

KADI SARVA VISHWAVIDYALAYA

BE. Semester VII

Blockchain Technology - CT703D-N

Date: 19/11/2024

Time: 12:30 to 3:30

TOTAL MARKS: 70

Instructions:

- 1 Answer each section in separate answer sheet.
- 2 Use of scientific calculator is permitted.
- 3 All questions are **Compulsory**.
- 4 Indicate **clearly**, the options you attempt along with its respective question number.
- 5 Use the last page of main supplementary for **rough work**.

SECTION – I

Q-1 Answer the following questions.

- A What is Blockchain? Explain Genesis Block in Blockchain network. 5
B Explain core components of blockchain architecture. 5
C Explain which one is better from the decentralized and distributed system. 5

OR

- C What is orphan block in Blockchain network? 5

Q-2 Answer the following questions.

- A What is consensus mechanism in blockchain network? List out consensus mechanism algorithm. 5
B Explain POW, POS and Proof of Burn. 5

OR

- A What is Bitcoin and How does it work? 5
B What is the difference between distributed Ledger and Blockchain. 5

Q-3 Answer the following questions.

- A Explain use of digital signature and public key cryptography in blockchain system. 5
B Explain cryptographic hash function. 5

OR

- A Explain Sybil attack and DDOS attack. 5
B Write short note on permissioned and permissionless blockchain. 5

SECTION – II

Q-4 Answer the following questions.

- A Explain the concept of smart contracts and give one real-world use case 5**
 - B What is the Byzantine Generals Problem and why is it significant in blockchain? 5**
 - C Explain how blockchain can be used in crowdfunding and its potential benefits. 5**
- OR**
- C Compare the PAXOS and RAFT consensus algorithms in detail. 5**

Q-5 Answer the following questions.

- A What role does blockchain play in supply chain management? 5**
 - B What is a Merkle Tree and how does it enhance data integrity within a blockchain? 5**
- OR**
- A Discuss the advantages of using blockchain technology in international trade finance. 5**
 - B What is Bitcoin Script (FORTH) and how does it enable Bitcoin transactions? 5**

Q-6 Answer the following questions.

- A Explain the concept of a smart contract and its significance in Ethereum. 5**
 - B What is Solidity and why is it used for developing Ethereum smart contracts? 5**
- OR**
- A What is "gas" in Ethereum and why is it important? 5**
 - B Describe the role of the Ethereum Virtual Machine (EVM) in executing smart contracts. 5**

Seat. No. _____

KADI SARVA VISHWAVIDYALAYA

BE SEMESTER-VII (CE/IT/CSE) Examination

Nov.- 2024

Subject Name: Natural Language Processing

Subject Code: CT703C-N

Date: 19/11/2024

Time: 12:30 to 3:30

Total Marks: 70

Instructions:

1. Answer each section in separate answer sheet.
2. Use of scientific calculator is permitted.
3. All questions are Compulsory.
4. Indicate clearly, the option you attempt along with its respective question number.
5. Use the last page of main supplementary of rough work.

Section-I

Q-1 (A) Compare Stemming and lemmatization. [5]

(B) Explain Unigram and Bigram language Models. [5]

(C) Define Sentence Embedding. Explain Doc2Vec in briefly. [5]

OR

(C) Write a note on Word Embedding. [5]

Q-2 (A) Compare text classification vs. Text clustering. [5]

(B) Explain Word2Vec Architecture. [5]

OR

Q-2 (A) Explain the Bag-of-Words (BoW) with an example. [5]

(B) Explain Naïve Bayes Classifier in context of Text classification. [5]

Q-3 (A) Write any five NLP applications. [5]

(B) Discuss any two smoothing techniques for the language model. [5]

OR

Q-3 (A) Explain Latent Semantic Analysis with an example. [5]

(B) Define Context-Free Grammar. Explain the role of CFG in the NLP. [5]

Section-II

- Q-4** (A) Explain Hidden Markov Model. [5]
(B) Write a note on Text Summarization. [5]
(C) Write a note on Dialog system. [5]

OR

- (C) Define Information Extraction. What are the two basic tasks of Information Extraction? [5]

- Q-5** (A) Explain POS tagging with example. [5]
(B) Explain named entity and discuss different types of it. [5]

OR

- Q-5** (A) What does "parsing" mean in the world of NLP? Explain it in detail. [5]
(B) Write a note on Word sense disambiguation. [5]

- Q-6** (A) Explain Machine Translation with an example. [5]
(B) What is Recurrent Neural network? Compare LSTM vs. Feed-forward neural network. [5]

OR

- Q-6** (A) Explain Word morphology in detail. [5]
(B) Find the minimum edit distance in transforming the word INTERMILAN to ACMILAN. Consider the costs of insertion/deletion operation 1 and substitution operation 2. [5]

KADI SARVA VISHWAVIDYALAYA
BE. Semester VII
Blockchain Technology - CT703D-N

Date: 19/11/2024

Time: 12:30 to 3:30

TOTAL MARKS: 70

Instructions:

- 1 Answer each section in separate answer sheet.
- 2 Use of scientific calculator is permitted.
- 3 All questions are **Compulsory**.
- 4 Indicate **clearly**, the options you attempt along with its respective question number.
- 5 Use the last page of main supplementary for **rough work**.

SECTION – I

Q-1 Answer the following questions.

- A What is Blockchain? Explain Genesis Block in Blockchain network. 5
B Explain core components of blockchain architecture. 5
C Explain which one is better from the decentralized and distributed system. 5

OR

- C What is orphan block in Blockchain network? 5

Q-2 Answer the following questions.

- A What is consensus mechanism in blockchain network? List out consensus mechanism algorithm. 5
B Explain POW, POS and Proof of Burn. 5

OR

- A What is Bitcoin and How does it work? 5
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Q-3 Answer the following questions.

- A Explain use of digital signature and public key cryptography in blockchain system. 5
B Explain cryptographic hash function. 5

OR

- A Explain Sybil attack and DDOS attack. 5
B Write short note on permissioned and permissionless blockchain. 5

SECTION – II

Q-4 Answer the following questions.

- A Explain the concept of smart contracts and give one real-world use case 5**
 - B What is the Byzantine Generals Problem and why is it significant in blockchain? 5**
 - C Explain how blockchain can be used in crowdfunding and its potential benefits. 5**
- OR**
- C Compare the PAXOS and RAFT consensus algorithms in detail. 5**

Q-5 Answer the following questions.

- A What role does blockchain play in supply chain management? 5**
 - B What is a Merkle Tree and how does it enhance data integrity within a blockchain? 5**
- OR**
- A Discuss the advantages of using blockchain technology in international trade finance. 5**
 - B What is Bitcoin Script (FORTH) and how does it enable Bitcoin transactions? 5**

Q-6 Answer the following questions.

- A Explain the concept of a smart contract and its significance in Ethereum. 5**
 - B What is Solidity and why is it used for developing Ethereum smart contracts? 5**
- OR**
- A What is "gas" in Ethereum and why is it important? 5**
 - B Describe the role of the Ethereum Virtual Machine (EVM) in executing smart contracts. 5**

Exam Number: _____

KADI SARVA VISHWAVIDYALAYA
B.E. Semester VII (REG/ ATKT) EXAMINATION October 2024

Subject Name : Blockchain Technology

Subject Code: CT703D-N

Date: 21/10/2024(Monday) Time: 12.30 pm to 03.30 pm

Total marks: 70

Instructions:

1. Answer each section in separate Answer sheet.
2. All questions are compulsory.
3. Indicate clearly, the options you attempt along with its respective question number.
4. Use the last page of main supplementary for rough work.

Section-I

Q.1(A) What are the different types of Blockchain? (5)

Q.1(B) Explain the concept of centralization, decentralization and distributed. (5)

Q.1(C) What are the Merkle trees? What is its importance in Blockchain? (5)

OR

Q.1(C) What are the Characteristics of cryptographic hash function. (5)

Q.2 (A) What is bitcoin? How did it evolve? (5)

Q.2(B) Explain the double spending attack. (5)

OR

Q.2 (A) What are the features of bitcoin script. (5)

Q.2(B) Explain Avalanche tree. (5)

Q.3 (A) What is an orphan block? How is it created? (5)

Q.3 (B) What is a ledger? Explain the concept of distributed ledger with its benefits. (5)

OR

Q.3 (A) Explain the concept of centralized ledger with its limitations. (5)

Q.3 (B) Explain Block Propagation. (5)

Section-II

Q.4 (A) Explain consensus Mechanism in Blockchain. (5)

Q.4 (B) Explain Proof of work (POW) Mechanism. (5)

Q.4 (C) What is Mining? How Does it work? (5)

OR

Q.4 (C) Explain the concept of Mining pool. (5)

Q.5 (A) Explain Smart Contracts with respect to Blockchain Technology. (5)

Q.5 (B) Explain RAFT Algorithm with respect to permissioned Blockchain Technology. (5)

OR

Q.5 (A) Explain Byzantine General Problem. (5)

Q.5 (B) How does Blockchain support Crowdfunding? (5)

Q.6 (A) What is the Difference Between Bitcoin and Ethereum Blockchain? (5)

Q.6 (B) With respect to Ethereum Network, explain (a) Ethereum Virtual Machine (EVM),
(b) Ether and Gas. (5)

OR

Q.6 (A) What is Metamask? What Is the Programming Language Used to Write Smart Contracts
and Dapps? (5)

Q.6 (B) List at least 5 research domains/directions going on in the field of Blockchain. (5)

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (October-2023)

SUBJECT CODE: CT703A-N SUBJECT NAME: HIGH PERFORMANCE COMPUTING
 DATE: 30/10/2023 TIME: 12.00 P.M. to 03:00 P.M. TOTAL MARKS: 70

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

SECTION – 1

- Q-1** A) Explain scalable parallel computer architecture. [5]
 B) Explain in detail various steps for establishing a cluster environment. [5]
 C) Explain Ethernet, Fast Ethernet and Gigabit Ethernet for cluster interconnects technology. [5]

OR

- C) Explain in detail Homogeneous and Heterogeneous cluster. [5]

- Q-2** A) Explain Cluster Classification in detail. [5]
 B) Explain Second Generation Core Technologies in Grid. [5]

OR

- Q-2** A) Explain Single System Image (SSI) support services. [5]
 B) Explain Resource Broker in detail. [5]

- Q-3** A) Explain Platform as a service model of cloud computing in detail. [5]
 B) Explain role of Application middleware in Grid computing. [5]

OR

- Q-3** A) Explain Infrastructure as a service model of cloud computing in detail. [5]
 B) Explain Service-Oriented Architectures in detail. [5]

SECTION – 2

- Q-4** A) How Web Applications Scale? Explain in detail. [5]
B) Explain Public, Private and Hybrid Cloud [5]
C) Explain Resource Management and Scheduling (RMS) [5]

OR

- C) Explain the different characteristics of cloud computing [5]

- Q-5** A) Explain the Cost of Cloud Data Centre. [5]
B) Explain Hadoop Architecture in detail. [5]

OR

- Q-5** A) What is Hadoop? Explain its characteristics. [5]
B) Explain Fog Computing in detail. [5]

- Q-6** A) Explain Edge Computing in detail. [5]
B) Explain the working of Map Reduce. [5]

OR

- Q-6** A) Explain Data Management in Fog Computing. [5]
B) Explain Cloud Service models in detail. [5]

*******BEST OF LUCK*******

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (October-2023)

SUBJECT CODE: CT703C-N
 DATE: 30/10/2023

SUBJECT NAME: Natural Language Processing
 TIME: 12.00 PM to 03:00 PM
 TOTAL MARKS: 70

Instructions:

1. Answer each section in a separate Answer Sheet.
2. Use of a scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with their respective question number.
5. Use the last page of the main supplementary for rough work.

SECTION – 1

Q-1 Answer the following questions. (All Compulsory)

Q-1 a) Compare stemming vs. lemmatization with an example. 5

Q-1 b) Explain the Unigram and Bigram Language Models 5

Q-1 c) Find the minimum edit distance in transforming the word Mumbai to Surat. 5
 Consider the cost of insertion or deletion operation is 1 and the substitution operation is 2.

OR

Q-1 c) Model the SMS classification problem using a Naïve Bayes classifier. Create 5
 sample training and test data. Consider binary classification problem.

Q-2 Answer the following questions.

Q-2 a) Calculate the TF/IDF matrix for the words : "data, science, analyze, important, one" from the following sentences. 5
 D1: data science is one of the most important fields of science'

D2: 'this is one of the best data science courses',

D3 : 'data scientists analyze data'

Q-2 b) Explain Word2Vec Architecture 5

OR

Q-2 a) What is perplexity? Explain it with an example. What is the interpretation of higher perplexity in the context of the language model? 5

Q-2 b) State the limitations of the Word2Vec technique. How does the fastText technique overcome this limitation? 5

Q-3 Answer the following questions.

- Q-3** a) Discuss the following text weighting scheme (i) TF/IDF (2) count vector **5**
Q-3 b) Compare Text Clustering vs. Text classification. **5**

OR

- Q-3** a) Explain the zero probability problems in the language model. How does the smoothing technique help to overcome this problem? **5**
Q-3 b) What is the objective of the latent semantic analysis technique? How LSA achieves dimensionality reduction **5**

SECTION – 2

- Q-4** Answer the following questions. (All Compulsory)
- Q-4** a) What does “parsing” mean in the world of NLP? Explain it in detail **5**
- Q-4** b) Define PoS and PoS tagging. Do we need labelled data to design PoS tagger? **5**
List down the technique to design the PoS tagger
- Q-4** c) Why the Feed-forward Neural Networks are not appropriate for some of the NLP task like machine translation? Which are the alternate neural network architectures? Justify it. **5**

OR

- Q-4** c) Explain the various gates in LSTM **5**
- Q-5** Answer the following questions.
- Q-5** a) Write a short note on dependency parsing **5**
- Q-5** b) Write a short note on Named Entity Recognition and Relation Extraction **5**

OR

- Q-5** a) Write a note on Word sense disambiguation **5**
- Q-5** b) Write a short note constituency parsing **5**
- Q-6** Answer the following questions.
- Q-6** a) Write a note on Machine translation **5**
- Q-6** b) Explain Word morphology **5**

OR

- Q-6** a) Define Context-free Grammar. Explain the role of CFG in the NLP **5**
- Q-6** b) Define Markov property? Write a brief note on the Markov model **5**

KADI SARVA VISHWAVIDHYALAYA
B.E. Semester VII Examination October–2023
CT703D-N Blockchain Technology

DATE: 30/10/2023

TIME: 12:00 pm to 03:00 pm

TOTAL MARKS: 70

Instructions:

- 1 Answer each section in separate answer sheet.
- 2 Use of scientific calculator is permitted.
- 3 All questions are **Compulsory**.
- 4 Indicate **clearly**, the options you attempt along with its respective question number.
- 5 Use the last page of main supplementary for **rough work**.

SECTION – I

- Q-1** A Compare Centralized, Decentralized and Distributed networks 5
B Explain the types of Blockchain. 5
C What is Genesis block. List and explain the components of a single block in Blockchain. 5

OR

- C What is an orphan block? 5

- Q-2** A Explain the terms Merkle root and Merkle tree. 5
B What are the characteristics of cryptographic hash function. 5

OR

- A Write short note on digital signature. 5
B Explain Public Key Cryptography. 5

- Q-3** A Explain Block propagation. 5
B What are the features of Bitcoin script. 5

OR

- A Write short note on Bitcoin. 5
B Explain distributed ledger in brief. 5

SECTION – II

- Q-4** A Write short note on mining. 5
B Explain the concept of distributed consensus in Blockchain. 5
C What is double spending? 5

OR

- C What is a mining pool? 5

- Q-5** A Explain proof of Work mechanism. 5
B Explain sybil and DDOS attack. 5

OR

- A Write short note on Practical Byzantine Fault Tolerant Model. 5
B Write short note on proof of stake mechanism. 5

- Q-6A** Explain the role of Blockchain in Medical health care. 5
B Write short note on smart contract. 5

OR

- A Explain the role of Blockchain in compliance to KYC. 5
B What is the significance of Remix Platform in Blockchain? Also explain the term 'Gas' 5
in smart contract execution.

KADI SARVA VISHWAVIDYALAYA
 B. E. Semester – VII Examination (Nov-2022)
 Blockchain Technology (CT703D-N)

Branch: CE/ IT/ CSE

Time: 10:00 am to 1:00 pm

Instructions:

1. Answer each section on separate answer sheet.
2. Use of scientific calculation is not required and hence not permitted.
3. All questions are compulsory.
4. Indicate clear, the option you attempt along with the respective question number.
5. All the acronyms are with respect to Blockchain and/or Networking.

Date: 11-11-2022

Total Marks: 70

Section – I

Q 1: (A)	List out various features of Blockchain Technology and explain <i>immutability</i> in detail.	5
Q 1: (B)	Explain the concept of centralization, decentralization and distributed.	5
Q 1: (C)	What are the different types of Blockchain?	5
OR		
Q 1: (C)	What are the Merkle trees? What is its importance in Blockchain?	5

Q 2: (A)	What is bitcoin? How did it evolve?	5
Q 2: (B)	Explain the double spending attack.	5
OR		
Q 2: (A)	How bitcoins are mines? How long does it take to mine a bitcoin?	5
Q 2: (B)	What are the features of bitcoin script.	5

Q 3: (A)	What is a ledger? Explain the concept of centralized ledger with its limitations.	5
Q 3: (B)	How chain is formed from Block? How temperament in any block can be detected?	5
OR		
Q 3: (A)	What is a ledger? Explain the concept of distributed ledger with its benefits.	5
Q 3: (B)	What is an orphan block? How is it created?	5

Section – II

Q 4: (A)	What is consensus in Blockchain? Why do we need it?	5
Q 4: (B)	List various consensus mechanisms of Blockchain and explain Proof of Work (PoW)	5
Q 4: (C)	What is Mining? How does it work?	5
OR		
Q 4: (C)	What is mining difficulty? How is it decided?	5

Q 5: (A)	Explain Byzantine General Problem.	5
Q 5: (B)	Explain Smart Contracts with respect to Blockchain Technology.	5
OR		
Q 5: (C)	Explain RAFT algorithm with respect to permissioned Blockchain Technology.	5
Q 5: (C)	Explain Crowdfunding with respect to Blockchain Technology.	5

Q 6: (A)	With respect to Ethereum Network, explain (a) Ethereum Virtual Machine (EVM), (b) Ether and Gas.	5
Q 6: (B)	What Is the Difference Between Bitcoin and Ethereum Blockchain?	5
OR		
Q 6: (A)	What Is Metamask? What Is the Programming Language Used to Write Smart Contracts and Dapps?	5
Q 6: (B)	List at least 5 research domains/directions going on in the field of Blockchain.	5

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (November-2022)

SUBJECT CODE: CT703C-N SUBJECT NAME: Natural Language Processing
 DATE: 11/11 /2022 TIME: 10.00 A.M. to 01:00 P.M. TOTAL MARKS: 70

Instructions:

1. Answer each section in a separate Answer Sheet.
2. Use of a scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with their respective question number.
5. Use the last page of the main supplementary for rough work.

SECTION – 1

Q-1 Answer the following questions. (All Compulsory)

- Q-1 a)** Find the minimum edit distance in transforming the word INTERMILAN to 5 ACMILAN. Consider the costs of insertion/deletion operation 1 and substitution operation 2.
- Q-1 b)** Decompose the following matrix A into an orthogonal matrix U, a diagonal 5 matrix S, and the transpose of orthogonal matrix V using singular value decomposition.

$$\begin{matrix} 3 & 1 & 1 \\ -1 & 3 & 1 \end{matrix}$$

- Q-1 c)** Define the language model. Explain the unigram, bigram, and trigram language 5 model.

OR

- Q-1 c)** Define perplexity with an example. What is the interpretation of lower 5 perplexity in the context of the language model?

Q-2

- Q-2 a)** Explain the Bag-of-Words (BoW) with an example. 5
- Q-2 b)** Discuss any two smoothing techniques for the language model. 5

OR

- Q-2 a)** Define Stemming and lemmatization. Give the difference between them using 5 examples.
- Q-2 b)** Explain the two architectures of Word2vec model. 5

- Q-3 Answer the following questions.
- Q-3 a) Explain the statistical and linguistic features of the text corpus in NLP? Give 5 examples of such 3 features with example
- Q-3 b) Explain the role of SVD in Latent Semantic Analysis. 5

OR

- Q-3 a) Define Sentence embedding and explain Doc2vec. 5
- Q-3 b) Explain k-means in the context of text clustering. 5

SECTION – 2

- Q-4 Answer the following questions. (All Compulsory)
- Q-4 a) Explain Naive Bayes classifier in the context of text classification 5
- Q-4 b) What is the sequence labelling task? Does Machine translation is a sequence labelling task? Which one is the better choice to design Machine translator tagger (i) LSTM based model (i) Logistic Regression?
- Q-4 c) What is Recurrent Neural network? Compare LSTM vs Feed-forward neural network 5

OR

- Q-4 c) Compare Deep neural network vs Traditional shallow neural network 5
- Q-5 Answer the following questions.
- Q-5 a) Write a short note on dependency parsing 5
- Q-5 b) Define Information Extraction. What are the two basic tasks of Information Extraction? 5

OR

- Q-5 a) Write a note on Word sense disambiguation 5
- Q-5 b) What is your interpretation about “parsing” in the context of NLP? Explain it in detail. 5
- Q-6 Answer the following questions.
- Q-6 a) Write a short note on Text summarization 5
- Q-6 b) Write a short note on Dialogue system. 5

OR

- Q-6 a) Define Context-free Grammar. Explain the role of CFG in the NLP 5
- Q-6 b) What is the importance of Part-of-speech tagger in the context of NLP? 5

*******BEST OF LUCK*******

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (November-2022)

SUBJECT CODE: CT703A-N SUBJECT NAME: HIGH PERFORMANCE COMPUTING
DATE: 11/11/2021 TIME: 10.00 A.M. to 01:00 P.M. TOTAL MARKS: 70

Instructions:

1. Answer each section in separate Answer Sheet.
 2. Use of scientific calculator is permitted.
 3. All questions are compulsory.
 4. Indicate clearly, the options you attempted along with its respective question number.
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SECTION – 1

- Q-1** a) Explain the scalable parallel computer architecture in detail **5**
b) Draw the cluster computer architecture and explain each block in detail. **5**
c) List and explain in brief: Single System Image (SSI) Availability Support Functions. **5**

OR

- Q-2**

c) What are the advantages/benefits of a cluster middleware?	5
a) List and explain few Resource Management Systems (RMS) tools.	5
b) Write the short note on Third generation of Grid computing	5

QR

- Q-2** a) Discuss security points with respect to Data Location on the cloud and Transfer of data in cloud **5**

b) Explain the Fabric layer and connectivity layer of grid architecture. **5**

Q-3 a) Write short note on Homogeneous cluster.

- b) Explain HPVM(High Performance Virtual Machine) and CLUMPS with their advantages 5

OR

- Q-3** a) Explain IaaS technology in cloud computing with a real time example. **5**
b) Explain in detail the role of virtual organization in grid computing. **5**

SECTION – 2

- Q-4 a) Explain cloud service models. 5
b) Explain cluster tuning. 5
c) Differentiating between big data and traditional enterprise relational data. 5

OR

- c) Discuss about Cluster of SMPS. 5

- Q-5 a) Explain I-WAY project in detail. 5
b) Differentiate FOG and EDGE computing. 5

OR

- Q-5 a) What is hadoop? Explain hadoop cluster components. 5
b) Explain the working of Map Reduce. 5

- Q-6 a) Explain the cost factors in cloud data center. 5
b) Explain Middleware for Fog and Edge Computing. 5

OR

- Q-6 a) Describe Hadoop benefits and limitations. 5
b) Differentiate Public, private and hybrid clouds. 5

*******BEST OF LUCK*******

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination

SUBJECT CODE: CT703A-N

SUBJECT NAME: High Performance Computing

DATE: 28/03/2022

TIME: 12:30 PM TO 03:30 PM

TOTAL MARKS: 70

Instructions:

1. Answer each section in a separate Answer Sheet.
2. Use of a scientific Calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with its respective question number.
5. Use the last page of the main supplementary for rough work.

SECTION – 1

- Q-1.** a) Write a short note on: Cluster of SMPs (CLUMPS). 5
 b) Write short notes on The High-Performance Virtual Machine (HPVM) Project 5
 c) Write a short note on: Global Clock Synchronization 5

OR

- c) Write a short note on Heterogeneous Cluster 5

- Q-2.** a) Explain building blocks of the grid. 5
 b) Explain application of the Grid Computing. 5

OR

- Q-2.** a) Why monitoring of cluster network is essential and how is it done? 5
 b) What are the advantages of Front-end setup? 5

- Q-3.** a) Explain Requirements for the data and computation infrastructure. 5
 b) Write short notes on The Berkeley Network of Workstations (NOW) Project 5

OR

- Q-3.** a) List and explain in brief: Commodity Components for Clusters. 5
 b) Explain application of grid computing. 5

SECTION – 2

- Q-4.** a) List and explain Single System Image (SSI) layers / levels. **5**
b) Compare Public, Private and Hybrid clouds. **5**

- c) Write a short note on Clusters of Clusters **5**

OR

- c) Explain PAAS and IAAS **5**

- Q-5.** a) List and explain a few Performance Analysis and Visualization Tools for cluster. **5**

- b) What capabilities should an ideal parallel debugger have? **5**

OR

- Q-5.** a) What are the advantages of COTS-based cluster systems? **5**

- b) What are the features of good performance analysis and monitoring tools? **5**

- Q-6.** a) Explain a) FAFNER b) I-WAY **5**

- b) What are the services provided by a RMS environment? **5**

OR

- Q-6.** a) How is grid computing used in engineering and design? **5**

- b) List and explain a few cluster administration (& monitoring) tools **5**

*******BEST OF LUCK*******

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (March-2022)

SUBJECT CODE: CT703C-N SUBJECT NAME: Natural Language Processing
DATE: 28/3/2022 TIME: 12.30 A.M. to 03:00 P.M. TOTAL MARKS: 70

Instructions:

1. Answer each section in a separate Answer Sheet.
2. Use of a scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with their respective question number.
5. Use the last page of the main supplementary for rough work.

SECTION – 1

Q-1 Answer the following questions. (All Compulsory)

- | | |
|--|---|
| Q-1 a) Write a note on Word Embedding | 5 |
| Q-1 b) Explain unigram and bigram language Model | 5 |
| Q-1 c) Find the minimum edit distance in transforming the word PQQRST to QQTPPS | 5 |

OR

- | | |
|--|---|
| Q-1 c) Compare text classification vs. Text clustering. | 5 |
| Q-2 Answer the following questions. | 5 |
| Q-2 a) Write a note on TF*IDF weighting scheme | 5 |
| Q-2 b) Explain vector space model | 5 |

OR

- | | |
|--|---|
| Q-2 a) Write a note on text pre-processing. | 5 |
| Q-2 b) Explain fastText Architecture | 5 |
| Q-3 Answer the following questions. | 5 |
| Q-3 a) Explain 2 smoothing methods for the language model | 5 |
| Q-3 b) Explain Latent semantic Analysis with example | 5 |

OR

- | | |
|--|---|
| Q-3 a) Write a note on Doc2vec | 5 |
| Q-3 b) Compare Supervised vs. Unsupervised learning | 5 |

SECTION – 2

- Q-4** Answer the following questions. (All Compulsory)
- Q-4** a) Explain POS tagging with example 5
- Q-4** b) Write a note on Text Summarization 5
- Q-4** c) How Recurrent Neural networks are different from Feed-forward Neural Network 5

OR

- Q-4** c) Write a note on LSTM 5

Q-5 Answer the following questions.

- Q-5** a) Explain Dependency parsing in detail 5
- Q-5** b) Write a note on NLP applications 5

OR

- Q-5** a) Define named entity and discuss different types of it. 5
- Q-5** b) Differentiate between open class and a closed class of words 5

Q-6 Answer the following questions.

- Q-6** a) Define Machine translation with example 5
- Q-6** b) Explain Word morphology 5

OR

- Q-6** a) Define Context-free Grammar. Explain the role of CFG in the NLP 5
- Q-6** b) Explain Hidden Markov model 5

*******BEST OF LUCK*******

KADI SARVA VISHWAVIDHYALAYA
B.E. Semester VII Examination – October – 2021
CT703D-N Blockchain Technology

DATE: 29/10/2021

TIME: 10:00am to 1:00 pm

TOTAL MARKS: 70

Instructions:

- 1 Answer each section in separate answer sheet.
- 2 Use of scientific calculator is permitted.
- 3 All questions are **Compulsory**.
- 4 Indicate **clearly**, the options you attempt along with its respective question number.
- 5 Use the last page of main supplementary for **rough work**.

SECTION – I

- Q-1** A Compare centralized vs distributed network. 5
B Explain the types of Blockchain. 5
C Explain Genesis block and list the various components of a Block in a Blockchain. 5
OR
C What is the difference between distributed Ledger and Blockchain? 5
- Q-2** A Explain the properties of cryptographic hash function. 5
B Explain Merkle tree. 5
OR
A Explain Avalanche effect. 5
B List and explain the characteristics of Blockchain network. 5
- Q-3** A Explain consensus mechanism in blockchain. 5
B Explain proof of work (POW) mechanism. 5
OR
A What is a mining pool? 5
B Explain proof of stake (POS) mechanism. 5

SECTION – II

- Q-4** A Write short note on mining in blockchain. 5
B Explain double spending problem. 5
C What is an orphan block? 5
OR
C What is the significance of Remix Platform in Blockchain? Also explain the term 'Gas' in smart contract execution. 5

- Q-5** A Write short note on smart contract. 5
B Explain PBFT. 5
- OR**
- A Explain proof of Burn mechanism. 5
B Explain sybil and DDOS attack. 5
- Q-6A** Write short note on Bitcoin. 5
B Explain the role of Blockchain in Medical health care. 5
- OR**
- A Explain the role of Blockchain in compliance to KYC. 5
B Explain the permissioned blockchain consensus algorithms PAXOS and RAFT. 5

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (October-2021)

SUBJECT CODE: CT703A-N SUBJECT NAME: HIGH PERFORMANCE COMPUTING
 DATE: 29/10/2021 TIME: 10.00 A.M. to 01:00 P.M. TOTAL MARKS: 70

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

SECTION – 1

Q-1 Answer the following Questions. (All Compulsory)

- Q-1 a)** Name various scalable parallel computer architectures. Compare them based on 5 different characteristics. **5**
- Q-1 b)** Draw the cluster computer architecture and explain each block in detail. **5**
- Q-1 c)** Explain Single System Image (SSI) layers / levels. **5**

OR

- Q-1 c)** What are the advantages/benefits of a cluster middleware. **5**

Q-2 Answer the following questions.

- Q-2 a)** What are the services provided by a RMS environment? **5**
- Q-2 b)** Explain application of grid computing. **5**

OR

- Q-2 a)** List and explain in brief: Commodity Components for Clusters. **5**

- Q-2 b)** Explain Global Clock Synchronization. **5**

Q-3 Answer the following questions.

- Q-3 a)** Write short note on Homogeneous cluster. **5**
- Q-3 b)** Write short note on the High Performance Virtual Machine (HPVM) Project. **5**

OR

- Q-3 a)** Explain building blocks of the grid. **5**

- Q-3 b)** Explain in detail the role of virtual organization in grid computing. **5**

SECTION – 2

Q-4 Answer the following Questions. (All Compulsory)

Q-4 a) Explain cloud service models. **5**

Q-4 b) Explain cluster tuning. **5**

Q-4 c) Differentiating between big data and traditional enterprise relational data. **5**

OR

Q-4 c) Write a short note on: Cluster of SMPs (CLUMPS). **5**

Q-5 Answer the following questions.

Q-5 a) Write short notes on **5**

a) FAFNER

b) I-WAY

Q-5 b) What is FOG and EDGE computing? **5**

OR

Q-5 a) What is hadoop? Explain hadoop cluster components. **5**

Q-5 b) How does MapReduce work? **5**

Q-6 Answer the following questions.

Q-6 a) Explain IaaS technology in cloud computing with a real time example. **5**

Q-6 b) Explain Middleware for Fog and Edge Computing. **5**

OR

Q-6 a) Describe Hadoop benefits and limitations. **5**

Q-6 b) Explain Public, private and hybrid clouds. **5**

*****BEST OF LUCK*****

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KADI SARVA VISHWAVIDYALAYA
B.E. Semester-VII Examination (October-2021)

SUBJECT CODE: CT703C-N SUBJECT NAME: Natural Language Processing
DATE: 29 /10/2021 TIME: 10.00 A.M. to 01:00 P.M. TOTAL MARKS: 70

Instructions:

1. Answer each section in a separate Answer Sheet.
2. Use of a scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the options you attempted along with their respective question number.
5. Use the last page of the main supplementary for rough work.

SECTION – 1

- Q-1** Answer the following questions. (All Compulsory) 5
- Q-1 a)** Name two popular applications of Natural Language Processing and Explain then briefly 5
- Q-1 b)** Explain N-gram Language Model 5
- Q-1 c)** Find the minimum edit distance in transforming the word Intention to Execution. 5

OR

- Q-1 c)** Model SMS classification problem using Naïve Bayes classifier? Create sample train and test data. Consider binary classification problem. 5
- Q-2** Answer the following questions. 5
- Q-2 a)** What does TF*IDF stand for? Explain it with an example 5
- Q-2 b)** Explain Word2Vec Architecture 5

OR

- Q-2 a)** Explain the NLP pipeline with each component 5
- Q-2 b)** Explain Glove Architecture 5

- Q-3** Answer the following questions.

- Q-3 a)** What are the features of the text corpus in NLP? Give examples of such features with example 5

Q-3 b) Explain Latent semantic Analysis with example 5

OR

Q-3 a) Compare Word embedding vs Sentence Embedding. Explain Doc2Vec in brief 5

Q-3 b) Write a note on text clustering and algorithms 5

SECTION – 2

Q-4 Answer the following questions. (All Compulsory)

Q-4 a) What does “parsing” mean in the world of NLP? Explain it in detail 5

Q-4 b) What is the Sequence Labelling task? Does PoS tagging is a sequence labelling task? Which one is the better choice to design PoS tagger (i) HMM (ii) Logistic Regression? 5

Q-4 c) Compare Recurrent Neural network vs. Feed-forward Neural Network 5

OR

Q-4 c) What vanishing gradient problem? How did LSTM overcome this problem? 5

Q-5 Answer the following questions.

Q-5 a) Write a short note on dependency parsing 5

Q-5 b) Explain Information Extraction with example 5

OR

Q-5 a) Write a note on Word sense disambiguation 5

Q-5 b) Write a short note constituency parsing 5

Q-6 Answer the following questions.

Q-6 a) Write a note on Machine translation 5

Q-6 b) Explain Word morphology 5

OR

Q-6 a) Define Context-free Grammar. Explain the role of CFG in the NLP 5

Q-6 b) Define Markov property? Write a brief note on the Markov model 5

*******BEST OF LUCK*******

KADI SARVA VISHWAVIDYALAYA**BE SEMESTER-VII (CE/IT/CSE) Examination October - 2024****Subject Name: Natural Language Processing****Subject Code: CT703C-N****Date: 21/10/2024****Time: 12:30 pm to 03:30 pm****Total Marks: 70****Instructions:**

1. Answer each section in separate answer sheet.
2. Use of scientific calculator is permitted.
3. All questions are Compulsory.
4. Indicate clearly, the option you attempt along with its respective question number.
5. Use the last page of main supplementary of rough work.

Section-I

- Q-1** (A) Explain N-gram Language Model. [5]
- (B) Find the minimum edit distance in transforming the word INTERMILAN to ACMILAN. Consider the costs of insertion/deletion operation 1 and substitution operation 2. [5]
- (C) Define perplexity with an example. What is the interpretation of lower perplexity in the context of the language model? [5]
- OR**
- (C) Explain the Bag-of-Words (BoW) with an example. [5]
- Q-2** (A) Explain Word2Vec Architecture. [5]
- (B) Model Text Classification problem using Naive Baye's method. [5]
- OR**
- Q-2** (A) Write a short note on TF*IDF weighting scheme. [5]
- (B) Discuss any two smoothing techniques for the language model. [5]
- Q-3** (A) Define Stemming and lemmatization. Give the difference between them using examples. [5]
- (B) Explain Latent semantic Analysis with example. [5]
- OR**
- Q-3** (A) What are the features of the text corpus in NLP? Give examples of such 5 features with example. [5]
- (B) Compare Word embedding vs Sentence Embedding. Explain Doc2Vec in briefly. [5]

Section-II

- Q-4** (A) What is the sequence labeling task? Does Machine translation is a sequence labeling [5] task? Which one is the better choice to design Machine translator tagger (i) LSTM based model (i) Logistic Regression?
(B) What does “parsing” mean in the world of NLP? Explain it in detail. [5]
(C) Explain POS tagging with example. [5]

OR

- (C) Write a note on Hidden Markov Model. [5]

- Q-5** (A) What is Recurrent Neural network? Compare LSTM vs Feed-forward neural [5] network.
(B) Explain Word morphology in detail. [5]

OR

- Q-5** (A) Write a short note on Text summarization. [5]
(B) Write a note on Word sense disambiguation. [5]

- Q-6** (A) Define Context-Free Grammar. Explain the role of CFG in the NLP. [5]
(B) Differentiate between open class and a closed class of words. [5]

OR

- Q-6** (A) Write a note on Machine translation. [5]
(B) Define Information Extraction. What are the two basic tasks of Information Extraction? [5]