

Syllabus for Part IV of Part B in M. Tech Entrance Examinations 2017-18

Unit- 1

Carbohydrates, Proteins, Lipids, Pigments, Food flavours, Enzymatic and non-enzymatic browning; Nutrition: Balanced diet, Essential amino acids and fatty acids, PER, Water soluble and fat soluble vitamins, Role of minerals in nutrition, Antinutrients, Nutrition deficiency diseases.

Unit- 2

General Characteristics of microorganisms, microbial growth in food: Intrinsic and extrinsic factors, Growth and death kinetics, serial dilution method for quantification; Microbial Food spoilage, Food borne illness Food Fermentation.

Unit- 3

Use of analytical techniques for food analysis: General principles and components of instrumentation, Chromatography, Spectroscopy, Polarimetry, thermal methods, Rheology of food products, Moisture analysis.

Unit- 4

Properties of food material (i.e. shape, size, volume, density, porosity, surface areas, friction, rolling resistance, angle of repose etc). Properties of bulk particulate solids (i.e. specific surface area, mean diameter, flow rate, Aerodynamics drag coefficient and terminal velocity, pressure drop through packed beds etc). Thermal properties (i.e. specific heat, thermal conductivity, thermal diffusivity. Dielectric properties viz. dielectric and microwave radiation, dielectric constant, energy absorption, heating etc). Optical properties and transmittance and reflectance. Rheological properties and stress-strain-time relationship.

Unit- 5

Sources of food and their classification- plant foods, animal foods, sea foods. Mechanism and Techniques: Types of preservatives, Advantages of preservation, mechanism of food preservations. Techniques of food preservations- thermal/heat processing(microwave, dielectric), chilling, freezing, chemical, fermentation, irradiation, different types of packaging for food products, smart and active packaging materials, food packaging interactions, Application of nanotechnology to food sciences.