(1.) What is Flexbox in CSS?

Ans. Flexbox is a CSS layout mode that makes it easy to create flexible and responsive designs.

=> It provides a simple and efficient way to arrange elements within a container, with the ability to control their size, position, and order in a flexible and dynamic way.

=> Flexbox works by creating a flexible container, called a flex container, and then arranging its direct children, called flex items, within the container according to certain rules.

=> The container can control the size and position of the flex items along a main axis, and can also align the items along a cross axis.

=> The main axis and cross axis are defined by the ***flex-direction*** property, which determines the orientation of the flex container.

=> The ***flex-direction*** property can be set to either row (horizontal), row-reverse (horizontal in reverse), column (vertical), or column-reverse (vertical in reverse).

=> The ***flex-wrap*** property determines whether the flex items will wrap to a new line if there is not enough room in the container.

=> The ***justify-content*** property aligns the flex items along the main axis, while the align-items property aligns the items along the cross axis.

Example:

```
<div style="display: flex; flex-direction: row; justify-content: center; align-items: center;">
    <div style="flex: 1; background-color: lightblue;">Item 1</div>
    <div style="flex: 1; background-color: lightgreen;">Item 2</div>
    <div style="flex: 1; background-color: lightcoral;">Item 3</div>
</div>
```

In this example, the display property is set to flex to create a flex container. The flex-direction property is set to row so the flex items are arranged horizontally. The justify-content property is set to center to center-align the items along the main axis, and the align-items property is set to center to center-align the items along the cross axis.

(2.) What is the relation between flex container and flex item?

Ans. A flex container is a parent element that holds flex items and establishes a flex formatting context for its children.

=> Flex items are direct children of a flex container and are the boxes that are generated for the elements declared as flex elements.

=> Flex items can be aligned, stretched, and re-ordered within the flex container based on the container's rules.

(3.) What are the different flex properties?

Ans. There are several flex properties that can be used to control the layout:

1. **display: flex** - sets the element as a flex container
2. **flex-direction** - defines the direction of the main axis (row or column)
3. **flex-wrap** - sets whether items wrap to a new line or not
4. **flex-flow** - shorthand property for setting both flex-direction and flex-wrap
5. **justify-content** - aligns items along the main axis (start, end, center, between, around)
6. **align-items** - aligns items along the cross axis (start, end, center, stretch, baseline)
7. **align-content** - aligns a flex container's lines along the cross axis when there is extra space (start, end, center, stretch, between, around)
8. **flex-grow** - defines how much a flex item will grow relative to the rest of the items in the container
9. **flex-shrink** - defines how much a flex item will shrink relative to the rest of the items in the container

10. **flex-basis** - defines the initial size of a flex item before the remaining space is distributed
11. **flex** - shorthand property for setting the flex-grow, flex-shrink, and flex-basis properties
12. **align-self** - overrides align-items on a single flex item.

Each of these properties allows you to control different aspects of the flexbox layout, making it a very powerful and flexible tool for creating complex, responsive layouts.