

Instructions :

- Write both the sections in the separate answer book.
- Both Sections having equal weightage.
- Draw Diagrams wherever necessary.
- Make Assumptions wherever necessary.

Section : I**Q-1 Attempt the following MCQs (Each question carries 1 mark)****6**

- A.** Which Angular directive is used to iterate over a collection of data?
 a) ngIf b) ngFor c) ngSwitch d) ngClass
- B.** What is the name of the Angular framework's command-line interface?
 a) Angular CLI b) Node CLI c) JavaScript CLI d) TypeScript CLI
- C.** What is the name of the package manager for Node.js?
 a) pmn b) pnm c) npm d) None
- D.** Which JavaScript method is used to add an event listener to an element?
 a) addEventListener b) attachEvent c) listenEvent d) bindEvent
- E.** Which of the following is a valid AngularJS filter?
 a) date b) uppercase c) lowercase d) All of the above
- F.** What is the purpose of the \$http service in AngularJS?
 a) To make HTTP requests to a server
 b) To make HTTP requests to a client
 c) To store data that can be accessed by the view
 d) To store data that can be accessed by the controller

Q-2 Attempt the following : (Each Question carries 2 marks) (Any 6)**12**

- a. What is Angular? What are its purposes?
- b. What is the difference between JSON and XML?
- c. What is the difference between one-way and two-way data binding?
- d. State the types of filter in angular
- e. What is Callback, Asynchronous and promises?
- f. State the features of angular.
- g. What is component and how to create it?
- h. State the advantages and disadvantages of Java Script

Q-3 Answer the following questions in brief : (Each Question carries 3 marks)(any 4) 12

- a. Describe the difference between a component and a directive in Angular.
- b. Explain the difference between the ngIf and ngSwitch directives in Angular.
- c. Explain the concept of services in Angular and how they are used.
- d. How do you use filter() method to filter an array?
- e. What is dependency injection in Angular JS and what is its purpose?
- f. Write a Sample program using ngFor to print table for entered number.

Q-4 Attempt the following (Each Question carries 5 marks):

5

- a. "Create an Angular SPA that meets the following requirements:
- Takes an input from user like user name and password
 - Checks its validation during input using JavaScript.
 - If it matches with your variable's value then print proper message
 - Uses angular best practices and follows the angular style guide..

OR

- a. "Develop an Angular component that displays a basic image slider with the following features:
- Cycles through a set of images
 - Displays one image at a time
 - Provides navigation buttons to move to the previous or next image
 - Uses Angular's built-in HttpClient service to fetch the images
 - Implements a timer to automatically cycle through the images

Section : II**Q-5. answer the following questions in short (Each question carries 1 mark)**

6

- a. What is the purpose of @NgModule?
- b. What is the purpose of ng-app?
- c. What is the purpose of \$scope?
- d. What is Node.js used for?
- e. What is the purpose of require?
- f. What is the purpose of HttpClient?

Q-6 Attempt the following (Each Question carries 2 marks) (any 6)

12

- a. What is the purpose of the @NgModule decorator in Angular?
- b. What is the difference between var and let in TypeScript?
- c. What is class in JS? Write its short example
- d. What is module in angular?
- e. What is the purpose of the ngModel directive in Angular?
- f. What is the purpose of the @Injectable decorator in Angular?
- g. How do you use the HttpClient service to make HTTP requests in Angular?
- h. How do you create a New Node.js module?

Q-7 Answer the following questions in brief (Each Question carries 3 marks)(any 4)

12

- a. What is angular JS? Why we have to choose angular?
- b. What is service in angular.
- c. What is JSON? Compare it with XML and CSV.
- d. Explain MVC in angular JS.
- e. How do you use require() to import modules in node.js?
- f. How do you use the ng-model directive to bind data to form inputs? Explain it with example

Q-8 Attempt the following : (Any One)

5

- a. Create an Angular SPA that meets the following requirements:
- a. Takes an integer input from the user
 - b. Checks whether the input number is Armstrong or not
- b. "Create an Angular SPA that meets the following requirements:
- Takes an integer input from the user
 - Checks whether the input number is prime
 - If it is prime the up to the given number print Fibonacci series
 - Uses angular best practices and follows the angular style guide.

1612N976-3

Candidate's Seat No : _____

IMSc CS Sem.-7 Examination

Data Analytics

December-2024

Time : 3-00 Hours]

[Max. Marks : 70

Instructions:

- **Write both the Sections in the separate answer book.**
- **Both Sections having equal weightage.**
- **Draw Diagrams wherever necessary.**
- **Make Assumptions wherever necessary.**

Section – I

Q.1 Answer in short: 12 Marks

1. What is difference between Cross-sectional and Time series data?
2. Explain Scipy and its use.
3. Explain the difference between Nominal data and Ordinal data.

Q.2 Explain the following: (Any 2) 10 Marks

1. Explain the method of Outlier Reduction.
2. Explain the different feature selection method.
3. What is Data Normalization. Explain different approaches of data normalization.

Q.3 Define the following: (Any 3) 6 Marks

1. Data
2. Datasets
3. Features
4. Data Mining

Q.4 Explain in detail about the Data Preprocessing and its steps. 7 Marks

Section – II

Q.5 Define the following write its formula: 5 Marks

1. Permutation Rule.
2. Combination Rule.

Q.6 Solve the following: (Any 4) 20 Marks

1. What is Correlation? Explain its types and write its formula.
2. Calculate the probability density function of normal distribution using the following data. $x = 3$, $\mu = 4$ and $\sigma = 2$.
3. Find the mean, variance and standard deviation for the following data:
6,7,10,12,13,4,8,12
4. Find the covariance for the following data: 15,22,27,11,9,21,14,9
5. Explain about any four graphical methods.

N976-4

Q.7 Answer in brief:

10 Marks

1. Explain about Multiple linear regression model.
2. Write the difference between Normal distribution and Poisson distribution.

OR

1. The speeds of cars are measured using a radar unit, on a motorway. The speeds are normally distributed with a mean of 90 km/hr and a standard deviation of 10 km/hr. What is the probability that a car selected at chance is moving at more than 100 km/hr?
2. As only 3 students came to attend the class today, find the probability for exactly 4 students to attend the classes tomorrow. (poisson distribution)

