

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[BPHARM0422]

**APRIL 2022
(SEPTEMBER 2021 SESSION)**

Sub. Code: 2088

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 SEMESTER VIII
PAPER XII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS
Q.P. Code: 562088**

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Describe the types of food adulterations in short. Explain with suitable examples how food adulteration is detected with rapid test.
2. Defend the free radical theory of ageing with the help of its modifications.
3. Explain the FDA regulations for nutraceuticals.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain in detail the interaction of environmental factors on the potential of nutraceuticals.
2. Elaborate vitamins as functional food.
3. Summarize the role of free radicals in cancer.
4. Why marine algae are refereed as super food?
5. Elaborate “Reservetrol - a phytochemical as nutraceutical”.
6. Compare and contrast the role of FSSAI and AGMARK rules and regulations.
7. Interpret Flaxseeds and Ginkgo as nutraceuticals.
8. Explain the role of Soya beans as nutraceutical.
9. Enlist the sources of anthocyanidines. Give examples along with their chemical structures.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Probiotics.
2. Source and medicinal benefits of Broccoli.
3. Active biomarkers of Garlic.
4. Biological functions of Carotenoids.
5. Chemical structure and medicinal benefits of Tocopherols.
6. Butylated Hydroxy Anisole.
7. Define nutraceuticals.
8. Melatonin.
9. Types of food adulteration.
10. Lacto Bacillum.

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[BPHARM 1022]

**OCTOBER 2022
(MARCH 2022 SESSION)**

Sub. Code: 2088

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER XII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS
Q.P. Code: 562088**

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions.

(2 x 10 = 20)

1. Explain the role of nutraceutical in prevention and treatment of cancer and heart diseases.
2. What are flavanoids? Explain how they are beneficial as nutraceuticals by taking examples of Rutin and Naringin.
3. What are functional foods? Discuss the role of the dietary fibers as a functional food.

II. Write notes on: Answer any SEVEN questions.

(7 x 5 = 35)

1. Point out the role of Spirulina as nutraceuticals.
2. Enumerate the beneficial and damaging roles of free radicals.
3. What are antioxidants? Classify antioxidants with examples.
4. What are prebiotics and probiotics? Explain how they are beneficial as nutraceuticals?
5. What are phytochemicals? Classify phytochemicals with examples.
6. Enlist the food items that are eligible for AGMARK certification.
7. Compare and contrast α and β -carotenes focusing their sources, chemical structures and medicinal benefits.
8. What is nutrition? Explain the role of nutrition in ageing.
9. Criticize the effect of storage conditions on the potential of nutraceuticals.

III. Short answers on: Answer ALL questions.

(10 x 2 = 20)

1. Mention any four marketed nutraceuticals.
2. Phytoestrogens.
3. Classify Carotenoids.
4. Vitamin C.
5. Biological source, family of Ginseng and structure of Ginsenosides.
6. Medicinal health benefits of Garlic.
7. Mention five regulatory aspects of nutraceuticals.
8. Alpha-Lipoic acid.
9. Write the medical benefits of Sea foods.
10. List out Reactive Nitrogen Species (RNS).

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[B.PHARM 0323]

**MARCH 2023
(SEPTEMBER 2022 EXAM SESSION)**

Sub. Code: 2088

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER XIII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS**

Q.P. Code: 562088

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Define and classify nutraceuticals with examples.
2. Discuss fructo-oligosaccharides and Tocopherols as nutraceuticals in detail.
3. Discuss the GMP on food safety in detail.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Summarize the positive effects of processing on potential of nutraceuticals with suitable examples.
2. Define HACCP. Explain the principles involved in HACCP.
3. Outline the role of free radicals in Diabetes mellitus.
4. Enlist the examples of functional foods for prevention of chronic diseases.
5. Explain the reactive oxygen species.
6. Elaborate the stepwise effects of free radicals on lipids.
7. Compare and contrast ROS and RNS on the basis of production site, function, clearance pathways and examples.
8. Explain Super Oxide Dismutase (SOD) with special emphasis on its isoforms.
9. Write a note on maternal and child nutrition.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Occurrence and chemical structure of Lycopene.
2. Medicinal benefits of Xanthophylls.
3. Chemical structure and medicinal benefits of Quercitin.
4. AGMARK.
5. Define nutraceuticals.
6. Biological source and medicinal benefits of Tea.
7. Vitamin E.
8. Microalgae.
9. Omega 3 fatty acid.
10. Types of inflammation.

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[B.PHARM 0823]

**AUGUST 2023
(MARCH 2023 EXAM SESSION)**

Sub. Code: 2088

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER XIII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS**

Q.P. Code: 562088

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. What are Antioxidants? Explain the biological role of Endogenous and Exogenous enzymatic antioxidants.
2. What are Functional foods? Write the source, marker compounds, medicinal uses and health benefits of Spirulina.
3. Define public health. Write in detail about the nutraceuticals and dietary supplements used in maternal and child nutrition.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain the process of lipid peroxidation and its impact.
2. Write the health benefits and marker compounds of Soyabean and Flaxseeds.
3. Write the role of cereals as functional foods.
4. Classify Sulfides with examples and write about their occurrence? Explain their biological properties.
5. Write in detail the pharmacopoeial specifications for dietary supplements and nutraceuticals.
6. Define hypertension. Write about the nutraceuticals used for prevention and control of hypertension.
7. Explain the effects of storage conditions on nutraceuticals.
8. Write the regulatory aspects of FSSAI and MPO.
9. Define Adulteration. Explain the types and causes of food adulteration.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Define prebiotics and probiotics.
2. Write the health benefits of dietary fibres.
3. Write the importance of MPO.
4. What are complex carbohydrates? Give examples.
5. Mention the uses of Alpha lipoic acid.
6. Write the health benefits of Xanthophylls.
7. Write the biological actions of superoxide dismutase.
8. Define Health and Public Health.
9. What are free radicals? Give examples.
10. What is Osteoarthritis? Mention its causes.

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[B.PHARM 1223]

**DECEMBER 2023
(SEPTEMBER 2023 EXAM SESSION)**

Sub. Code: 2088

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER XIII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS**

Q.P. Code: 562088

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Classify polyphenolics with examples and write about their occurrence. Explain their biological properties.
2. Explain nutraceuticals to be used and dietary habits to be avoided for prevention or control diabetes.
3. Define public health. Write in detail about the nutraceuticals and dietary supplements used in maternal and child nutrition.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Differentiate between polyphenols and flavanoids.
2. What are synthetic antioxidants? Write their mode of action and uses.
3. Explain the impact of processing condition on nutraceuticals.
4. Enlist various endogenous and exogenous antioxidants. Write the biological role of superoxide dismutase.
5. Write a note on prebiotics and probiotics.
6. Explain the process of free radicals mediated damage to protein.
7. Write a note on regulatory aspects of FSSAI on food safety.
8. Explain the process of lipid peroxidation and its impacts.
9. Write the mode of action and biological uses of catalase and glutathione.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Define nutraceuticals.
2. Write health benefits of alpha and Beta-carotene.
3. Write types of food adulteration.
4. Write the uses of wheat on functional foods.
5. Mention the methods used to estimate free radicals.
6. What are the purposes of FSSAI?
7. Write the health benefits of catechins.
8. Write the importance of GMP.
9. Mention functional foods used for prevention of hypertension and stress.
10. What is osteoarthritis? Mention its causes.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[B.PHARM 0524]

MAY 2024

Sub. Code: 2088

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER XIII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS**

Q.P. Code: 562088

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Discuss in detail the source, Name of marker compounds, chemical nature, medicinal uses and health benefits of,
a) Ginseng b) Gingko.
2. Describe the role of free radicals in Atherosclerosis and Kidney damage.
3. Explain the role of Food and Drugs Administration (FDA) Regulatory body in Food Industries.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Highlight the importance of Nutrition education in Community.
2. Give the occurrence and characteristic features of any 2 flavanoids possessing Nutraceuticals properties.
3. Rule out the damaging reactions of free radicals on lipids, proteins and carbohydrates.
4. Enlist the different methods of food adulteration.
5. Brief on the role of functional foods used for chronic disease prevention.
6. Summarise the Regulatory aspects for meat and processed food products.
7. Write down the source, chemistry and health benefits of Oats.
8. Note on free radicals theory of ageing.
9. Synthetic anti-oxidants.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Define Nutraceuticals.
2. Medicinal Uses and health benefits of Flaxseeds and Garlic.
3. Occurrence and Chemical nature of Lycopene.
4. What are Phytoestrogens? Give examples.
5. Differentiate Prebiotics and Probiotics.
6. How Dietary fibers serve as functional foods? Give examples.
7. What are the functions of Super oxide Dismutase?
8. Tocopherols.
9. What is public health nutrition?
10. Mention the characteristics of Functional foods.

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[B.PHARM 1024]

**OCTOBER 2024
(SEPTEMBER 2024 EXAM SESSION)**

Sub. Code: 2088

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PCI Regulation 2017 - SEMESTER VIII
PAPER XIII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS**

Q.P. Code: 562088

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. What are Nutraceuticals? How are they classified? Brief on the role of Nutraceuticals in weight control with suitable examples.
2. Give an account on the medicinal benefits of phytoestrogens with relevant examples.
3. Describe the objectives and functions of FSSAI.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Enlist the Pharmacopoeial specifications for Dietary supplements and Nutraceuticals.
2. Brief on the role of maternal and child nutrition for a healthy life.
3. Illustrate the role of prebiotics and probiotics in gut health with examples.
4. Discuss the impact of free radicals in Diabetes mellitus.
5. Adulteration of foods.
6. Give the occurrence and characteristic features of Wheat bran and Rice bran.
7. Endogenous anti-oxidants.
8. What are the regulatory aspects of food safety?
9. Dietary fibres.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. Define functional foods.
2. Source and medicinal uses of Spirulina, Soyabean.
3. Chemical nature and medicinal benefits of Quercetin, Rutin.
4. What do you mean by Reactive Oxygen Species? Give examples.
5. Mention the active biomarkers of Flaxseeds and Broccoli.
6. What is AGMARK standard?
7. Give examples of sea foods that serve as Nutraceuticals.
8. Carotenoids.
9. Tocopherols.
10. Biological effect of Beta Carotene and Resveratrol.

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[B.PHARM 0925]

SEPTEMBER 2025

Sub. Code: 2088

**B. PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 - SEMESTER VIII
PAPER XIII - DIETARY SUPPLEMENTS AND NUTRACEUTICALS**

Q.P. Code: 562088

Time: Three hours

Maximum: 75 Marks

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Discuss in detail the role of Nutraceuticals used in the treatment of weight control and diabetes with suitable examples.
2. Give an account on the following phytochemicals:
(a) Carotenoids (b) Flavanoids
3. Explain the regulatory aspects of GMPs of food safety.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Write short notes on Ginseng as Nutraceuticals.
2. Discuss the significance of Nutrition education in community.
3. Give the occurrence, chemical nature and medicinal benefits of Naringin.
4. Discuss the usefulness of beverages as functional foods with examples.
5. Describe the role of dietary fibre as functional food ingredients.
6. Enumerate the theory of free radicals in ageing.
7. Write down the source, chemistry and health benefits of catechins and flavones.
8. Highlight the impact of free radicals in kidney and muscle damage.
9. Mention the simple tests to detect food adulteration with relevant examples.

III. Short answers on: Answer ALL questions. (10 x 2 = 20)

1. What are flavonoids? Give examples.
2. Give examples of endogenous antioxidants.
3. What are the medicinal benefits of Lactobacillum and lignans?
4. Define functional foods.
5. What do you mean by malnutrition and public health nutrition?
6. Give the source of Spirulina and Flaxseed.
7. Define Nutraceuticals.
8. What do you mean by Reactive Oxygen Species?
9. Melatonin.
10. Give the source of vitamins used as anti-oxidants.
