamic programming and divide and conquer?

3 01 4 01 01
.02 .02
.03 .03
.04 .04

iii. Find the optimal solution for the 0/1 knapsack problem making use of dynamic programming approach. Consider- $n = 4$ $w = 5 \text{ kg}$

7 02 4 01 01
.02 .02
.03 .03
.04 .04

$$(w_1, w_2, w_3, w_4) = (2, 3, 4, 5)$$

$$(P_1, P_2, P_3, P_4) = (3, 4, 5, 6)$$

OR iv. Given two sequences: X = "ABCBDAB" and Y = "BDCAB," calculate the length of the longest common subsequence (LCS) and provide one possible LCS sequence.

7 02 4 01 01
.02 .02
.03 .03
.04 .04

Huffman with example. a greedy tech.

Lossless data compression algo
variable length code is assigned
to 10 diff char.

2 types: fixed

every char. is
assigned a binary
code using same
no. of bits

variable

uses variable no. of
bits for encoding
characters.

ex: Q ii

[2]

vii. What would be the running time of the dynamic programming approach 1
to solve the Longest Common Subsequence (LCS) problem for two
strings of lengths m and n respectively?

- (a) $O(m \times n)$ (b) $O(2^{m+n})$
(c) $O(m+n)$ (d) $O(m \times n \times \min(m, n))$

viii. In dynamic programming, what is the key feature that distinguishes it 1
from other algorithmic techniques like divide and conquer or greedy
algorithms?

- (a) Randomization (b) Recursion (c) Memorization (d) Backtracking

ix. In the context of the N-Queens problem, what is the maximum number 1
of queens that can be placed on an $N \times N$ chessboard such that no two
queens threaten each other?

- (a) N (b) $2N-1$ (c) N^2 (d) $2^N - 1$

x. In computational complexity theory, a problem is NP-complete when: 1

- (a) It is a decision problem, meaning that for any input to the problem,
the output is either "yes" or "no".
(b) The correctness of each solution can be verified quickly (namely, in
polynomial time) and a brute-force search algorithm can find a
solution by trying all possible solutions.

- (c) Both (a) & (b)
(d) None of these

1

Q.2 i. What is the master theorem? How is it used to solve recurrence 2
relations?

ii. Explain the differences between Big O, Omega, and Theta notation in 3
the context of asymptotic analysis. Provide examples for each notation.

iii. Consider a modified version of the Insertion Sort algorithm called 5
"Reverse Insertion Sort." In this variation, instead of sorting the array in
ascending order, the algorithm sorts the array in descending order.
Explain the step-by-step process of Reverse Insertion Sort with the help
of a detailed example. Also, discuss the time complexity of this
modified algorithm and compare it with the standard Insertion Sort
algorithm.

R iv. Explain the bubble sort algorithm in detail, covering its working 5
principles, time complexity analysis, and an example demonstrating the
sorting process. Also, discuss its advantages and limitations in practical
applications.

3 i. Explain the concept of a "bucket" in the radix sort algorithm and how it 2
is used to sort elements.

c) There is no difference between today and tomorrow

• executive in nature. Manager is key person

v. Management skills applies to managers at

- (a) Middle levels in an organization
- (b) Top levels in an organization
- (c) Executive levels in an organization
- (d) All levels in an organization

vi. The term marketing refers to _____.

- (a) Advertising, Sales Promotion, Publicity and Public Relational activities
- (b) A new product needs ideas, Developments, concepts and improvements.
- (c) Sales Planning, Strategy and Implementation
- (d) A philosophy that stresses customer value and satisfaction

Q.2 i. Write difference between management and administration (any two)

ii. What does POSDCORB stand for?

iii. How to deal with decision making under condition of uncertainty?

OR iv. What are the three managerial roles suggested by Mintzberg?

Q.3 i. Define the term Marketing Mix?

ii. How does COCA COLA use holistic marketing concept.

iii. What are the functions of Marketing?

OR iv. What are the three biggest challenges to customer relationship management?

• influenced by values, beliefs, opinion

1 BL1 CO2 PO2

Mgmt : getting things done by ppl
• doing func's

1 BL1 CO2 PO2

admin: concerned with formulation of plans & policies

• thinking func's
• top-level
• influenced by

2 BL2 CO1 PO

2 PO

3 BL2 CO1 PO

2,PO

7 BL2 CO1 PO

3

7 BL2 CO1 PO

2,PO

7 BL2 CO1 PO

3

7 BL2 CO1 PO

2 BL2 CO2 PO

4 BL3 CO2 PO

6 BL2 CO2 PO

Total No. of Questions: 3



Enrollment No.....ENR18304039

Faculty of Engineering

Mid Sem-II Examination November-2023

EN3HS04 Fundamentals of Management Economics and Accounting

Programme: B. Tech

Branch/Specialization: CSE

Duration: 1.5 Hrs.

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

	Marks	BI	CO	PO	PSO
Q.1 i. Which of the following is the relation that the law of demand defines?	1	BI01	CO3	PO4,5	
a) Income and price of a commodity b) Price and quantity of a commodity c) Income and quantity demanded <u>d) Quantity demanded and quantity supplied</u>					
ii. What do you mean by a mixed economy?	1	BI01	CO3	PO4,5	
a) Modern and traditional industries <u>b) Public and private sectors</u> c) Foreign and domestic investments d) Commercial and subsistence farming					
iii. Which of the following is included in the National Income of a country?	1	BI01	CO3	PO4,5	
a) Rent b) Interest c) Wages <u>d) Rent, Interest, Wages, Salary, Profits</u>					
iv. Basic objectives of cost accounting is _____	1	BI01	CO4	PO4,5	
a) tax compliance b) financial audit. <u>c) cost ascertainment, d) profit analysis.</u>					
v. The branch of economics that deals with the allocation of resources is _____	1	BI01	CO4	PO4,5	
a) Econometrics <u>b) Macroeconomics.</u> c) Microeconomics d) None of these					

vi.	Time value of money indicates that	1	BL01	CO4	PO4.5
	a) A unit of money obtained today is worth more than a unit of money obtained in future				
	b) A unit of money obtained today is worth less than a unit of money obtained in future				
	c) There is no difference in the value of money obtained today and tomorrow				
	d) None of the above				
Q.2	i. What are the phases of business cycle?	2	BL01	CO3	PO4.5
	ii. Difference between micro and macroeconomics.	3	BL02	CO3	PO4.5
	Large	Small			
	iii. Explain price elasticity of demand.	7	BL03	CO3	PO4.5
OR	iv. Explain the law of Diminishing Marginal utility.	7	BL03	CO3	PO4.5
Q.3	i. Write short note on National income with suitable example.	4	BL01	CO3	PO4.5
	ii. Explain cost accounting and Types of cost.	8	BL01	CO3	PO4.5
OR	iii. Explain methods and techniques of cost accounting.	8	BL01	CO3	PO4.5

- Impact of globalisation on HRM:
 - Managing cultural diversity
 - Diff. in employment laws
 - Manage virtual employees
 - cope with flexible working hours
 - cope with technology

Total No. of Questions: 3



Enrollment No. ENR1C8304039

Faculty of Engineering

Mid Sem-II Examination November-2023

CS3CO41 Computer Network

Programme: B.Tech

Branch/Specialization: CSE

Duration: 1.5Hrs.

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

	Marks	BL	CO	PO	PSO
Q.1 i. A subset of a network that includes all the routers but contains no loops is called (a) Spanning Tree (b) Spider Structure (c) Spider Tree (d) None of the above	1	BL1	CO3	PO1	
ii. In the slow-start algorithm, the size of the congestion window increases _____ until it reaches a threshold. (a) exponentially (b) additively (c) multiplicatively (d) suddenly	1	BL2	CO3	PO3	
iii Congestion in a network or internetwork occurs because routers and switches are (a) Tables (b) Queue (c) Cross Point (d) None	1	BL2	CO3	PO2	
iv To use the services of UDP, we need socket addresses. (a) 4 (b) 2 (c) 3 (d) 1	1	BL3	CO4	PO1	
v Transport services available to applications in one or another form includes _____ (a) Reliable data transfer (b) Timing (c) Security (d) All of the mentioned	1	BL2	CO4	PO1	
vi A SYN segment in Three way Handshaking consumes (a) Sequence number (b) Data (c) Bytes (d) none of the above	1	BL2	CO4	PO4	

DHCP: Dynamic Host Configuration protocol

Network mgmt protocol used to dynamically assign an IP add. to any device or node so it can communicate using IP.



Faculty of Engineering
Mid Sem-I Examination September-2023
CS3CO41 Computer Network

Programme: B.Tech

Branch/Specialization: CSE

Duration: 1.5Hrs.

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

③ DHCP Relay: works as Commⁿ channel
1 BL2 COI POI
b/w client & server.

④ IP add. Pool: has
1 BL2 CO2 PO3
addresses that can
be allocated to
devices

⑤ Sub-recs: Small portion
of IP network

1 BL2 CO₂ PO₂
Partitioned to keep
net. under cur.

Components of DHCPL:

(1) Scarer: Needs IP

② Client receives config info from Server.

Reassembly: Reverse of Segmentation
Protocol data units are put back together in correct order to

- Q.2 i. What is MAC address? reassemble a 2 STB BL2 CO1 PO1 data
 ii. Explain the channel allocation technique 3 BL1,2 CO1 PO2
 and its types. 7 in original form
 iii. Draw and explain the Ethernet frame format 7 BL1,2 CO1 PO2
 in detail.
- OR iv. Explain the CSMA/CD protocol with its 7 BL4 CO1 PO3
 working and flowchart.

- Q.3 i. Explain Fragmentation and reassembly. 2 BL2 CO2 PO2
 ii. What is DHCP? 2 BL1 CO2 PO3 original
 iii. Given IP address is 200.1.2.0 we want to 8 BL5 CO2 PO3 data
 divide it into 2 subnet stream from
 Find the: IP address of both subnets, total no receiver segment
 of IP address, no of host, range of IP address, ① destination.
 DBA, LBA
- OR iv. What is IP protocol? draw and explain the 8 BL2 CO2 PO3 Server
 following fields Router
 1. Fragment Offset ^{new} ^{DSCP} ^{Delay} other packets
 2. TTL ^{IP}
 3. Total length ^{IP}
 4. HLEN ^{IP}
-

fragmentⁿ: Done by network layer when max size of datagram is greater than max size of data that can be held in frame. I.e. process of dividing large data packet in small pieces I.e. fragments

Reassembly:

To improve efficiency of data transmission

- helps to reduce impact of large data packets on network performance.
- increases efficiency
- better bandwidth utilization

Total No. of Questions: 3



Enrollment No.....

Faculty of Engineering

Mid Sem I Examination September - 2023

CS3EA10 Artificial Intelligence

Programme: B.Tech.

Branch/Specialisation: All

Duration: 1.5 Hrs.

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

		Marks	BL	CO	PO	PSO
Q.1	i. Who is the inventor of Artificial Intelligence?	1	BL1	CO1	PO1	
	a) Geoffrey Hinton b) Andrew Ng c) John McCarthy d) Jürgen Schmidhuber					
ii.	What is the goal of Artificial Intelligence?	1	BL1	CO1	PO1	
	a) To solve artificial problems b) To extract scientific causes c) To explain various sorts of intelligence d) To solve real-world problems					
iii.	Which of the following is the branch of Artificial Intelligence?	1	BL1	CO1	PO1	
	a) Machine Learning b) Cyber forensics c) Full-Stack Developer d) Network Design					
iv.	Which of the Following problems can be modeled as CSP?	1	BL1	CO2	PO1	
	a) 8-Puzzle problem b) 8-Queen problem c) Map coloring problem d) All of the mentioned					