Prelim Paper BE sem I

(9)

[Total No. of Questions: 04] Seat no

[Total no. of pages:02]

AISSMS

INSTITUTE OF INFORMATION TECHNOLOGY

ADDING VALUE TO ENGINEERING

B.E. (Computer Engineering) –Prelim Examination – November 2022

410241 – Design & Analysis of Algorithms (DAA)

(2019 Pattern) (Semester – VII)

[Time: 2 Hour 30 Minutes] [Max. Marks: 70]

Instructions to the candidates:

1) Answer Q.1 or Q.2 , Q.3 or Q.4 , Q.5 or Q.6 , Q.7 or Q.8 ,
2) Neat diagrams must be draw wherever necessary.
3) Figures in brackets indicate marks.
4) Use of non-programmable calculator is allowed.
5) Assume suitable data, if necessary.

Q.1a) What are the characterstics of the Greedy method ? [8 M]

b) Consider the following instances of the knapsack problem : n=3 ,

m=20, (P1, P2, P3) = (24,25,15) and (W1, W2, W3) = (18,15,20) find the feasible solutions. [10M]

OR

Q.2.a) What is Dynamic Programming ? Is this the optimization technique ? Give reasons. What are its drawbacks ? Explain memory Functions. [17M]

Q.3.a) Give the difference between backtracking and branch and bound method. [3M]

b) Explain in detail control abstraction for LC search . [8M]

c) Explain the steps to solve travelling salesperson person using branch and bound [6M]

OR

Q.4.a) What are the consraints that must be satisfied while solving any problem using backtracking [6M]

b) Generate atleast three solutions for 5-queen's problem [8M]

c) Explain graph coloring [4M]

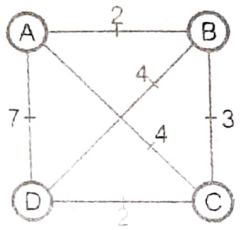
Q.5.a) Explain the aggregate analysis for binary counter method . [8M]

b) Write short note on Randomized algortihm [6M]

c) What is amortized analysis ? Enlist the types of it. [4M]

OR

Q.6.a) Using nearest neighbor algorithm, obtain the optimized solution for given travelling salesman problem [10M]



b) What is embedded system ? Explain embedded sorting algorithm [7M]

Q.7.a) Explain multithreading algorithms. How to analyze multithreader algorithm ? What is race condition and parallel loops ? [9M]

b) Explain any one string matching algorithm algorithm of your choice with suitable example. [8M]

OR

Q.8.a) What is distributed algorithm ? Explain distributed minimum spanning tree [9M]

b) Explain Rabin-Karp Algorithm. Explain the worst case and best case running time of Rabin Karp algorithm [9M]

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INSTITUTE OF INFORMATION TECHNOLOGY

ADDING VALUE TO ENGINEERING

B.E. (Computer Engineering) –Prelim Examination – November 2022

410241 – Machine Learning

(2019 Pattern) (Semester – VII)

[Time: 2 Hour 30 Minutes] [Max. Marks: 70]

Instructions to the candidates:

1) Answer Q.1 or Q. 2 , Q.3 or Q.4 , Q.5 or Q.6 , Q.7 or Q.8.
2) Neat diagrams must be draw wherever necessary.
3) Figures in brackets indicate marks.
4) Use of non-programmable calculator is allowed.
5) Assume suitable data, if necessary.

Q.1 a) List the different type of Regression algorithms. State the suitability of respective algorithm with its applications. [8M]

b) The following table lists the midterm and end term scores for students in a ML course. Use the method of least square using regression to predict the final grade of students who received 86 in the mid-term exam.

Mid-term (X)	72	50	81	74	94	86	59	83	86	33	88	81
End term (Y)	84	53	77	78	90	75	49	79	77	52	74	90

[10M]

OR

Q.2.a) Given the following data for the sales of car of an automobile company for six consecutive years. Predict the sales for next two consecutive years. [10M]

Years	2016	2017	2018	2019	2020	2021
Sales	110	100	250	275	230	300

b) What is overfitting and underfitting in machine learning model ? Explain with example [8M]

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Q.3.a) Describe various basic evaluation measures of supervised learning Algorithm for Classification [10M]

b) What is binary classification and Multiclass classification? Explain difference between binary classification and multiclass classification [7M]

OR

Q.4 a) Define Support Vector Machine. Explain how margin is computed and optimalhyper-plane is decided. [10M]

b) What do you mean model evaluation and selection? Explain with an example. [7M]

Q.5. a) Let's assume that we have 4 types of items and each item has 2 attributes or features. We need to group these items in to k = 2 groups of items based on the two features. Use two different distance formulas in K- means clustering. Evaluateg the performance based on mathematical formula used. [18M]

Object	Attribute 1(x) Number of parts	Attribute 2(y) Colour code
Item 1	1	1
Item 2	2	1
Item 3	4	3
Item 4	5	4

OR

Q.6.a) Suppose we have eight data points and each data point has 2 features. Cluster the data points into 3 clusters using k-means algorithm. . Use two different distance formulas in K- means clustering. Evaluate the performance based on mathematical formula used. [18M]

Data points	Attribute 1(x)	Attribute 2(y)
1	2	10
2	2	5
3	8	4
4	5	8
5	7	5
6	6	4
7	1	2
8	4	9

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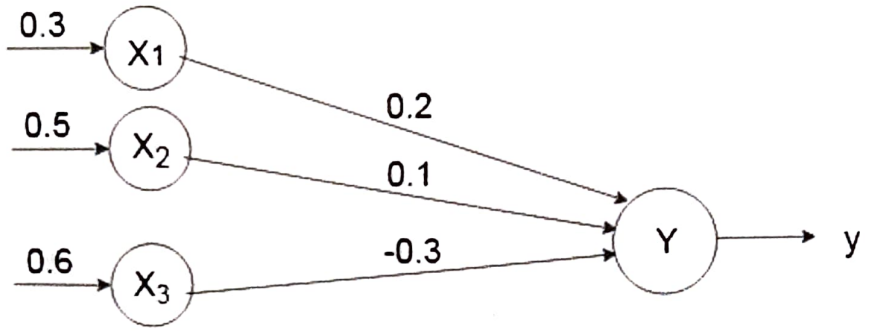
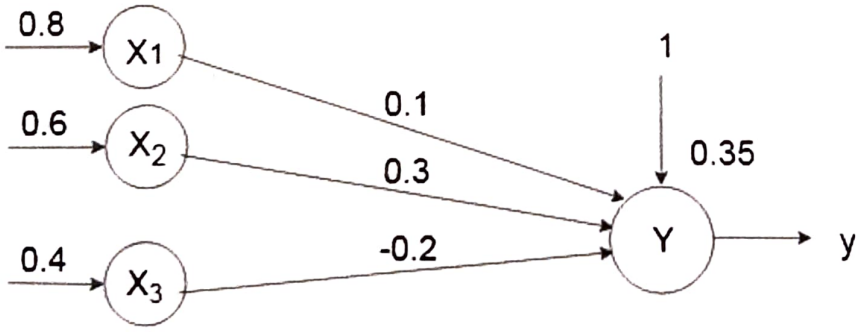
Q.7.a) Write a program for solving linearly separable problem using perception model and analyze the performance with respect to dataset size. [8M]

b) For the network shown in figure, calculate the net input to the neuron? [9M]



OR

Q.8.a) Obtain the output of the neuron Y for the network shown in the figure using activation functions as (i) Binary Sigmoidal and (ii) Bipolar Sigmoidal. [9M]



b) List four different activation function used in neurons. Justify the impact of each mathematical function during evaluation of neural network. [8M]

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BE/PRELIM/NOV –22

B.E. (Computer Engineering)

Block Chain Technology (2019 Pattern) (Semester - I) (410243)

Time :2 1/2 Hour] [Max. Marks: 70]

Instructions to the candidates:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data wherever necessary.
4. Draw Neat diagrams wherever necessary.

Q.1 List and define types of blockchain platforms [9]

Q.2 Compare different proof of work techniques [8]

Q.3 Compare with an example Metamask, Coinbase, Binance crptowallets [9]

Q.4 List different types of ethereum networks [6]

Q.5 Define smart Contract. List various advantages of smart contract [5]

Q.6 Develop a smart contact for bank transaction with following options [5]

1. Deposit 2. Withdraw 3. Balance

Q.7 Write a short note on [8]

1. Swarm 2. Whisper (Decentralized Messaging Platform)

Q.8 Illustrate Blockchain application in the following area (ANY 5) [20]

1. Retail industry 2. Banking and Financial Services
3. Government Sector 4. Healthcare
5. IOT 6. Energy and Utilities

****** All The Best ******

09

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SEAT No [ ]

[Total no. of Pages :2]

SEPT-2022/UNIT TEST

B.E. (Computer Engineering)

ELECTIVE-III

OBJECT ORIENTED MODELING AND DESIGN

(2019 Pattern) (Semester - I) (410244(D) **Date:07.11.2022**

Time : 2.5 Hour ***Max. Marks: 70***

Instructions to the candidates:

1. ***Q1 ,Q2,Q3,Q4 are Compulsory.***
2. ***Figures to the right indicate full marks.***
3. ***Assume suitable data wherever necessary.***
4. ***Draw Neat diagrams wherever necessary.***

Q1.	a) Give the activity diagram for computation of percentage of marks and report card generation in an assessment system. State you assumptions.	**[8]** Apply
	b) Draw a state diagram for a fax machine and show entry, exit and do behavior. Initially, the machine is in the idle state. It displays the date and time in this state. When the user dials a fax number, the machine remains in the idle state till the number dialing is complete. After the number is completely dialed, it goes into the faxing state. Being in this state, it prints the fax on the page, it pulls the page out, it paginates, puts a date, time and owner stamp at the end of the fax message which it prints. After the fax printing is complete, it goes back to idle state.	**[7]** Evaluate
	c) Give the usecase diagram for sports event management system with descriptions of usecase and actors identified	**[10]** Apply
Q2.	a) Write Steps for constructing an application interaction model for ATM System System	**[4]** Create
	b)Write a note on Making a Reuse Plan from the context of system design.	**[4]** Understand
Q3.	a) Prepare pseudocode for the following operations to classes in Figure E12.4. You will need to add a many-to-many association Registered For between a set of Events and an ordered list of Competitors to track who is	**[10]** Analyse

registered for which Events. Use the registration order in scheduling trials.

a. (3) Find the event for a figure and meet.
b. (3) Register a competitor for an event.
c. (3) Register a competitor for all events at a meet.
d. (5) Select and schedule events for a meet.
e. (3) Schedule meets in a season.
f. (4) Assign judges and scorekeepers to stations.

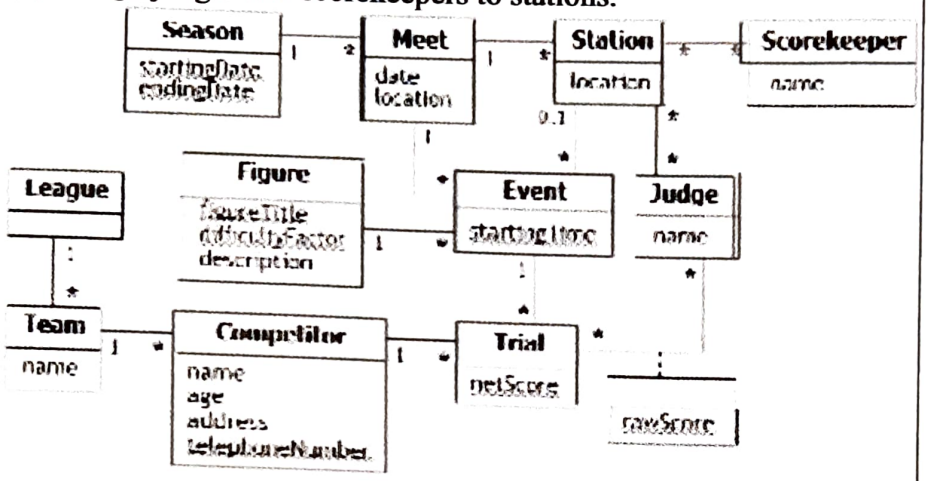

Figure E12.4 Partially completed class diagram for a scoring system

b)With the help of Example explain fine tuning of Generalization. **[4]** Understand

c)Implement each association in Figure E12.3. Use one-way pointers wherever possible. Should any of the association ends be ordered? Explain your answers. **[10]** Apply

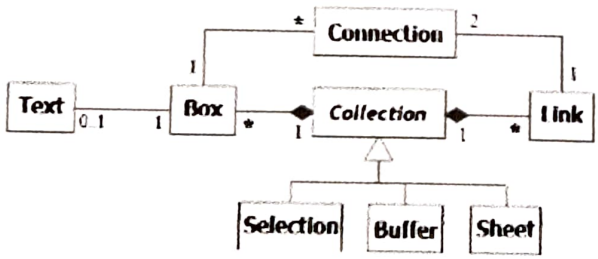

Figure E12.3 Alternative partially completed class diagram for a diagram editor

Q4. a) Discuss Forwarder – Receiver design pattern structure with the help of suitable diagram. **[6]** Understand

b) Enlist components of Publisher-Subscriber design Pattern with suitable diagram **[7]** Remember

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Rollno: 09

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ADDING VALUE TO ENGINEERING

B.E. (Computer Engineering) –Prelim Examination – November 2022

410245 D : SOFTWARE TESTING AND QUALITY ASSURANCE

(2019 Pattern) **(Semester – VII)**

[Time: 2 Hour 30 Minutes] [Max. Marks: 70]

Instructions to the candidates:

1) Answer Q.1 or Q.2 , Q.3 or Q.4 , Q.5 or Q.6 , Q.7 or Q.8 ,
2) Neat diagrams must be draw wherever necessary.
3) Figures in brackets indicate marks.
4) Use of non-programmable calculator is allowed.
5) Assume suitable data, if necessary.

Q.1a) What is non-functional testing ? Explain any one non-functional testing [8M]

b) Explain difference between functional and non-functional testing [5M]

c) Explain the following : Informal reviews, walkthroughs [5M]

OR

Q.2.a) Explain difference between Black-box Testing , Grey Box Testing & White Box Testing [9M]

b) How to test the cookies in the websites ? List down all the steps [9M]

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Q.3.a) What is Software Quality Model ? Explain Boehm model [9M]

b) Explain relationship between quality and productivity. What is difference between invention and innovation ? [8M]

OR

Q.4.a Explain the important aspects of Quality Management in brief [9M]

b) What is CMM ? Explain CMM levels [8M]

Q5.a) What is Automation Testing ? What tests should be automated ? What are benefits of automation testing [10M]

b) What is selenium ? Explain various selenium tools suits [8M]

OR

Q.6.a)Describe selenium web driver architecture with the help of neat diagram [10M]

b) What are the benefits of automation testing ? List them all . [8M]

Q.7.a) What does SQA ensure ? What are the goals of SQA ? [5M]

b) What is ISO standard ? What are its advantages ? [4M]

c) Enumerate Ishikawa's seven basic quality tools . Explain any two in detail. [8M]

OR

Q.8.a) Explain with example product qualtiy metric [6M]

b) Explain the terms DMAIC & DMADV [6M]

c) Explain in detail defect removal effectiveness [5M]

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