Detailed Syllabus for the post of Technical Superintendent (Dairy) in KCMMF

Category No.424/2024

(Total Mark - 100)

Module No. and Name	Description	Distribution of Marks
1. Liquid Milk	Historical development of Indian dairy sector; composition and properties of milk; collection, preservation, transportation, chilling; processing (pasteurization, sterilization, homogenization, UHT, thermization); types of market milk (standardized, skim, recombined, reconstituted, flavoured, fermented, acidophilus); equipment (bulk coolers, chilling units, silos, reception equipment).	10
2. Fat-Rich Dairy Products (Cream, Butter, Ghee)	Cream: definition, classification, processing; butter manufacture: steps, overrun, equipment, defects and prevention; butter oil and ghee: composition, processing, equipment, quality evaluation; packaging and storage.	10
3. Fermented and Coagulated Milk Products	Fermented milks: yoghurt, buttermilk, acidophilus milk, probiotics; biochemical changes during fermentation; paneer and cheese: types, process flow, equipment; defects, causes and prevention; packaging and storage.	10
4. Frozen, Concentrated and Dried Dairy Products	Ice cream and frozen desserts: composition, processing, defects, equipment; condensed milk: role of milk constituents, manufacture; dried milks (SMP, WMP, roller and spray drying, instantization); recent drying developments; packaging and storage; quality issues and prevention.	10
5. Traditional Indian Dairy Products and By-products	Khoa, chhana, peda, rasgulla, shrikhand, gulab jamun, khoa-based sweets: processing, packaging and storage; dairy by-products: whey, buttermilk, skim milk, ghee residue – utilization in food/feed; equipment and quality evaluation.	10
6. Dairy Chemistry and Quality Assurance	Composition of milk from different species; nutritional importance; legal standards of milk and products; adulteration and detection; preservatives, contaminants and neutralizers; chemical quality of water in dairy; quality control and advanced chemical testing methods.	10
7. Dairy Microbiology and Food Safety	Microbial contaminants in raw milk; spoilage sources and types; clean milk production; public health aspects: milk-borne diseases and toxins; microbiology of products (cream, butter, ice cream, fermented); starter cultures; HACCP and food safety systems; probiotics, functional foods, nutraceuticals.	10
8. Dairy Engineering and Plant Operations	Basic engineering in dairy (fluid mechanics, thermodynamics); boilers, refrigeration, heat exchangers; dairy equipment (pasteurizers, sterilizers, homogenizers, clarifiers, centrifuges); packaging and filling machines; CIP systems; plant layout and construction; energy	10

	conservation; equipment maintenance and innovations.	
9. Dairy Business Management and Economics	Indian dairy industry overview and Operation Flood; dairy breeds and management; feeding, breeding and fodder; dairy enterprise economics; milk marketing in organized/unorganized sectors; international trade; entrepreneurship development; plant management systems; project appraisal.	10
10. Dairy Statistics, Policy and ICT Applications	Industrial statistics and operations research basics; ICT and AI in dairying; dairy development programmes and cooperative models (Anand Pattern); financial management (balance sheet, P&L, annual statements); food safety regulations (FSSAI, Codex, WTO); waste disposal and pollution control; global competitiveness and innovation.	10

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper