Chapter 3: Syrups, Brines and Food Colours

Very Easy Notes in British English + Practice Questions

1. Quick Notes: What You Must Know

Syrup: A mix of sugar and water. We use it only for fruits like mango, apple, amla.

Brine: A mix of salt and water. We use it only for vegetables like carrot, cucumber, cabbage.

Why we use them? 1. To add flavour. 2. To move heat inside the fruit or vegetable when we heat cans. This keeps food safe.

Syrup strength: 20% to 55% sugar. Sour fruits need more sugar. Sweet fruits need less sugar.

Brine strength: Usually 1% to 3% salt.

Temperature: We pour hot syrup or brine at 79-82°C. We leave 0.3 to 0.5 cm space at the top of the can.

Preservative: It stops food from going bad. We add very little, only 0.2%.

Class I Preservatives: Natural. Examples: salt, sugar, vinegar, honey. We can use more of these.

Class II Preservatives: Made in lab. Examples: Sodium benzoate, Potassium Metabisulphite (KMS). We use very little.

KMS (SO■): Called 'universal preservative'. Good: stops bacteria, keeps colour, extra can be removed by heating. Bad: removes colour from phalsa, jamun, strawberry. Not for tin cans.

Food Colours: We use colour because customers buy with their eyes first. Two types: Natural and Synthetic.

Natural Colours: Chlorophyll = green. Carotenoids = yellow-orange. Lycopene = red in tomato. Anthocyanins = red/blue. Betalains = red in beetroot.

Important: Anthocyanins change colour. Red in acid, blue in base. SO■ removes their colour fast.

Synthetic Colours Allowed in India: Red = Ponceau 4R, Carmoisine. Yellow = Tartrazine, Sunset Yellow FCF. Blue = Brilliant Blue FCF. Green = Fast Green FCF.

2. 20 Multiple Choice Questions (MCQ)

1. Syrup is used for which food? A) Vegetables B) Fruits C) Meat D) Fish **Ans: B**

2. Brine is a mixture of: A) Sugar + Water B) Salt + Water C) Vinegar + Water D) Honey + Water **Ans: B**

3. What is the normal range for syrup strength? A) 5-10° Brix B) 20-55° Brix C) 60-80° Brix D) 90-100° Brix **Ans: B**

4. We pour hot syrup at what temperature? A) 50-55°C B) 60-65°C C) 79-82°C D) 100°C **Ans: C**

5. Which preservative is called 'universal preservative'? A) Sodium benzoate B) KMS (SO■) C) Sorbic acid D) Vinegar **Ans: B**

6. Class I preservatives are: A) Synthetic B) Natural C) Harmful D) Banned **Ans: B**

7. How much chemical preservative can we add? A) 2% B) 0.2% C) 10% D) 50% **Ans: B**

8. Red colour of tomato is due to: A) Chlorophyll B) Lycopene C) Carotene D) Anthocyanin **Ans: B**

9. Which colour is green? A) Carotenoids B) Chlorophylls C) Anthocyanins D) Betalains **Ans: B**

10. KMS cannot be used in which juice? A) Mango B) Apple C) Phalsa D) Orange **Ans: C**

11. Tartrazine is which colour? A) Red B) Yellow C) Blue D) Green **Ans: B**

12. Brine is normally used at what strength? A) 10-15% B) 1-3% C) 20-25% D) 50% **Ans: B**

13. Anthocyanins are soluble in: A) Oil B) Water C) Alcohol D) None **Ans: B**

14. Why do we leave space in cans? A) For air B) 0.3-0.5 cm headspace for expansion C) For looks D) No reason **Ans: B**

15. Which is a Class II preservative? A) Sugar B) Salt C) Sodium benzoate D) Honey **Ans: C**

16. Betalains are found in: A) Carrot B) Beetroot C) Spinach D) Potato **Ans: B**

17. Ponceau 4R is what type of colour? A) Natural B) Synthetic Red C) Synthetic Blue D) Natural Green **Ans: B**

18. SO■ has a bad effect on tin cans because it makes: A) Oxygen B) Hydrogen sulphide C) Nitrogen D) Carbon dioxide **Ans: B**

19. For sour fruits, we use: A) Light syrup B) Strong syrup C) No syrup D) Only water **Ans: B**

20. Which acid is added to syrup for flavour? A) Sulphuric acid B) Citric acid C) Hydrochloric acid D) Nitric acid **Ans: B**

3. Fill in the Blanks - 10 Questions

1. Syrup is prepared by dissolving known quantity of _____ in known quantity of water. **Ans: sugar**

2. Brine is prepared by dissolving known quantity of _____ in known quantity of water. **Ans: salt**

3. Anthocyanins are _____ soluble pigments. **Ans: water**

4. Red colour of tomato is due to _____. **Ans: lycopene**

5. Chemical food preservatives are added up to _____ per cent. **Ans: 0.2**

6. Betalains are red and yellow pigments found in _____. **Ans: beet root**

7. Class I preservatives include _____, sugar, and vinegar. **Ans: common salt**

8. _____ and potassium metabisulphite are Class II preservatives. **Ans: Sodium benzoate**

9. Sulphur dioxide cannot be used in juice of phalsa and _____. **Ans: jamun**

10. The green pigment in leaves is called _____. **Ans: Chlorophyll**

4. Book Exercise: FAQ - 10 Questions and Answers

Q1. What is the main difference between syrup and brine?
Ans: Syrup is sugar + water for fruits. Brine is salt + water for vegetables.

Q2. Why do we use preservatives in food?
Ans: To stop bacteria and mould. This keeps food safe for a long time.

Q3. Name two natural preservatives.
Ans: Sugar and common salt.

Q4. Why is KMS not used for jamun juice?
Ans: Because KMS removes the natural red colour of jamun.

Q5. What is the job of food colour?
Ans: To make food look nice and fresh. People buy food that looks good.

Q6. What colour is Tartrazine?
Ans: Tartrazine is a synthetic yellow colour.

Q7. What happens to anthocyanins in acid?
Ans: They become red in acid and blue in base.

Q8. How much headspace do we leave in cans?
Ans: We leave 0.3 to 0.5 cm space at the top.

Q9. What is 1% brine?
Ans: It means 10 grams of salt in 1 litre of water.

Q10. Can we add KMS directly to juice?
Ans: No. First mix it with a little water, then add to the main juice.

5. Short Questions and Answers - 10

Q1. Define syrup.
Ans: A solution of sugar in water used for fruits.

Q2. Define brine.
Ans: A solution of salt in water used for vegetables.

Q3. What is Brix?
Ans: It is a unit to measure sugar in syrup.

Q4. Name one synthetic red colour.
Ans: Ponceau 4R.

Q5. What is the red pigment in beetroot?
Ans: Betalains.

Q6. What is the full form of KMS?
Ans: Potassium Metabisulphite.

Q7. Which gas is made when KMS reacts with tin?
Ans: Hydrogen sulphide with bad smell.

Q8. Name one Class I preservative.
Ans: Vinegar.

Q9. Why do we heat extra SO■?
Ans: To remove extra SO■ from juice by heating.

Q10. What is lycopene?
Ans: A red pigment in tomato. It is a type of carotenoid.

6. Book Exercise: Long Questions and Answers - 10

Q1. Explain how to prepare syrup of different concentrations. Give a table.
Ans: To make syrup, we mix sugar in water. For 20% syrup, mix 0.250 kg sugar in 1 litre water. For 30% syrup, mix 0.428 kg sugar. For 40% syrup, mix 0.666 kg sugar. For 50% syrup, mix 1.000 kg sugar. For 55% syrup, mix 1.222 kg sugar. We use strong syrup for sour fruits and light syrup for sweet fruits. We pour it hot at 79-82°C.

Q2. What is a preservative? Write the two classes with examples.
Ans: A preservative is a substance that stops food from spoiling. Class I: Natural preservatives like salt, sugar, vinegar, honey. We can use more of them. Class II: Chemical preservatives like Sodium benzoate and KMS. We use only up to 0.2% of them.

Q3. Write the advantages and disadvantages of KMS.
Ans: Advantages: 1. Stops bacteria. 2. Keeps colour safe. 3. Keeps top layer of juice safe. 4. Extra SO■ can be removed by heating. Disadvantages: 1. Removes colour from phalsa, jamun, strawberry. 2. Cannot use in tin cans because it makes holes and bad smell. 3. Can change the taste a little.

Q4. What is the importance of colour in food industry? Name natural pigments.
Ans: Colour is very important because customers see colour first. Good colour means good quality. Natural pigments are: Chlorophyll = green, Carotenoids = yellow-orange, Lycopene = red in tomato, Anthocyanins = red/blue, Betalains = red in beetroot, Tannins = brown.

Q5. How does pH change the colour of anthocyanins?
Ans: Anthocyanins change with pH. In acid they look red. In neutral they look purple. In base they look blue. This is why fruit colour changes when we add lemon or soda.

Q6. Write the method to use synthetic food colours safely.
Ans: First, make a paste of powder with cold water. Then add hot water slowly and stir. Cool it. Remove the waste at the bottom. You can add glycerine so the colour does not settle. Always use only approved colours like Tartrazine and Ponceau 4R.

Q7. Why do we not add preservative directly in solid form?
Ans: If we add solid directly, it will sit at the bottom. It will not mix well. Food will start to ferment before the preservative can work. So we must dissolve it in a little water first.

Q8. Compare syrup and brine in a table.
Ans: Syrup: Sugar + Water, For fruits, Sweet taste, 20-55% Brix. Brine: Salt + Water, For vegetables, Salty taste, 1-3% salt. Both are used hot at 79-82°C.

Q9. What are carotenoids? Where do we find them?
Ans: Carotenoids are yellow to orange natural pigments. They are in carrot, pumpkin, mango, orange. Lycopene in tomato is also a carotenoid. They are good for health.

Q10. Write the full process of canning with syrup or brine.
Ans: Step 1: Clean fruit or vegetable. Step 2: Put it in a clean can. Step 3: Make hot syrup or brine 79-82°C. Step 4: Pour it in the can and leave 0.3-0.5 cm space. Step 5: Remove air bubbles. Step 6: Close the lid. Step 7: Heat the can to kill germs. Now the food is safe for months.