Mumbai University

VIVA Qbanks TE IT - M.U

A series of Important Concepts/Questions highly recommended for VIVA, Sem 6

VIVA Questions - WEB X.O

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Q1. Explain the function of semantic web.

Answer: The main function of the Semantic Web is to make Internet data machine-readable.

To enable the encoding of semantics with the data, technologies such as Resource Description Framework (RDF) and Web Ontology Language (OWL) are used.

The Semantic Web provides a common framework that allows data to be shared and reused across application, enterprise, and community boundaries.

Q2. Explain the purpose of semantic web.

Answer: The ultimate goal of the Web of data is to enable computers to do more useful work and to develop systems that can support trusted interactions over the network.

The term "Semantic Web" refers to W3C's vision of the Web of linked data.

Semantic Web technologies enable people to create data stores on the Web, build vocabularies, and write rules for handling data.

The Semantic Web connects facts, so that rather than linking to a specific document or application, you can instead refer to a specific piece of information.

Q3. Define typescript.

Answer: TypeScript is JavaScript for application-scale development.

TypeScript is a modern age JavaScript development language.

TypeScript uses concepts like types and interfaces to describe data being used whereas no such concept is available with JavaScript.

VIVA Questions - WEB X.0

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Q4. List down the features of typescript.

Answer: The features of typescript are:

Cross-platform language

Used for client side and server side

Easy to learn and to start with

Dynamic language: flexible and powerful

Strong Testing Workflow

Added Dependencies

Framework Unsupported

Q5. What are the different components of typescript?

Answer: The components of typescript are:

Language

The Typescript Compiler

The Typescript language services

Q6. Explain built-in and user defined typescript.

Answer: Built-in Datatypes: TypeScript has some predefined data types-

number

boolean

string

void

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null

User-defined Data Types: Apart from built-in data types, users can also define their own data type. User-defined types include:

Enumerations (enums), Classes, Interfaces, Arrays, Tuple

Q7. Define function scope in angular js.

Answer: The Scope in Angular JS is the binding part between HTML (view) and JavaScript (controller) and it is a built-in object.

It contains application data and objects. It is available for both the view and the controller.

It is an object with available properties and methods.

Q8. How to initialize a select box with options.

Answer: You can initialize a select box with options on page load by using ng-init directive

<div ng-controller = " apps/dashboard/account " ng-switch

On = "! ! accounts" ng-init = " loadData ( ) ">

VIVA Questions - Sensors

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Q1. Define wireless communication.

Answer: Wireless communication is the transfer of information between two or more points that do not use an electrical conductor as a medium for the transfer.

The most common wireless technologies use radio waves.

Q2. Explain IEEE 802.15.1 and IEEE 802.11.

Answer: The legacy 802.15. 4 standard usually operates in the unlicensed 2.4 GHz band using Direct Sequence Spread Spectrum (DSSS), which can accommodate data rates up to 250 Kbps.

On the other hand, the 802.11ah utilizes the sub-1 GHz license-exempt bands to provide an extended range to Wi-Fi networks.

Q3. Define sensors.

Answer: A sensor is a device that produces an output signal for the purpose of sensing a physical phenomenon.

A sensor is a device, module, machine, or subsystem that detects events or changes in its environment and sends the information to other electronics, frequently a computer processor.

Q4. What are the different types of sensors?

Answer: Types of sensors are:

Temperature Sensors   Humidity Sensors

Pressure Sensors   Proximity Sensors   Level Sensors

Accelerometers

VIVA Questions - Sensors

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Q5. Why sensors are used.

Answer: Sensors are used:

To measure temperature

To measure gauge distance

To detect smoke

To regulate pressure

Q6. Explain different types of devices used for display.

Answer: Different types of devices used for display:

Liquid crystal display (LCD)

Light-emitting diode (LED)

Thin-film transistor (TFT)

Quantum dot (QLED)

Q7. Define DHT-11/22.

Answer: The DHT11 and DHT22 sensors are used to measure temperature and relative humidity.

These are very popular among makers and electronics hobbyists.

These sensors contain a chip that does analog to digital conversion and spits out a digital signal with the temperature and humidity.

VIVA Questions - Sensors

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Q8. Explain HC-SR04 and MFRC 522.

Answer: HC-SR04:

The HC-SR04 Ultrasonic Distance Sensor is a sensor used for detecting the distance to an object using sonar.

The HC-SR04 uses non-contact ultrasound sonar to measure the distance to an object, and consists of two ultrasonic transmitters (basically speakers), a receiver, and a control circuit.

MFRC 522:

The MFRC522 is a highly integrated reader/writer for contactless communication at 13.56. MHz.

VIVA Questions - MAD PWA

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Q1. Explain flutter programming.

Answer: Flutter is an open-source UI software development kit created by Google.

It is used to develop cross-platform applications for Android, iOS, Linux, Mac, Windows, Google Fuchsia, Web platform, and the web from a single codebase.

Flutter uses a declarative UI approach, it means that the interface represents the state of the app.

Q2. Define widget tree and element tree.

Answer: Widget tree:

A widget tree is a structure that represents how our widgets are organized.

Web pages have a DOM and Flutter has a Widget Tree.

Element tree:

Flutter uses the createElement method to create the elements.

Each element created will have a unique id assigned by the flutter back-end.

Q3. What are different build modes in flutter?

Answer: Modes in a flutter:

Debug mode

Profile mode

Release mode

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Q4. Explain the flutter widget.

Answer: Widgets are the central class hierarchy in the Flutter framework.

A widget is an immutable description of part of a user interface.

Widgets can be inflated into elements, which manage the underlying render tree.

Widgets themselves have no mutable state.

Q5. What are the types of widgets present in flutter?

Answer: The types of widgets present in flutter are:

Stateless Widget

Stateful Widget

Q6. Define dart.

Answer: Dart is an open-source, general-purpose, object-oriented programming language.

The purpose of Dart programming is to create a frontend user interface for the web and mobile apps.

Dart is the programming language used to code Flutter apps.

Dart is a client-optimized language for fast apps on any platform.

Q7. Explain App state.

Answer: The state of an app is everything that exists in memory when the app is running.

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This includes the app's assets, all the variables that the Flutter framework keeps about the UI, animation state, textures, fonts, and so on.

Q8. What is a container class?

Answer: Container class in flutter is a convenience widget that combines common painting, positioning, and sizing of widgets.

A Container class can be used to store one or more widgets and position it on the screen according to our convenience.

Basically, a container is like a box to store contents.

VIVA Questions - DS Using PY

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Q1. What is data science? Explain the benefits of data science?

Answer: Data science is the field of study that combines domain expertise, programming skills, and knowledge of mathematics and statistics to extract meaningful insights from data.

Data science practitioners apply machine learning algorithms to numbers, text, images, video, audio, and more to produce artificial intelligence (AI) systems to perform tasks that ordinarily require human intelligence.

Benefits of Data Science:

Increases business predictability

Ensures real-time intelligence

Favors the marketing and sales area

Improves data security

Helps interpret complex data

Facilitates the decision-making process

Q2. What are pandas in python?

Answer: Pandas is a Python package providing fast, flexible, and expressive data structures designed to make working with "relational" or "labeled" data both easy and intuitive.

It aims to be the fundamental high-level building block for doing practical, real-world data analysis in Python.

Pandas is used to analyze data.

VIVA Questions - DS Using PY

Q3. Define data cleansing and data transformation.

Answer: Data cleaning:

Data cleaning is the process of preparing raw data for analysis by removing bad data, organizing the raw data, and filling in the null values.

Cleaning data prepares the data for the process of data mining when the most valuable information can be pulled from the data set.

Data transformation:

Data transformation in data mining is done for combining unstructured data with structured data to analyze it later.

It is also important when the data is transferred to a new cloud data warehouse.

Q4. What is data loading?

Answer: Data loading is the process of copying and loading data or data sets from a source file, folder or application to a database or similar application.

It is usually implemented by copying digital data from a source and pasting or loading the data to a data storage or processing utility.

Q5. How to preprocess data with pandas.

Answer: Preprocessing is the process of doing a pre-analysis of data, in order to transform them into a standard and normalized format.

Preprocessing of data with can be done in the following steps:

Import data

Identify missing values

VIVA Questions - DS Using PY

Drop missing values

Replace missing values

Q6. Define data aggregation.

Answer: Data aggregation is the compiling of information from databases with intent to prepare combined datasets for data processing.

Data aggregation is the process of compiling large amounts of information from a given database and organizing it into a more consumable and comprehensive medium.

Q7. Explain querying data in pandas.

Answer: The query() function is used to query the columns of a DataFrame with a boolean expression.

Assuming you have a DataFrame, you need to call. query() using "dot syntax".

Basically, type the name of the DataFrame you want to subset, then type a "dot", and then type the name of the method …. query().

Q8. Explain Data Indexing?

Answer: Data Indexing is a way to optimize the performance of a database by minimizing the number of disk accesses required when a query is processed.

It is a data structure technique that is used to quickly locate and access the data in a database.

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