



**KERALA AGRICULTURAL UNIVERSITY**  
**B. Tech. (Food Technology) 2024 Admission**  
**III Semester Final Examination – January 2026**

FSQ 2103

**Food Chemistry II (2+1)**

**Marks: 50**  
**Time: 2 hours**

**I State True or False**

**(10x1=10)**

1. All flavour compounds responsible for aroma are non-volatile.
2. Copper stabilizes chlorophyll during heat processing.
3. Vitamin C is stable to heat but unstable to light.
4. All anti-nutritional factors are destroyed at 100°C.
5. Enzyme denaturation is always reversible.
6. Anthocyanins exist in different structural forms depending on pH.
7. Lipoxygenase catalyzes oxidation of unsaturated lipids producing off-flavours.
8. Thermal processing may degrade some synthetic dyes.
9. Cyanogenic glycosides can release toxic hydrogen cyanide on hydrolysis.
10. Synthetic food dyes require regulatory approval for safety and purity.

**II Write short notes on ANY FIVE of the following**

**(5x2=10)**

1. What is mineral fortification and what factors reduces iron bioavailability?
2. State two methods of optimizing vitamin retention during cooking.
3. Mention two uses of lipases in food processing.
4. What is the role of riboflavin in metabolism?
5. Why is oxalate considered anti-nutritional?
6. Differentiate between macro- and micro-minerals with examples.
7. Define betalains and mention their two main types with examples.

**III Answer ANY FIVE of the following**

**(5x4=20)**

1. Explain vitamin fortification, enrichment and restoration in foods.
2. Explain the functions, deficiencies and dietary sources of calcium and iron.
3. Explain the different types of anti-nutritional factors present in foods and their mode of action.
4. Discuss the different types of natural pigments in foods, their behaviour during processing and the technologies used for their retention.
5. Explain the causes of colour loss in foods during thermal processing and discuss the strategies used to minimize it.
6. Explain the nutritional significance and deficiency symptoms of fat-soluble vitamins.
7. Discuss the role of minerals as enzyme cofactors in metabolic reactions.

**IV Write an essay on ANY ONE of the following**

**(1x10=10)**

1. Discuss the role of endogenous enzymes in foods, their effect on flavour and pigment stability and strategies to regulate their activity to maintain quality.
2. Explain how heat affects flavour, natural pigments and vitamins in foods, and discuss methods to retain them during processing.

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