FAQs

1. **What is wine?**

   Ans: A simple definition of wine is the fermented juice of the grape. Nevertheless any fruit with a good proportion of sugar may be used for wine production. Thus, citrus, banana, apple, pineapple, strawberries etc., may all be used to produce wine. Such wines are always qualified as fruit wines. If the term is not qualified then it is regarded as being derived from grapes, *Vitis vinifera.*

2. **Briefly give an account on history of wine production?**

   Ans: Wine has been produced for thousands of years. The earliest form of grape-based fermented drink however, was found in northern China, where archaeologists discovered 9,000-year-old pottery jars. The earliest evidence of wine to date was found in the Republic of Georgia where 8,000-year-old wine jars were uncovered. Traces of wine have also been found in Iran with 7,000-year-old wine jars and in Armenia with the 6,100-year-old. Wine had reached the Balkans by 4500 BC and was consumed and celebrated in ancient Greece, Thrace and Rome. It has been consumed for its intoxicating effects throughout history and the psychoactive effects are evident at normal serving sizes.

   The history of wine and winemaking is as old as civilization itself. Stories abound about how wine was first discovered, and one of the more delightful tells of a mythical Persian king called Jamsheed. At his court, grapes were kept in jars for eating out of season. One jar was discarded because the juice had lost its sweetness and the grapes were deemed to be poisonous. A damsel from the king's hareem was suffering from nervous headaches and tried to take her life with the so-called poison. She fell asleep, to awake later feeling revived and refreshed. She told everyone what she had done and of the miraculous cure, and there upon 'a quantity of wine was made and Jamsheed and his court drank of the new beverage'. The great civilizations of Ancient Greece and Rome trace wine back into their pre-history, with similar legends about its discovery. Ancient Egypt has left us wine lists and wall paintings; indeed they even recorded the vintage, vineyard and winemaker on individual jars of wine. The world of wine has grown enormously in the past 20 years, and its international face and accompanying tastes have changed beyond recognition.

   During the Vedic period of Indian history (2500 to 200 BC), based originally around the Indus River system, wine was worshipped as the liquid god Soma because of its medicinal attributes. The Hindus' most ancient sacred text, called the Vedas, credited Soma with great medicinal powers. Another Hindu sacred text is the Rig-Veda, which contained hymns praising Soma such as: 'This is Soma, who flows wine, who is strength giving . . .'; and 'the god Soma heals whatever is sick . . . makes the blind see and the lame walk'.

3. **What are natural wines and mention its types.**

Ans: *Natural wines*: 9-14% alcohol; nature and keeping quality mostly dependent on 'complete' yeast fermentation and protection from air

1. *Still wines* (known as 'Table' wines intended as part of meal); no carbon dioxide added.
    (a) *Dry table wines*: (no noticeable sweetness)
        (i) White; (ii) Rose (pink); (iii) Red
    (b) *Sweet table wines*
        (i) White (ii) Rose

Further naming of above depends on grape type, or region of origin.

2. *Sparkling wines* (appreciable CO2 under pressure)
    (a) White (Champagne); (b) Rose (Pink Champagne); (c) Red (Sparkling burgundy; cold duck)

4. **Write a short note on Fortified wines.**

Ans: *Fortified (Dessert and appetizer) wines*: Contain 15 to 21% alcohol; nature and keeping quality depends heavily on addition of alcohol distilled from grape wine.

1. *Sweet wines*
    (a) White (Muscatel, White port, angelica)
    (b) Pink (California tokay, tawny port)
    (c) Red (Port, black Muscat)

2. *Sherries*: (White sweet or dry wines with oxidized flavors)
    (a) Aged types
    (b) Flor types
    (c) Baked types

3. *Flavored specialty wines* (usually white Port base)
    (a) Vermouth (pale dry, French; Italian sweet types)
    (b) Proprietary brands

5. **Write an account on fruit wines such as Cider and Perry.**

Ans: Often fruits do not contain enough sugar to make a potent alcoholic beverage. Under such conditions, extra sugar in the form of sucrose is added to encourage fermentation. Fruit wines are popular in some countries where grapes cannot thrive.

Cider is derived from apples, (*Malus pumila*) and perry from pears or a mixture of pears and apples. They differ from other fruit wines in that their alcohol content is low

(4-5% with a maximum of 7-8% v/v) because sugar is not usually added. Fruit wines have been made from cashew, pineapples, and other fruits

6. **Give an account on Palm wine.**

Ans: Palm wine is a general name for alcoholic beverages produced from the saps of palm trees. It differs from the grape wines in that it is opaque. It is drunk all over the tropical world in Africa, Asia, South America. Palm wine is usually a whitish and effervescent liquid both of which properties derive from the fact that the fermenting organisms are numerous and alive when the beverage is consumed.

The sap of the palm is obtained from a variety of positions: the stem of the standing tree, the tip or trunk of the felled tree and the base of the immature male inflorescence. Which method is favored depends on the country concerned but most studies have centered on inflorescence wine. The sap produced by this method in *Elaeis guiniensis* contains about 12% sucrose, about 1% each of fructose, glucose, and raffinose, and small quantities of protein and some vitamins and is a clear, sweet, syrupy liquid.

To produce palm wine a succession of microorganisms occurs roughly: Gram negative bacteria, lactic acid bacteria, yeasts and finally acetic acid bacteria. The organisms are not artificially inoculated and find their way into the wine from a variety of sources including the air, the tapping utensils including previous brews and the tree. The wine contains about 3% (v/v) alcohol and since the bacteria and yeasts are consumed live, it is a source of (single cell) protein and various vitamins.

7. **Write an account on fermentation grapes by yeast?**

Ans: The grapes themselves harbor a natural flora of microorganisms (the bloom) which in previous times brought about the fermentation and contributed to the special characters of various wines. Nowadays the must is partially ‘sterilized’ by the use of sulphur dioxide, a bisulphate or a metabisulphite which eliminates most microorganisms in the must leaving wine yeasts. Yeasts are then inoculated into the must. The yeast which is used is *Saccaromyces cerevisiae* and other yeasts which have been used for special wines are *Sacch. fermentati* and *Sacch. oyiformis.*.

8. **How to perform ageing and storage of wine?**

Ans: The fermentation is usually over in three to five days. At this time ‘pomace’ formed from grape skins (in red wines) will have risen to the top of the brew. At the end of this fermentation the wine is allowed to flow through a perforated bottom if pomace had been allowed. When the pomace has been separated from wine and the fermentation is complete or stopped, the next stage is ‘racking’.

The wine is then transferred to wooden casks (100-1,000 gallons), barrels (about 50 gallons) or tanks (several thousand gallons). The wood allows the wine only slow access to oxygen. Water and ethanol evaporate slowly leading to air pockets which permit the growth of aerobic wine spoilers e.g. acetic acid bacteria and some yeasts. The casks are therefore regularly topped up to prevent the pockets. In modern tanks made of stainless steel the problem of air pockets is tackled by filling the airspace with an inert gas such as carbon dioxide or nitrogen.

9. Write an account on clarification step after ageing and storage of wine?

Ans: The wine is allowed to age in a period ranging from two years to five years, depending on the type of wine. At the end of the period some will have cleared naturally. For others artificial clarification may be necessary. The addition of a fining agent is often practiced to help clarification. Fining agents react with the tannin, acid, protein or with some added substance to give heavy quick-settling coagulums. In the process of setting various suspended materials are adsorbed. The usual fining agents for wine are gelatin, casein, tannin, egg albumin, and bentonite. In some countries the removal of metal ions is accomplished with potassium ferrocyanide known as 'blue fining'; it removes excess ions of copper, iron, manganese, and zinc from wines.

10. Describe different wine defects observed so far in the wining industries?

Ans: The most important cause of wine spoilage is microbial; less important defects are acidity and cloudiness. Factors which influence spoilage by bacteria and yeasts include the following

(a) Wine composition, specifically the sugar, alcohol, and sulfur dioxide content;
(b) Storage conditions e.g. high temperature and the amount of air space in the container;
(c) The extent of the initial contamination by microorganism during the bottling process.

When proper hygiene is practiced bacterial spoilage is rare. When it does occur the microorganisms concerned are acetic acid bacteria which cause sourness in the wine. Lactic acid bacteria especially *Leuconostoc,* and sometimes *Lactobacillus* also spoil wines. Various spoilage yeasts may also grow in wine. The most prevalent is *Brettanomyces,* slow growing yeasts which grow in wine causing turbidities and off-flavors. Other wine spoilage yeasts are *Saccharomyces oviformis,* which may use up residual sugars in a sweet wine and *Saccharomyces bayanus* which may cause turbidity and sedimentation in dry wines with some residual sugar. *Pichia* is an aerobic yeast which grows especially in young wines with sufficient oxygen. Other defects of wine include cloudiness and acidity.

11. Write an account on wine preservation?

Ans : Wine is preserved either by chemicals or by some physical means. The chemicals which have been used include bisulphites, diethyl pyrocarbonate and sorbic acid. Physical means include pasteurization and sterile filtration. Pasteurization is avoided when possible because of its deleterious effect on wine flavor.

12. Give an account of the health benefits of the wine?

Ans: Heath benefits of the wine are follows

- **Promotes Longevity:** Wine drinkers have a 34 percent lower mortality rate than beer or spirits drinkers.
- **Reduces Heart-Attack Risk:** Moderate drinkers suffering from high blood pressure are 30 percent less likely to have a heart attack than nondrinkers.
- **Lowers Risk of Heart Disease:** Red-wine tannins contain procyanidins, which protect against heart disease. Wines from Sardinia and southwest France have more procyanidins than other wines.
- **Reduces Risk of Type 2 Diabetes:** Moderate drinkers have 30 percent less risk than nondrinkers of developing type 2 diabetes.
- **Lowers Risk of Stroke:** The possibility of suffering a blood clot–related stroke drops by about 50 percent in people who consume moderate amounts of alcohol.
- **Cuts Risk of Cataracts:** Moderate drinkers are 32 percent less likely to get cataracts than nondrinkers; those who consume wine are 43 percent less likely to develop cataracts than those drinking mainly beer.