

**SHAMBHUNATH INSTITUTE OF PHARMACY**

**Subject Code: RPH-842**

**Subject: Food & Nutraceuticals**

**B. Pharm.**

**8<sup>th</sup> Semester**

**FIRST SESSIONAL EXAMINATION, EVEN SEMESTER, (2019-2020)**

**SECTION – A**

**1. Attempt all questions in brief. (1\*5 = 5)**

<b>Q. No.</b>	<b>QUESTION</b>	<b>Mark</b>
<b>a.</b>	Define nutraceuticals. Ans: Nutraceuticals may be defined as food components made from herbal materials, which are used for preventing different types of chronic/acute disorders.	<b>1</b>
<b>b.</b>	Define Functional Foods. Ans: These are foods with additional function containing biological active compounds having clinically proven and documented benefits.	<b>1</b>
<b>c.</b>	Two Examples of Fortified food. Ans: Salt with Iodine, Milk with Vitamin-D	<b>1</b>
<b>d.</b>	Full Form FSSAI. Ans: Food Safety and Standards Authority of India	<b>1</b>
<b>e.</b>	Two Examples of Heavy Metals present in food. Ans: Copper, Lead, Arsenic, Cobalt, Manganese	<b>1</b>

**SECTION - B**

**2. Attempt any TWO of the following.**

**(2\*5 = 10)**

<b>Q. No.</b>	<b>QUESTION</b>	<b>Mark</b>
<b>a.</b>	Explain Nutritional label claim testing. Ans: For ensuring label claims various testing's are carried out at National laboratories. Testing of vitamins, minerals, amino acids, enzymes and dietary supplements following cGMP process. HPLC, TLC, LC-MS etc. Various testing alongwith certificate like Agmark, BIS and FSSAI are provided to confirm the quality and purity of the products.	<b>5</b>
<b>b.</b>	Explain Fortified food Ans: The process by which micro-nutrients are added to food to improve the quality of the diet are called fortified food. Fortification done by Dry mixing, spraying, coating, addition. Various examples are: Milk with vitamin-D, Salt with iodine, fruit juice with calcium, toothpaste with fluoride, flour with folic acid, bread with niacin.	<b>5</b>
<b>c.</b>	Explain Functional Food Ans: These are foods with additional function containing biological active compounds having clinically proven and documented benefits. Functional foods also effective in prevention and treatment of different diseases like cardiovascular, cancer, obese, hypertension, constipation.	<b>5</b>

	Cereals, legumes, vegetables, fruits and probiotics are useful as functional food.	
<b>d.</b>	<p>Explain Nutraceuticals.</p> <p>Ans: Nutraceuticals may be defined as food components made from herbal materials, which are used for preventing different types of chronic/acute disorders. They are broadly classified as Traditional and Non-traditional.</p> <p>Depending upon the applications, traditional nutraceuticals are divided into: Chemical constituents (Omega-3-fatty acids, menthol, tannins), Probiotic micro-organisms, nutraceutical enzymes (Hemicellulose, cellulose, invertase, bromelain, lysozyme, pepsin, ox bile). In Nontraditional Fortified (cereals with added vitamins, banana with soybean) and recombinant types (vinegar, yogurt, cheese, bread) are there.</p>	<b>5</b>

### SECTION - C

3. Attempt any ONE part of the following:

(1\*5 = 5)

Q No.	QUESTION	Mark
<b>a.</b>	<p>Explain BIS.</p> <p>Ans: Bureau of Indian Standards (BIS) was implemented on 1986 to protect the interest of consumers. Various lab advisory committees are formed for testing activities to support research. BIS is valid for 3 years. The labs are controlled by regular, qualified personnel. Lab must have complete in-house test facilities, electric power, water supply, proper spaces for storage before and after testing, and the lab should be independent for its function.</p>	<b>5</b>
<b>b.</b>	<p>Explain Dietary Supplements.</p> <p>Ans: This is a product containing ingredients which supplement the food. They contain vitamins, minerals, amino acids, enzymes, carbohydrates, weight loss products. They also include sport drinks, sport bars, protein powder, multivitamins.</p>	<b>5</b>

4. Attempt any ONE part of the following:

(1\*5 = 5)

Q. No.	QUESTION	Mark
<b>a.</b>	<p>Explain Probiotics.</p> <p>Ans: Probiotics means for life and are defined as living micro-organisms, when consumed in adequate amounts, maintain health status of the host. They are friendly bacteria that promote healthy digestion and absorption of some nutrients. Probiotics can cure lactose intolerance by the production of the specific enzyme (<math>\beta</math>-galactosidase) that can hydrolyze the offending lactose into its component sugars.</p>	<b>5</b>
<b>b.</b>	<p>Discuss Phytochemicals present in Vegetables.</p> <p>Ans: <math>\beta</math>-carotene present in carrots, Lycopene in tomato, indole in cabbages, allicin in garlic, curcumin in turmeric, omega-3-fatty acid in linseed oil, resveratrol in red onion. Enhancement in nutraceutical properties by tissue culture approach, molecular breeding, biotechnology.</p>	<b>5</b>

5. Attempt any ONE part of the following:

(1\*5 = 5)

Q. No.	QUESTION	Mark
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<p><b>a.</b></p>	<p>Use of Pasturization.          Ans: It is mild heat treatment where food is heated at less than 100°C. It is used to destroy the enzymes and helps to extend shelf-life period of food.          Milk pasteurization temperature 63°C for 30 minutes, 72°C for 15 seconds, 89°C for 1 second, 90°C for 0.5 second, 94°C for 0.1 second and 100°C for 0.01 second.          Various equipments like plate heat exchanger-holding tube-holding tank-balance tank-control and monitoring system.</p>	<p><b>5</b></p>
<p><b>b.</b></p>	<p>Use of blanching          Ans: The primary function is to destroy enzymatic in fruit and vegetables. It reduces surface microbial contamination, softening vegetable tissue to facilitate filling into containers, removing air from intracellular spaces prior to canning. Blanching carried out at 100°C using hot water for specified time, then cooling.</p>	<p><b>5</b></p>