

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-4)
MACHINE LEARNING AND DATA ANALYTICS USING PYTHON
Subject Code : PGCA1976

M. Code : 91855
Date of Examination : 17-11-2023

Time : 3 Hrs. Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- a) Take an example to differentiate between supervised and unsupervised learning.
- b) What are the assumptions of linear regression models?
- c) How is the value of k determined in KNN algorithm?
- d) Outline the features of random forest classifier.
- e) When is Principal Component Analysis required in machine learning?
- f) How do we handle missing data in Python?
- g) What are the features of Matplotlib and why is it essential in machine learning systems?
- h) Mention types of data frames used in Pandas for handling datasets.
- i) Illustrate Numpy arrays with an example.
- j) What are different operators used in python programming?

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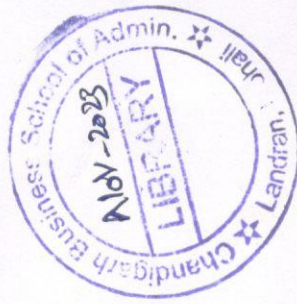
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SECTION-B

2. Explain the concept of reinforcement learning with the help of a block diagram showing its important components and function of each.
3. How and where is decision tree used? Discuss the concept of entropy, information gain and Gini index and their use in decision tree formation.
4. What is regression analysis? Explain logistic regression using an example graph.
5. Outline the working of random forest classifier by taking a suitable dataset example.

SECTION-C

6. Why area arrays are used in data analytics? Discuss the concept of arrays and array indexing in numpy?
7. Take an example and discuss the merging, joining and concatenating operations in python programming.
8. Describe various types of data types and their characteristics used in python programming.
9. Write short notes on the following in the context of Python programming :
 - a) Control structures and Modules
 - b) Data input and Output in Pandas



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MCA (Sem.-4)
ADVANCED WEB TECHNOLOGIES

Subject Code : PGCA1958

M.Code : 91856

Date of Examination : 21-11-2023

Max. Marks : 70

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

I. Answer the following :

- a) What is content management system?
- b) What is Cookie?
- c) What is the main use of session in PHP?
- d) What is HTTP?
- e) Why ReactJS is used?
- f) What is the functionality of node package manager?
- g) What is Node.js?
- h) Why is jQuery used for?
- i) What is Ajax?
- j) What is the major benefit of using Ajax?

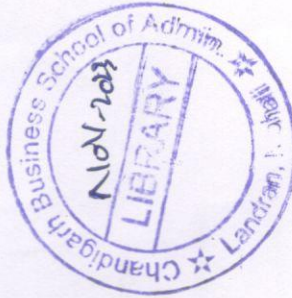
SECTION-B

2. Answer the following :

- a) What are the uses and benefits of content management system? Explain in detail.
 - b) List and explain the types of web services.
3. Write a PHP program to read the data from web form controls, also demonstrate the server side validation(s).
4. Answer the following :
- a) Differentiate between indexed array and associative arrays.
 - b) Write a PHP script that removes last word from a string.
5. How are cookies created and accessed in PHP? Explain with the help of a PHP Script.

SECTION-C

6. What is XML? What is an XML namespace? Explain in detail.
7. What is Bootstrap? What are the key components of Bootstrap? Explain in detail.
8. How to create components in ReactJS? Explain in detail.
9. Answer the following :
 - a) How to retrieve the page content in jQuery? Explain.
 - b) How to manipulate page content in jQuery? Explain.



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**MCA (Sem.- 4)
IOT & BLOCKCHAIN TECHNOLOGY**

Subject Code : PGCA1967

M. Code : 91862

Date of Examination: 30-11-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

I. Write short notes on :

- a) Describe provide examples of real-world applications where IoT technology is making a significant impact.
- b) What are some key security considerations when deploying IoT devices and systems?
- c) How do IoT devices collect and transmit data to centralized systems for analysis and decision-making?
- d) How does Low-Power, Wide-Area Networking (LPWAN) play a role in IoT connectivity?
- e) Can you discuss the potential challenges and risks associated with the widespread adoption of IoT technology in various industries?
- f) How does blockchain technology ensure data immutability and transparency in transactions?
- g) What is the difference between public and private blockchains and provide an example of each?

h) How does the process of mining work in the context of cryptocurrencies?

i) What is the role of consensus mechanisms, such as Proof of Work (PoW), in preventing double spending in the Bitcoin network.

j) Mention the security features that make cryptocurrencies resistant to counterfeiting and fraud.

SECTION-B

2. How does Bluetooth Low Energy (BLE) enhance the usability of IoT devices in terms of power efficiency and compatibility with mobile devices?

3. Examine the ethical and privacy considerations associated with IoT applications, especially in contexts where personal data is collected and transmitted. How can these concerns be addressed?

4. Compare and contrast the various communication models used in IoT. What are their advantages and disadvantages?

5. Explain the role of Zigbee in industrial IoT (IIoT) and its suitability for applications requiring low-power, long-range connectivity.

SECTION-C

6. Compare and contrast the speed, cost, and scalability of Bitcoin transactions with traditional banking or payment systems. What are the trade-offs involved?

7. Examine the potential uses of blockchain and cryptocurrencies beyond financial applications, such as voting systems, and identity verification. What are the benefits and challenges of adopting blockchain in these contexts?

8. Evaluate the advantages and disadvantages of using cryptocurrencies as a means of payment compared to traditional fiat currencies. What are the key obstacles to widespread cryptocurrency adoption in daily transactions?

9. Analyze the security features and mechanisms that ensure the integrity of payments and transactions within the Bitcoin network. What role do miners play in this process?

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