

# WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

## SUBJECT: NUTRITION (NUTN)

CLASS – XII

SEMESTER – III

FULL MARKS: 35

Unit	Topics	Hrs	Marks
Unit 1 Nutritive Phase Of Digestion And Absorbtion	<b><u>I. BIOCHEMICAL AND BIOPHYSICAL ASPECTS IN NUTRITION:</u></b> <ul style="list-style-type: none"> <li>Enzyme-definition and examples, characteristic features and enzyme activity, primary concept of coenzyme, cofactor, prosthetic group, Apo enzyme, holoenzyme, regulatory enzyme. Types of enzyme with special reference to digestive and metabolic enzymes</li> <li>Various biophysical process related to absorption diffusion, osmosis, facilitated diffusion, active and passive transport (elementary concept with examples)</li> </ul>	4	12
	<b><u>II. BREAKDOWN OF FOOD: DIGESTION AND ABSORPTION</u></b> <ul style="list-style-type: none"> <li>Alimentary system and parts of alimentary canal (elementary concept)</li> <li>Digestion -process, site, digestive juices their source, components and functions namely-saliva, gastric juice, pancreatic juice, succus entericus and bile</li> <li>Digestion and absorption of carbohydrates, proteins and fats.</li> </ul>	15	
Unit 2 Nutritive Phase Of Metabolism	<b><u>I. UTILISATION OF FOOD METABOLISM OF CARBOHYDRATES PROTEIN AND FATS:</u></b> <ul style="list-style-type: none"> <li>Metabolism meaning and types</li> <li>Carbohydrate metabolism with special reference to Cori cycle and blood sugar regulation role of hormones, hypoglycemia and hyperglycemia, glycosuria.</li> <li>Aerobic breakdown of Carbohydrates namely glycolysis and TCA Cycle, glycogenolysis.</li> <li>Anabolism of carbohydrates Glycogenesis and Gluconeogenesis (outline concept only)</li> <li>Protein metabolism with special reference to amino acid pool, deamination and urea synthesis through omithine cycle, transamination, decarboxylation and transmethylation and site of protein synthesis.</li> <li>Fat Metabolism elementary concept of beta oxidation only and outline concept of Ketone bodies.</li> </ul> <p>(all metabolic pathway in flow chart)</p>	20	13
	<b><u>II. ENERGY REQUIREMENT OF HUMANS AND CONCEPT OF CALORIE:</u></b> <ul style="list-style-type: none"> <li>Calorie concept, measurement of calorie value of food and energy requirement of humans(elementary and outline concept)</li> <li>Physiological fuel value of food, SDA</li> <li>BMIR and factors controlling it.</li> <li>Reference man and woman.</li> <li>Energy requirement during rest and different physical activities and physiological conditions. (as per ICMR 2020)</li> </ul>	5	

Unit 3 Food Safety And Sanitation	<b>I. SPOILAGE OF FOOD AND FOOD POISONING:</b> <ul style="list-style-type: none"> <li>Classification of food according to shelf life</li> <li>General idea of common microorganisms in different foods.</li> <li>Causes of food spoilage</li> <li>Common Food poisoning (elementary concept-their causes/sources, symptoms and preventive measures only.) like Salmonella, Rota virus, Coliform, Clostridium and streptococcal poisoning.</li> </ul>	6	10
	<b>II. FOOD SAFETY AND PRESERVATION:</b> <ul style="list-style-type: none"> <li>Food sanitation practices, rules for food safety-HACCP, FSSAI (origin and significance), CODEX ALIMENTARIUS.</li> <li>Food preservation methods-concept, objectives and advantages of different food preservation methods.</li> <li>Household methods like freezing, drying, blanching etc.</li> <li>Commercial methods like aseptic canning, milk preservation through pasteurization, smoking of fish, irradiation</li> <li>Preservation using chemicals, sugar, salt, oil and spices. Concept of Class I and Class II preservatives (examples only).</li> <li>Primary concept of few common food additives.</li> <li>Food Adulteration (elementary idea) PFA Act, origin of ISI and AGMARK (in brief)</li> </ul>	10	

Semester III:

CLASS TYPE	HOURS
Theory Classe	60
Practical Classes	40
Remedial/Tutorial/Home Assignments	10
TOTAL	110