

No. of Printed Pages : 2

BPVI-044

**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

June, 2012

**BPVI- 044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION (Theory)**

Time : 2 hours

Maximum Marks : 50

Note : *Attempt any five questions only. All questions carry equal marks.*

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1. Define **any ten** of the following terms : **10x1=10**
 - (a) Fish meal
 - (b) Beche - de -mer
 - (c) Isinglass
 - (d) Shark Fin
 - (e) Squalene
 - (f) Kelp
 - (g) Algin
 - (h) Fish sauce
 - (i) HTST process
 - (j) Ageing
 - (k) Fish silage
 - (l) Nutra centicals

 2. Explain the steps involved in production of Fish Meal. Draw a flow-chart of production of Fish Meal and Oil by Wet Reduction Method. **10**

3. Write short notes on *any two* of the following : 2x5=10
 - (a) Industrial application of Fish Body Oils
 - (b) Steps involved in the manufacture of Isinglass
 - (c) Uses of shark fin and shark fin rays
 4. (a) Explain the methods of harvesting sea weeds. 5
(b) Describe the methods of extraction and purification of Agar. 5
 5. Write short notes on *any two* of the following : 2x5=10
 - (a) Preparation of Fish Soup Powder
 - (b) Advantages of Extrusion Process
 - (c) Packaging and storage of Fish Pickles.
 6. What are the raw materials and equipments used in the preparation of fish flakes/wafers ? Give its recipe. Draw the flow-chart indicating the different steps involved in preparation of cooked fish meat and flakes. 10
 7. (a) Describe the method of preparation of Acid Fish Silage. 5
(b) Draw the flow-chart indicating the different steps involved in separation of shark skin. 5
 8. Explain in detail the different applications of chitin and chitosan. 10
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BPVI-044

**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

June, 2013

**BPVI- 044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

*Note : Attempt **any five** questions only. All questions carry
equal marks.*

1. Define *any ten* of the following terms : 10x1=10
 - (a) Fluffing
 - (b) Fish Liver oil
 - (c) Isinglass
 - (d) Shark Fin Rays
 - (e) Skinning
 - (f) Agar
 - (g) Fish Flakes
 - (h) Fish Noodles
 - (i) Fish Kure
 - (j) Chitin
 - (k) Margarine
 - (l) Squalene

2. What is the importance of Fish Body oil and Fish Liver oil in human health ? Describe how Fish meal can be used in poultry, Animal and Fish Feeds. 10

3. Write short notes on **any two** of the following : 2x5=10
- (a) Precautions to be taken during storage of Fish meal
 - (b) Steps involved in the manufactures of Bech-de-mer
 - (c) Uses of the squalene
4. (a) Explain the methods of drying seaweeds 5
(b) Describe the uses of seaweed as food for humen and animals 5
5. Write short notes on **any two** of the following : 2x5=10
- (a) Preparation of crab soup powder
 - (b) Preparation of Fish Pickle
 - (c) Uses of Agar
6. Define Fish sauce. What are the materials used in its production ? Explain the production process of Fish sauce. 10
-
7. (a) Draw the flowchart indicating the different steps involved in production of chitin. 5
(b) Differentiate between Fermented Fish silage and Acid silage. 5
8. Discuss about the different nutraceutical compounds derived from fish and shell fishes ? Explain the importance of any one nutraceutical. 10

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**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

December, 2013

**BPVI- 044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

*Note : Attempt **any five** questions only. All questions carry equal marks.*

1. Define **any ten** of the following : **10x1=10**

- (a) Fish oil
- (b) Squalene
- (c) Fish maws
- (d) Agar
- (e) Sharkfin soup
- (f) Stick water
- (g) Cyclone Separator
- (h) Ageing
- (i) Fish flakes
- (j) Fish Kure
- (k) HTST Process
- (l) Chitin

2. Explain the steps involved in production of fish meal in Dry Reduction method. **10**

3. Write short notes on **any two** of the following :
(a) Application of fish meal. 2x5=10
(b) Preparation of isinglass
(c) Beche-de-mer
4. (a) Describe the methods of extraction of Shark Fin Rays. 5
(b) What are the important applications of Agar ? 5
5. Write short notes on **any two** of the following :
(a) Preparation of fish sauce. 2x5=10
(b) Preparation of fish noodles using extraction process.
(c) Preparation of Fish Pickle with Tamarind.
6. Name two fishes used for preparation of the fish soup. Give a recipe for Fish Soup. Draw a flow chart indicating different steps involved in the preparation of soup powder. 10
7. (a) What are the quality problems in fish silage preparation using acid ? 5
(b) Differentiate between fermented silage and acid silage. 5
8. (a) Describe the preparation of chitin from Prawn shell waste. 5
(b) Give the important applications of chitin. 5
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00245

BPVI-044

**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

June, 2014

**BPVI-044 :FISH BY PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

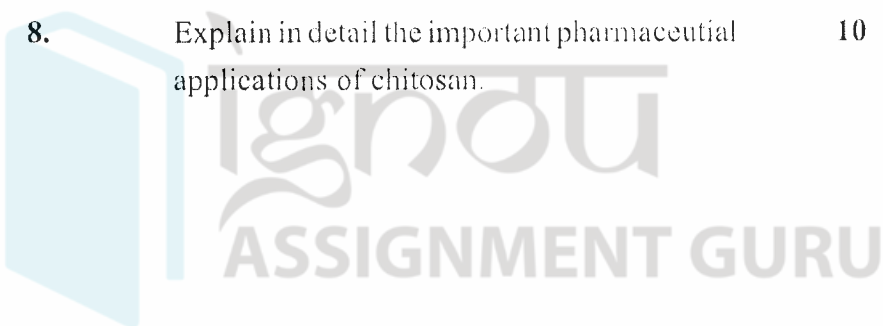
Maximum Marks : 50

Note :Attempt any five questions only. all questions carry equal marks.

1. Define any ten of the following. 10x1=10
- (a) Press liquor
 - (b) Omega3- fattyacid
 - (c) Seaweeds
 - (d) Beche-de-mer.
 - (e) Sharkfin
 - (f) Airbladder of fish.
 - (g) Fermented silage
 - (h) Carrageenan.
 - (i) Fish silage
 - (j) Nutraceuticals

- (k) Squalene
- (l) Ageing
2. Explain the important quality parameters of fishmeal. what are the important uses of fishmeal? **10**
3. Write short notes on any two of use following **2x5=10**
- (a) Preparation of fish body Oil.
- (b) Steps involved in the Manufacture of the Isinglass.
- (c) Extraction of finrays from sharkfin.
4. (a) Describe the methods of extraction and purification of agar. **5**
- (b) What are the important applications of alginates? **5**
5. Write short notes of any two of the following : **2x5=10**
- (a) preparation fo fish wafers
- (b) Recipe for prawn pickle
- (c) Prepration of fish noodles.

6. What are the raw materials and equipments used for preparation of fish soup powder? Draw the flow chart indicating the different steps involved in preparation of soup powder. 10
7. (a) How do you convert fish waste into useful by products? 5
- (b) Draw the flow chart indicating the different steps involved in separation of sharkskin. 5
8. Explain in detail the important pharmaceutical applications of chitosan. 10



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**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

00891

Term-End Examination

December, 2014

**BPVI-044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

Note : Attempt any *five* questions. All questions carry equal marks.

1. Define any *ten* of the following : *10×1=10*

- (a) Poly-unsaturated fatty acids
- (b) Pepsin digestibility
- (c) Maillard reaction
- (d) Limiting aminoacids
- (e) Isinglass
- (f) Bêche-de-mer
- (g) Sodium alginate
- (h) Chitosan
- (i) Bio-active compounds
- (j) Fermented fish silage
- (k) Extrusion process
- (l) Carrageenan

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2. Explain the various steps involved in the extraction of chitin from prawn shell waste and its conversion to chitosan. 10
3. Describe the wet reduction method of fish meal production. 10
4. Write short answers on any **two** of the following: $2 \times 5 = 10$
- (a) Products from fish bone and cartilage
 - (b) Squalamine
 - (c) Fish air bladder
5. (a) Describe the method of production of fish silage. 5
- (b) Differentiate between fish silage and fish meal. 5
6. Explain the different applications of chitin and chitosan. 10
7. Name the important speciality products from fish. Explain the method of production of any two products. 10
8. Name the important commercially exploited sea-weeds and explain the method of production of any two products. 10
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**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

June, 2015

**BPVI-044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

Note : Attempt *any five* questions only. All questions carry equal marks.

1. Define **any ten** of the following : **10x1=10**

- (a) Fish meal
- (b) Denaturation of proteins
- (c) Isinglass
- (d) Shark fin rays
- (e) Agar
- (f) Fish sauce
- (g) Antioxidants
- (h) Fish silage
- (i) Nutraceuticals
- (j) Flocculation
- (k) Squalene
- (l) Collagen

2. (a) Describe the composition and nutritive value of fish meal. 5+5=10
(b) Explain the application of fish meal in livestock feeding.
 3. Describe the method of production of isinglass. How it is used in clarification of beverages ? 5+5=10
 4. What is beche-de-mer ? Describe the different steps in its production. 2+8=10
 5. Explain the different applications of fish body oils. 10
 6. Explain the different steps in the extraction of agar. 10
 7. Write short notes on **any two** : 2x5=10
 - (a) Carrageenan
 - (b) Sodium alginate
 - (c) Extraction of shark fin rays
 8. How are fish liver oils classified ? Name any three methods for extraction of oil from class A livers. Mention the precautions to be taken for storage of fish liver oils. 2+3+5=10
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00105

DIPLOMA IN FISH PRODUCTS TECHNOLOGY (DFPT)

Term-End Examination

December, 2015

BPVI-044 : FISH BY-PRODUCTS AND WASTE UTILIZATION

Time : 2 hours

Maximum Marks : 50

Note : Attempt *any five* questions only. *All* questions carry *equal* marks.

1. Define any ten of the following : 10x1=10

- (a) By-products
- (b) Ensilaging
- (c) Squalene
- (d) Antioxidants
- (e) PUFA
- (f) Fish noodles
- (g) Wet rendering
- (h) Amino acids
- (i) Kelp
- (j) Press liquor
- (k) Alginates
- (l) Fish flakes

2. Explain the steps in fish meal production by wet reduction method. **10**
3. Describe the method of preparation of fish sauce. **10**
4. Write short notes on **any two** of the following :
 - (a) Fermented fish silage **2x5=10**
 - (b) Deterioration of quality of fish meal on storage.
 - (c) Carrageenan and its uses
5.
 - (a) Explain the process of shark fin rays extraction from sharkfins. **5**
 - (b) Describe the preparation of fish soup powder. **5**
6. Explain the different methods followed in the extraction of shark liver oil. **10**
7. Describe the important uses of agar. **10**
8. Write short notes on **any two** of the following :
 - (a) Production of shark skin leather. **2x5=10**
 - (b) Fish pickles
 - (c) Crab wafers

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**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

June, 2016

**BPVI-044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

Note : Attempt any five questions only. All questions carry equal marks.

1. Define any ten of the following : 10x1=10

- (a) Glucosamine
- (b) Dry rendering
- (c) Fermentation
- (d) Blubber
- (e) Putrification
- (f) Food additives
- (g) Fish sauce
- (h) Ageing
- (i) Nutraceuticals
- (j) Fish maws
- (k) Air bladder
- (l) Evisceration

2. Describe the applications of Chitin in different industries. 10
 3. Describe the method of preparation of fish noodles. 10
 4. Describe the uses of Chitin derivatives. 10
 5. Write short notes on **any two** of the following : $2 \times 5 = 10$
 - (a) Preparation of alginate
 - (b) Method of separation of shark skin
 - (c) Handling and processing of Sea Cucumber
 6. Describe the method of preparation of acid fish silage. 10
 7. Write short notes on **any two** of the following : 10
 - (a) Fire hazard during fish meal storage
 - (b) Isinglass preparation
 - (c) Purification of agar
 8. Explain the production of fish meal by Dry Reduction Method. 10
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**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

December, 2016

**BPVI-044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

*Note : (i) Attempt **any five** questions only.*

(ii) All questions carry equal marks.

1. What are the raw materials required for production of fish meal and oil ? Describe the method of handling and preservation of raw materials for production of fish meal. **2+8=10**
2. Write short notes on **any two** of the following : **2x5=10**
 - (a) Composition and nutritive value of fish meal.
 - (b) Importance of fish meal in poultry and animal nutrition.
 - (c) Quality changes in fish meal during storage.
3. Define Isinglass. What are the raw materials required for its production ? Describe the different steps involved in the processing of raw materials for production of Isinglass. **1+2+7=10**

4. Write short notes on **any two** of the following : **2x5=10**
- (a) Extraction and purification of Agar
 - (b) Preparation of Fish Flakes
 - (c) Preparation of crab soup powder
5. Give the recipe for preparation of Salmon Pickle. Describe the method of preparation, packaging, storage and ageing of Salmon Pickle. **3+7=10**
6. Define Chitin. What are the major sources of Chitin ? Describe the different applications of Chitin. **1+2+7=10**
7. (a) What are the characteristics of good quality fermented fish silage ? **5**
- (b) What are the advantages and disadvantages of fish silage in feeding of fishes and livestock ? **5**
8. Explain the different properties and applications of Chitin/Chitosan derivatives. **10**
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00178

DIPLOMA IN FISH PRODUCTS TECHNOLOGY (DFPT)

Term-End Examination

June, 2017

BPVI-044 : FISH BY-PRODUCTS AND WASTE UTILIZATION

Time : 2 hours

Maximum Marks : 50

Note : (i) Attempt any five questions only.

(ii) All questions carry equal marks.

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1. (a) Explain the direct steaming method of extraction of oil from Fish liver. 5
(b) Describe the different methods of preserving Fish liver. 5
 2. Describe the different standards required for a good quality Fish Meal. 10
 3. Define Beche-de-mer. What are the raw materials required for its production? Describe the different steps involved in the processing of raw materials for production of Beche-de-mer. 1+2+7=10
 4. Write short notes on any two of the following :
 - (a) Uses of Alginates 2x5=10
 - (b) Carrageenan
 - (c) Preparation of Crab Wafers

5. Give the equipment required and recipe for preparation of fish noodles. Describe the manufacturing process of preparation of fish noodles. $2+2+6=10$
6. Describe the cationic, biological and chemical properties of chitin. Identify the quality parameters of chitosan. $2+2+2+4=10$
7. Write short notes on **any two** of the following :
(a) Acid Fish Silage $2 \times 5 = 10$
(b) Nutritional characteristics of Fish Silage
(c) Utilization of Shark Skin
8. Identify the nutraceuticals derived from fin fish ?
Explain any one in detail. $5+5=10$

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**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination

December, 2017

**BPVI-044 : FISH BY-PRODUCTS AND WASTE
UTILIZATION**

Time : 2 hours

Maximum Marks : 50

*Note : (i) Attempt any five questions only.
(ii) All questions carry equal marks.*

-
1. Define any ten of the following : 1x10=10
- (a) Denaturation of protein
 - (b) Poly unsaturated fatty acids
 - (c) By-product
 - (d) Air Bladder
 - (e) Fish collagen
 - (f) Squalene
 - (g) Fish pickles
 - (h) Ageing
 - (i) Alginates
 - (j) Fish body oils
 - (k) Chitosan
 - (l) Beche-de-mer
2. (a) Explain the methods used in the extraction of fish-liver oils. 5
- (b) Describe the methods used for preserving fish liver. 5

3. Describe the process of production and preservation of fermented fish silage. 5+5=10
4. What is isinglass ? Explain its production process. 2+8=10
5. Explain the method of the production of fish meal from oil sardine. 10
6. Describe the process of the production of Sodium-alginate with the help of a flow chart. 10
7. Write short notes on **any two** of the following : 2×5=10
 - (a) Shark fin rays
 - (b) Fish soup powder
 - (c) Preparation of Salmon pickle
8. (a) Describe the processes of extraction of chitosan from prawn shell with the help of flow chart. 5
(b) Describe any two applications of chitin. 5

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BPVI-044

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DIPLOMA IN FISH PRODUCTS TECHNOLOGY (DFPT)

Term-End Examination

June, 2018

BPVI-044 : FISH BY-PRODUCTS AND WASTE UTILIZATION

Time : 2 hours

Maximum Marks : 50

Note : (i) *Attempt any five questions only.*

(ii) *All questions carry equal marks.*

-
1. Define any ten of the following : 10x1=10
- (a) Fish maws
 - (b) Isinglass
 - (c) Fish sauce
 - (d) Slurry
 - (e) Food Additives
 - (f) Chitin
 - (g) Fermentation
 - (h) Nuoc mam
 - (i) Carrageenan
 - (j) Fish silage
 - (k) Fish meal
 - (l) Fish wafer
2. (a) Explain the method of cutting and preservation of shark fins. 5
- (b) Explain the method of extraction of shark fin rays. 5

3. Discuss about the processing and utilization of shark skins. 10
4. Describe the method of preparation of Fish flakes with the help of a flow chart. 10
5. Explain the processes of extraction, purification and drying of agar. 10
6. Write short notes on **any two** of the following : **2x5=10**
 - (a) Uses of Fish Silage
 - (b) Preparation of Fish Noodles
 - (c) Nutraceuticals
7. Explain the method of extraction of oil from shark liver and separation of squalene. 5+5=10
8. Write short notes on the following : 2x5=10
 - (a) Packaging and storage of Fish Meal
 - (b) Importance of Fish Liver Oil in Human Health

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BPVI-044

**DIPLOMA IN FISH PRODUCTS TECHNOLOGY
(DFPT)**

Term-End Examination, 2019

BPVI-044 : FISH BY-PRODUCTS AND WASTE UTILIZATION

Time : 2 Hours

Maximum Marks : 50

Note : Answer **any five** questions. All questions carry equal marks.

1. (a) Explain the procedure for extraction of Chitin from crab shell waste. [5]
(b) Explain the advantages and uses of fish silage. [5]
2. Name the nutraceuticals products which can be prepared/extracted from fish/shell fish and explain any one in detail. [3+7]
3. (a) Describe the methods used for digestion and solubilization of proteins of fish liver. [5]
(b) Explain the composition and nutritive value of Fish meal. [5]



4. Draw the flow diagram for the following :
- (a) Fish Wafers [5]
- (b) NUOC Mam (Vietnam) [5]
5. Name the sea weeds from which agar is isolated. Describe the procedure for extraction and purification of Agar. [2+8]
6. Write short notes on **any two** : [2×5=10]
- (a) Uses of squalene
- (b) Fish meal in Animal Nutrition
- (c) Isinglass
7. Describe the technology used in production of Fish Noodles. [10]
8. Give the recipe and method of preparation of Fish Pickle with Tamarind. [10]

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**DIPLOMA IN FISH PRODUCTS
TECHNOLOGY (DFPT)**

Term-End Examination

December, 2020

**BPVI-044 : FISH BYPRODUCTS AND WASTE
UTILIZATION**

Time : 2 Hours

Maximum Marks : 50

Note : Answer any *five* question. All questions carry
equal marks.

1. Define the following : 10×1=10

- (a) Fish Silage
- (b) Alginate
- (c) Becke-de-mer
- (d) Nutraceuticals
- (e) Fish Milt
- (f) Chitin
- (g) Isinglass
- (h) Agar
- (i) Carrageenan
- (j) Ageing

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2. Name the important species of shark used for oil extraction. Explain the process of extraction of shark liver oil. 3+7
3. What is fish maws ? Describe the method of preparation of Isinglass. 2+8
4. (a) Name the different species of sea-weeds containing agar. 2
- (b) Explain the process of preparation of agar in powder form. 8
5. (a) Explain the process of production of acid fish silage. 5
-
- (b) Describe the processing and utilization of shark skin. 5
6. Write short notes on any **two** of the following : 2×5=10
- (a) Squalene
- (b) Fish wafers
- (c) Fish Noodles

[3]

7. Write short notes on any *two* of the following : 2×5=10

(a) Fish Meal

(b) Fish Soup

(c) Applications of Chitin

8. Explain the processing involved in the production of Shark Fin Rays. 10



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