

No. of Printed Pages : 2

MVPI-001

01055

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2011**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

**1. Give one example of each : 1x10=10**

- (a) Gram negative rod
- (b) Endospore former
- (c) Food virus
- (d) Mycotoxin producer
- (e) Differential staining
- (f) Acetic acid producer
- (g) Proteolytic micro organism
- (h) Rapid method for microbial enumeration
- (i) Selective culture medium
- (j) Cocci in bunches

**2. Define the following : 2x5=10**

- (a) Coliforms
- (b) Food Safety
- (c) Probiotic
- (d) Food Contamination
- (e) Fermentation.

3. Differentiate between : 2x5=10
- (a) Mold vs yeast
  - (b) Food Infection vs Food Intoxication
  - (c) Catalase test vs Oxidase test
  - (d) Aspergillus vs Penicillium
  - (e) Halophiles vs Osmophiles
4. (a) Define spoilage. 3
- (b) List the common physical and chemical changes associated with spoilage of foods. 7
5. Explain the principle of the following methods (any two) : 2x5=10
- (a) Flow Cytometry
  - (b) ELISA
  - (c) PCR.
6. (a) What is Food Fermentation Technology ? 5
- (b) List the common (five) food borne diseases along with their causative organism. 5
7. Write short notes on : ( *any four*) 2.5x4=10
- (a) Biosensor
  - (b) Water Activity
  - (c) BSE
  - (d) MPN test
  - (e) Oriental fermented foods.
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MVPI-001

## POST GRADUATE DIPLOMA IN FOOD SAFETY AND QUALITY MANAGEMENT (PGDFSQM)

### Term-End Examination

### June, 2012

### MVPI-001 : FOOD MICROBIOLOGY

Time : 2 hours

Maximum Marks : 50

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

1. Match the following : 1x10=10

(a)	BSE	Giardia
(b)	Gram negative rod	Aspergillus
(c)	Food virus	Thermostable Nuclease Test
(d)	Parasite	Bifido bacteria
(e)	Staphylococcus	Soyabean
(f)	Mycotoxin	Prion
(g)	Tempeh	Fungi
(h)	Emerging Pathogen	Hepatitis A/ Reovirus
(i)	Mycology	H5N1 virus
(j)	Probiotic	Shigella

2. Differentiate between :

2½x4=10

- (a) Mold Vs. Yeast
- (b) Catalase Test Vs Oxidase Test
- (c) Aspergillus Vs Penicillium
- (d) SPC Vs DMC

3. Define the following : 2x5=10
- (a) Food Safety
  - (b) Coliforms
  - (c) Prebiotic
  - (d) Endotoxin
  - (e) Fermentation.
4. What are the factors which influence the rate of spoilage of a food product ? 10
5. Give the detailed methodology of MPN test for detecting coliforms. 10
6. (a) What is Food Fermentation Technology ? 5  
(b) List the various types of Food Fermentations giving examples. 5
7. Write short notes on (*any four*) 2½x4=10
- (a) Salmonellosis
  - (b) Biosensor
  - (c) Flow cytometry
  - (d) Tempeh
  - (e) Detection of Bacillus.

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MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2012**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

1. Define the following : 5x2=10
  - (a) Food Microbiology.
  - (b) Viruses.
  - (c) Chemical preservatives.
  - (d) Psychrotrophic microorganisms.
  - (e) Multiple tube test for water.
  
2. Explain the following : 2x5=10
  - (a) Importance of fermented foods
  - (b) Immunological methods of rapid detection.
  
3. Discuss the screening and enumeration of 10 spoilage micro - organisms in foods.
  
4. Fill in the blanks : 10x1=10
  - (a) \_\_\_\_\_ are classified as prokaryotes.
  - (b) Foods may go sour when bacteria produce\_\_\_\_\_ .
  - (c) Foods containing live cells of bacteria are \_\_\_\_\_.

- (d) The spoilage of honey, sugar syrup and jam is generally caused by\_\_\_\_\_ .
- (e) The minimum water activity value of \_\_\_\_\_ is required by most spoilage molds.
- (f) Deliberate contamination of foods is called\_\_\_\_\_.
- (g) A thick walled spore that develops within cell is called \_\_\_\_\_ .
- (h) The bacteria which are stained purple in gm staining are \_\_\_\_\_ bacteria.
- (i) The killing of micro-organisms by using flame is called \_\_\_\_\_.
- (j) Use of alcohol is a \_\_\_\_\_ method of sterilization.

5. (a) Briefly describe the 'Extrinsic Factors' responsible for food spoilage. 5

(b) Give a brief account of various types of Food Borne Diseases. 5

6. (a) What is the principle behind direct microscopic examination of foods? 3

(b) Comment on 'Dye Reduction Tests' done for determining microbiological quality of milk. 5

(c) In a standard plate count method if plates at  $10^{-4}$  dilution are having 50 and 60 colonies, calculate c.f.u./me. 2

7. (a) Comment on the microscopic examination of bacterial culture using various staining techniques. 5
- (b) How are 'Biosensors' used in Rapid Detection Methods for micro - organisms ? 5
8. Write short notes on **any two** : 2x5=10
- (a) Food Borne diseases and the agents.
- (b) A typical bacterial growth curve.
- (c) Techniques of sterilization in microbiology.



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No. of Printed Pages : 2

MVPI-001

POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)

Term-End Examination

June, 2013

MVPI-001 : FOOD MICROBIOLOGY

Time : 2 hours

Maximum Marks : 50

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

1. Define the following : 5x2=10
  - (a) Industrial Microbiology
  - (b) Molds
  - (c) Food Contamination
  - (d) Thermophilic micro-organisms
  - (e) Complex media
2. Explain the following : 2x5=10
  - (a) Types of food fermentations
  - (b) Microbiological Media
3. Discuss the contamination and spoilage of foods by micro-organisms. 10
4. Fill in the blanks : 1x10=10
  - (a) \_\_\_\_\_ require high level of salt to grow.
  - (b) To keep microbes out is called \_\_\_\_\_.
  - (c) \_\_\_\_\_ are multicellular, filamentous micro-organisms.
  - (d) \_\_\_\_\_ are responsible for causing spoilage of honey, sugar syrup, jam etc.

- (e) \_\_\_\_\_ is a measure of acidity or alkalinity of a solution.
- (f) Natural and manmade substances added to food for an intended purpose are \_\_\_\_\_.
- (g) The radiations used in laminar flow bench are \_\_\_\_\_.
- (h) The bacteria which are stained pink in gm staining are called \_\_\_\_\_.
- (i) A temperature of 121°C for 15 minutes is used for sterilization in an \_\_\_\_\_.
- (j) Use of heat is a \_\_\_\_\_ method of sterilization.
5. (a) Briefly describe the intrinsic factors responsible for spoilage of foods. 5
- (b) Highlight the need for rapid detection techniques for micro-organisms. 5
6. (a) What is the principle behind Direct Microscopic examination of foods? 3
- (b) Comment on 'Dye Reduction tests' done for determining microbiological quality of milk. 5
- (c) In a 'standard plate count' method, if plates at  $10^{-4}$  dilution are having 50 and 60 colonies calculate c.f.u/ml 2
7. (a) What do you know about the 'Polymerase Chain Reaction' used in Rapid Detection method for micro-organisms? 5
- (b) Comment on the Food Borne viral diseases. 5
8. Write short notes on **any two** : 2x5=10
- (a) Technique of gram staining in microbiology.
- (b) Important mold genera in foods.
- (c) Detection and enumeration of spoilage micro-organisms.
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MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2013**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

1. Match the following : 1x10=10
- |                             |               |
|-----------------------------|---------------|
| (a) Baker's yeast           | CFU           |
| (b) Aflatoxin               | Clostridium   |
| (c) Cocci in chain          | Lactose broth |
| (d) Gram negative rod       | Entamoeba     |
| (e) Edible fungi            | MISO          |
| (f) Standard Plate count    | Streptococci  |
| (g) Oriental fermented food | Escherichia   |
| (h) MPN                     | Saccharomyces |
| (i) Intoxication            | Mushroom      |
| (j) Protozoan in food       | Aspergillus   |
2. Define the following : 2x5=10
- Water activity
  - Proteolysis
  - Food Hazards.
  - Selective media.
  - Mycotoxin.

3. State the significance of the following in food safety : **(any two)** **5x2=10**
- (a) Dye Reduction Tests.
  - (b) Serial Dilution
  - (c) Presumptive Test/MPN.
4. (a) What is the role of Lactic Acid Fermentation ? Explain with examples. 6
- (b) List the various emerging pathogens of food borne diseases. 4
5. (a) What is a bacterial growth curve ? 5
- (b) What are the factors which affect the bacterial growth ? 5
6. (a) What are the various methods of food preservation ? 4
- (b) What are the type of spoilage associated with canned foods ? 6
7. Write short notes on **(any four)** **2½x4=10**
- (a) Direct Microscopic Count
  - (b) Tempeh
  - (c) Mycotoxicosis
  - (d) PCR
  - (e) Functional aspects of fermented foods
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MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY AND  
QUALITY MANAGEMENT**

**Term-End Examination**

**June, 2014**

**MVPI - 001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

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1. Match the following :- 1x10

- |                             |                     |
|-----------------------------|---------------------|
| (i) Catalase negative       | Amplification       |
| (ii) EMB                    | Cabbage             |
| (iii) Differential Staining | Mycotoxin           |
| (iv) PCR                    | Heat Resistant form |
| (v) Food borne protozoan    | Bacillus            |
| (vi) Spore                  | Shigella            |
| (vii) Gram negative rod     | Enterobacter        |
| (viii) Aspergillus          | Anaerobes           |
| (ix) Sauerkraut             | Entamoeba           |
| (x) Putrefaction            | LAB                 |

2. (A) Identify the micro-organisms 5
- (i) Baker's yeast
  - (ii) Grows on PDA
  - (iii) Gram positive rod
  - (iv) Anaerobic spore formers
  - (v) Used in production of vinegar
- (B) Justify the statement that Food Microbiology 5  
is an applied branch of biology.
3. (a) Draw a bacterial cell and explain its 5  
structure
- (b) What is the difference between Gram 5  
positive and Gram negative cell wall ?

4. Give the principle of the following 2½x4 =10

(i) Standard Plate Count

(ii) MPN

(iii) MBRT

(iv) PCR

5. (a) Differentiate between Food infection and Food intoxication 4

(b) List the emerging pathogens of concern of food origin 6

6. (a) State the role of lactic acid bacteria in food fermentation 6

(b) What is BSE ? 4

7. Write short notes on (any four)

**2½x4 =10**

- (a) Coliforms
- (b) Bacteriological Examination of Water
- (c) Tempeh
- (d) Sporulation
- (e) Mycotoxins



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No. of Printed Pages : 3

MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2014**

01176

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

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1. Match the following :

*10×1=10*

- |                          |                      |
|--------------------------|----------------------|
| (a) Aflatoxin            | Pseudomonas          |
| (b) Nematode             | Immunological method |
| (c) Yeast                | Kovac's reagent      |
| (d) Aerobic spore-former | Differential media   |
| (e) Frozen meat          | Aspergillus          |
| (f) ELISA                | Trichinella          |
| (g) EMB Agar             | Bacillus             |
| (h) Indole Test          | Listeria             |
| (i) MISO                 | Candida              |
| (j) Food-borne poisoning | Soyabean             |

**2. Differentiate between the following :** *5×2=10*

- (a) Lag phase and Log phase
- (b) Soft rot and Green rot
- (c) Endotoxin and Exotoxin
- (d) Gram +ve and Gram -ve
- (e) Antibiotics and Antiseptics

**3. Define the following :** *5×2=10*

- (a) Osmophilic micro-organisms
- (b) Water activity (aw)
- (c) Mycotoxicosis
- (d) Food-intoxication
- (e) Zymology

**4. Describe the procedure for detection and enumeration of Listeria in food sample.** *10*

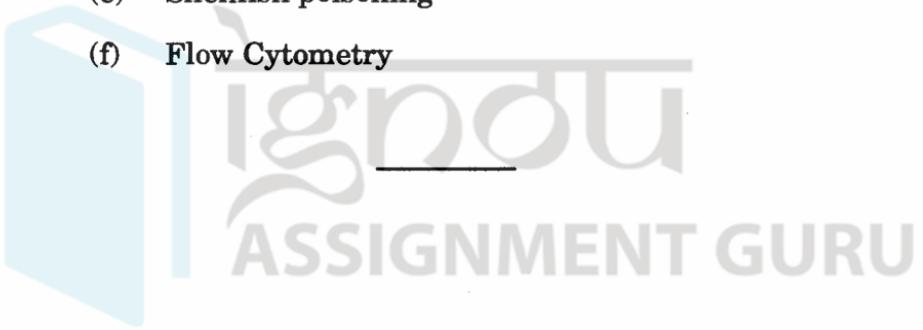
**5. What are the reasons for the fermented foods to be extremely valuable to the human diet ? Give three examples of commercially fermented dairy products with the micro-organisms used.** *7+3=10*

**6. Name five common bacterial food-borne diseases giving their causal organism, symptoms and foods associated with them.** *10*

7. Write short notes on any **four** of the following :

$$4 \times 2 \frac{1}{2} = 10$$

- (a) Importance of Saccharomyces
- (b) Inhibitory substances naturally present in foods
- (c) Food – Irradiation
- (d) Indole Test for *E.Coli*
- (e) Shellfish poisoning
- (f) Flow Cytometry



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MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

01506

**Term-End Examination**

**June, 2015**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

**1. Match the following : 1x10=10**

- |                            |                                     |
|----------------------------|-------------------------------------|
| (a) Penicillium            | Rhodotorula                         |
| (b) Yeast                  | Blood Agar                          |
| (c) Anaerobic spore former | Protozoa                            |
| (d) Enriched medium        | Geotrichum                          |
| (e) Pasteurization         | Staphylococcus                      |
| (f) Dairy Mold             | Bacteriocin                         |
| (g) Biopreservation        | Intestinal tract of man and animals |
| (h) Cocci in groups        | Antibiotic                          |
| (i) Flat worms             | Clostridium                         |
| (j) E. histolytica         | Heating below 100°C                 |

2. Differentiate between : 2x5=10
- (a) Differential media Vs Selective media
  - (b) Antioxidants Vs Antimicrobials
  - (c) Pasteurization Vs Sterilisation
  - (d) Halophilic Vs Osmophilic micro-organisms
  - (e) Mesophiles Vs Psychrophiles
3. Define the following : 2x5=10
- (a) Symbiotic
  - (b) Facultative anaerobes
  - (c) Microbial mass
  - (d) Thermotolerant micro-organisms
  - (e) Functional food
4. Explain the factors contributing to out-breaks of food - borne diseases. Define food infection and food intoxication. 8+2=10
5. Give the procedure for the detection of *staphylococcus aureus* and also method of any two supportive tests. 10
6. Define the terms probiotic and prebiotic, with example. What are the possible health benefits of probiotics? 2+8=10
7. Write short notes on **any four** of the following : 2½x4=10
- (a) Bacterial Growth Curve
  - (b) Spoilage of fruits and vegetables by molds
  - (c) Botulism
  - (d) Coagulase Test
  - (e) Bacteriocins
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MVPI-001

00051 POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)

Term-End Examination

December, 2015

MVPI-001 : FOOD MICROBIOLOGY

Time : 2 hours

Maximum Marks : 50

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

1. Fill in the blanks : 1x10=10

(a) ELISA is rapid method for detection of \_\_\_\_\_ .

(b) Methods of counting bacteria are called \_\_\_\_\_ methods.

(c) Adding acid/base to media is done to adjust \_\_\_\_\_ .

(d) Binary fission is \_\_\_\_\_ mode of reproduction.

(e) Science of biological classification is \_\_\_\_\_ .

(f) Food borne diseases are caused by consuming \_\_\_\_\_ foods.

(g) Tempel is a fermented \_\_\_\_\_ product.

(h) \_\_\_\_\_ are dietary supplements containing beneficial bacteria.

(i) Catalase is a microbial \_\_\_\_\_ .

(j) As micro-organisms grow they tend to form \_\_\_\_\_ .

2. Explain using diagram (any two) : 5x2=10  
(a) Bacterial growth curve  
(b) pH and growth of micro-organisms  
(c) Nucleic acid probes.
3. Give the principle behind (any five) : 2x5=10  
(a) Resazurin test  
(b) MPN method  
(c) Endospore staining  
(d) Negative staining  
(e) DMC  
(f) Immunological methods
4. Briefly discuss all the factors affecting spoilage of food. 10
5. Comment on the following (any two) : 5x2=10  
(a) Emerging Food Borne Diseases.  
(b) Important mold Genera.  
(c) Viral pathogens  
(d) Biosensors
- 
6. What is Food poisoning and explain different types of food poisoning ? 10
7. (a) What is the importance of micro-organisms in foods ? 5+5=10  
(b) What do you know about food contamination ?
8. Write short notes on (any two) : 5x2=10  
(a) Food Borne Diseases.  
(b) Food Fermentations.  
(c) Food Spoilage.
-

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MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**June, 2016**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

1. Explain the following terms briefly (any five) :  $5 \times 2 = 10$ 
  - (a) Water activity
  - (b) Intoxications
  - (c) Food spoilage
  - (d) MPN method
  - (e) Viral pathogens
  - (f) Pure culture methods.
2. Explain 'Standard Plate Count Method' for bacterial enumeration.  $10$
3. Fill in the blanks :  $10 \times 1 = 10$ 
  - (a) \_\_\_\_\_ is not a natural environment for micro - organisms.
  - (b) In 'Swab - Rinse' method the diluent used is \_\_\_\_\_ .
  - (c) Micro - organisms that requires high levels of salt for growth are \_\_\_\_\_ .
  - (d) The science of biological classification is \_\_\_\_\_ .

- (e) Micro - organisms that cause disease are called \_\_\_\_\_ .
- (f) \_\_\_\_\_ is a fermented cabbage product.
- (g) The term \_\_\_\_\_ is used when a product contains both probiotics and prebiotics.
- (h) Saccharomyces is an example of \_\_\_\_\_ .
- (i)  $a_w$  of \_\_\_\_\_ is equivalent to RH of 95%.
- (j) \_\_\_\_\_ is inactive or dormant state of rod shape bacteria.
4. Explain the following (any two) : 2x5=10
- (a) Common methods of food preservation
- (b) Emerging food borne diseases.
- (c) Detection and enumeration of spoilage micro - organism.
5. (a) What is the need of rapid detection techniques of micro - organisms ? 6
- (b) Comment on techniques of gm staining of bacteria. 4

OR

- Comment on technique of spore staining of bacteria.
6. Give an account of Extrinsic and Intrinsic factors responsible for spoilage. 10
7. Explain Microbial Growth Curve with diagram. 10
8. Write short notes on any two : 2x5=10
- (a) CAMP Test
- (b) Food borne diseases and agents
- (c) Microbiological media

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MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2016**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

1. Match the following : 1x10=10

- |                       |                                  |
|-----------------------|----------------------------------|
| (a) Candida           | (i) Emerging food borne pathogen |
| (b) Psychotrophs      | (ii) Mold                        |
| (c) Ropiness of bread | (iii) Aspergillus                |
| (d) Green rot of eggs | (iv) Reduction test              |
| (e) Alternaria        | (v) Colon bacteria               |
| (f) Viroid            | (vi) Yeast                       |
| (g) Vitamin K         | (vii) Cold-tolerant bacteria     |
| (h) MBRT              | (viii) Pseudomonas fluorescence  |
| (i) E.coli. 0157 : H7 | (ix) Single Stranded RNA         |
| (j) Ochratoxin        | (x) Bacillus subtilis            |

2. Define the following : 2x5=10

- (a) Food bioprocessing
- (b) Bacteriocins
- (c) Synbiotic
- (d) Saccharomyces
- (e) MPN

3. State the significance of the following in food safety : (any two) 5x2=10
- (a) Biochemical Tests  
LST - MUG method of E.coli detection
  - (b) Polymerase chain reaction
  - (c) Biochemical Kits
4. (a) Explain the need and scope of food microbiology. 4
- (b) List common molds and yeast involved in food spoilage with diagrams. 3+3=6
5. (a) Classify foods on the basis of their perishability with examples. 4
- (b) Explain the role of extrinsic parameters affecting microbial growth. 6
6. (a) What are the various physical and chemical changes in foods due to growth of micro-organisms ? 6
- (b) Explain types of microbial spoilage associated with meat and fish products. 4
7. Write short notes on any four : 2½x4=10
- (a) CAMP test for Listeria
  - (b) Immuno - Magnetic Separation
  - (c) Salmonellosis and Cholera
  - (d) Probiotics
  - (e) Biosensor
-

No. of Printed Pages : 2

MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

Term-End Examination

June, 2017

**MVPI-001 : FOOD MICROBIOLOGY**

Time : 2 hours

Maximum Marks : 50

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

1. Match the following : 1x10=10

(a)	Geotrichum	(i)	Aspergillus
(b)	Aflatoxin	(ii)	Rickettsiae
(c)	Coxiella	(iii)	Soybean
(d)	Zygosaccharomyces	(iv)	Food parasite
(e)	Emerging food-borne pathogen	(v)	Differential media
(f)	Halophiles	(vi)	Kova'es reagent
(g)	Indole test	(vii)	<i>Listeria</i> <i>Monocystogenes</i>
(h)	Temper	(viii)	Yeast
(i)	Ascaris	(ix)	Dairy mold
(j)	EMB Agar	(x)	Salt tolerant microorganisms

2. Define the following : 2x5=10

- (a) Food Additives
- (b) Water Activity
- (c) Log phase in growth curve
- (d) ELISA
- (e) Mycotoxins

3. State the significance of the following in food safety any two : 5x2=10
- (a) Indole test
  - (b) Rapid detection Technique
  - (c) Flow Cytometry
4. (a) Coagulase test for Staphylococcus. 3
- (b) List common yeasts and molds involved in food spoilage and fermentation. 4
- (c) PCR methods 3
5. (a) How pH and oxidation-reduction potential affect microbial growth in foods ? Explain. 6
- (b) What is Food fermentation Technology ? Explain its benefits. 4
6. (a) What is Immuno-precipitation method ? 2
- (b) Detection and enumeration of Lipolytic count. 3
- (c) State health benefits of probiotic. 2
- (d) Role and importance of secondary Metabolites. 3
7. Write short notes on any four : 2½x4=10
- (a) Enumeration of Coliform
  - (b) Common methods of Food preservation.
  - (c) Diseases by Prions
  - (d) Gram staining
  - (e) Fermented vegetable foods.

No. of Printed Pages : 2

MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2017**

**MVPI-001 : FOOD MICROBIOLOGY**

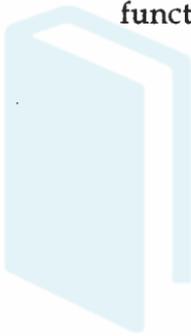
*Time : 2 hours*

*Maximum Marks : 50*

- Note :**
- (i) *Q.No. 1 is compulsory.*
  - (ii) *All questions carry equal marks.*
  - (iii) *Attempt any five questions.*
  - (iv) *All parts of a question must be attempted together*
- 
- 

1. Give one example of each (any five) : 5
- (a)
    - (i) Food borne virus
    - (ii) Baker's yeast
    - (iii) Aflatoxin produces
    - (iv) Neurotoxin produces
    - (v) Aerobic Spore former
    - (vi) Gram negative rod
  - (b) Define food spoilage and explain types of spoilage 5
2. Differentiate between : 10
- (a) Food infection Vs. Food Intoxication
  - (b) Tempeh Vs. Soya sauce
  - (c) Mesophiles Vs. Thermophiles
  - (d) SPC Vs. DMC
3. Explain the bacterial growth curve with the 10  
factors affecting it.

4. (a) What are Coliforms ? 3  
(b) How can you detect coliforms in water ? 7
5. (a) Explain CAMP test 3  
(b) What are the sources of contamination of food ? 7
6. State the significance of following : 10  
(a) Nucleic Acid Probes  
(b) Biosensors  
(c) Endospore Staining  
(d) Cell wall of Gram negative bacteria
7. Explain Flow Cytometry with principle and function 10



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No. of Printed Pages : 2

MVPI-001

01163

**POST GRADUATE DIPLOMA IN FOOD  
SAFETY AND QUALITY MANAGEMENT  
(PGDFSQM)**

**Term-End Examination**

**June, 2018**

**MVPI-001 : FOOD MICROBIOLOGY**

**Time : 2 hours**

**Maximum Marks : 50**

- Note :**
- (i) Question No. 1 is compulsory.
  - (ii) Attempt any five questions.
  - (iii) All questions carry equal marks.

- 
1. (a) Give one example of each (any five) : 5
- (i) Anaerobic spore formation
  - (ii) Brewer's yeast
  - (iii) Food borne virus
  - (iv) Mesophillic bacteria
  - (v) Cocci in bunches
  - (vi) Catalase negative rod
- (b) Explain polymerase chain reaction technique 5  
is detecting pathogen.
2. State the differences between : 10
- (a) Food infection Vs. Food intoxication
  - (b) Proteolytic count Vs. Lipolytic count
  - (c) Exotoxin Vs. Endotoxin
  - (d) Tempeh Vs. Soya sauce
  - (e) Probiotics Vs. Prebiotics
3. Explain the bacterial growth curve and give the 10  
factors which affect it.

4. Give the principle of the following : 10
- (a) Gram's staining
  - (b) Dye Reduction tests
  - (c) Biosensors
  - (d) CAMP Test
5. (a) What are Secondary Metabolites ? Give examples. 3
- (b) Elaborate the biochemical tests used in detecting Salmonella. 7
6. (a) Explain the factors affecting food spoilage. 5
- (b) What are Acid fermentation ? Explain giving examples. 5
7. Write short notes on : 10
- (a) Shell fish poisoning
  - (b) Emerging Food borne pathogens
  - (c) ELISA
  - (d) Mycotoxins
  - (e) Food parasites

No. of Printed Pages : 2

MVPI-001

01145

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**December, 2018**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

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

1. Match the following : 1x10=10

- |                                   |   |
|-----------------------------------|---|
| (a) Listeria                      | (i) Bacteriocins                        |
| (b) Ochratoxin                    | (ii) Blood Agar                         |
| (c) Halophiles                    | (iii) Yeast                             |
| (d) UV radiation                  | (iv) Aspergillus                        |
| (e) Thermostable<br>Nuclease test | (v) Food-borne<br>pathogen              |
| (f) Enriched media                | (vi) Soyabean                           |
| (g) Hepatitis A                   | (vii) Salt tolerant<br>organisms        |
| (h) Biopreservation               | (viii) Emerging food-<br>borne pathogen |
| (i) Candida                       | (ix) Staphylococcus                     |
| (j) Tempeh                        | (x) Meat storage                        |

2. Define the following : 2x5=10
- (a) Endotoxin
  - (b) Proteolysis
  - (c) Temperature danger zone
  - (d) Water activity
  - (e) Osmophilic microorganisms
3. State the significance of the following in food safety (any two) : 5x2=10
- (a) Detection of food-borne pathogens
  - (b) Biochemical Tests
  - (c) Immunological methods
4. Define the term Probiotic, Prebiotic and Synbiotic. What are the possible health benefits of Probiotics ? 3+7=10
5. (a) Explain the role of Intrinsic parameters in affecting the growth of microorganisms in foods. 6+4=10
- (b) Describe the spoilage of fruits and vegetables due to molds.
- 
6. (a) What are the main principles of food preservation ? 3+7=10
- (b) Give the procedure for the detection of *Staphylococcus aureus* in a food sample using conventional technique.
7. Write short notes on any four of the following :
- (a) Membrane filters 2<sup>1/2</sup>x4=10
  - (b) Botulism
  - (c) Bacterial Growth Curve
  - (d) Bacteriophage
  - (e) CAMP Test
-

No. of Printed Pages : 3

**MVPI-001**

**POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT (PGDFSQM)**

**02455 Term-End Examination  
June, 2019**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 hours*

*Maximum Marks : 50*

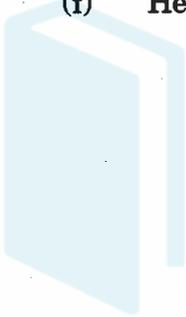
**Note :** Attempt any *five* questions. All questions carry equal marks.

1. Match the following :  $10 \times 1 = 10$
- |                                  |   |
|----------------------------------|---|
| (a) Miso                         | i. Clostridium                                      |
| (b) Green rot in eggs            | ii. <i>Bacillus subtilis</i>                        |
| (c) Parasitic round- worm        | iii. Indole test                                    |
| (d) Anaerobic spore former       | iv. Meat spoilage                                   |
| (e) Emerging food-borne pathogen | v. Geotrichum                                       |
| (f) Dairy mold                   | vi. Reductase test                                  |
| (g) MBRT                         | vii. Pseudomonas                                    |
| (h) Ropiness of bread            | viii. Oriental fermented food                       |
| (i) Controlled atmosphere        | ix. <i>E.coli</i> O <sub>157</sub> : H <sub>7</sub> |
| (j) Kovac's reagent              | x. <i>Trichinella spiralis</i>                      |

2. Define the following : 5×2=10
- (a) Water activity
  - (b) Microbial biomass
  - (c) Neurotoxins
  - (d) Symbiotic
  - (e) Thermophiles
3. State the significance of the following in food safety (any *two*) : 2×5=10
- (a) Biosensors
  - (b) Membrane filter technique
  - (c) PCR
4. (a) Explain the role of extrinsic parameters affecting microbial growth in foods.
- (b) Enlist various methods of food preservation. 6+4=10
5. (a) Give the procedure for enumeration of molds/yeast in a food sample.
- (b) What is IMViC Test ? Explain its significance in food safety. 5+5=10
6. (a) Explain the need and scope of food microbiology.
- (b) Give the procedure for the detection of *Salmonella* in a food sample. 4+6=10

7. Write short notes on any **four** of the following :  $4 \times 2 \frac{1}{2} = 10$

- (a) Bacterial Growth Curve
- (b) Catalase Test
- (c) Economic Importance of Yeast
- (d) Shigellosis
- (e) Ropiness of Bread
- (f) Hepatitis A



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No. of Printed Pages : 2

MVPI-001

**POST GRADUATE DIPLOMA IN FOOD SAFETY AND QUALITY  
MANAGEMENT (PGDFSQM)**

Term-End Examination

December, 2019

**MVPI-001 : FOOD MICROBIOLOGY**

Time : 2 hours

Maximum Marks : 50

- Note :**
- (i) Attempt any five questions.
  - (ii) All the questions carry equal marks.
  - (iii) All the parts of a question must be attempted together.

1. Match the following : 1x10=10
- |                          |                                     |
|--------------------------|-------------------------------------|
| (a) Peptidoglycan        | (i) Require oxygen                  |
| (b) Moist heat           | (ii) Study of Algae                 |
| (c) Phycology            | (iii) Cell wall                     |
| (d) Saccharomyces        | (iv) Auto clave                     |
| (e) Aerobic              | (v) Yeast                           |
| (f) Avian Influenza H5N1 | (vi) Nucleic acid test              |
| (g) <i>E. Coli</i>       | (vii) Virus                         |
| (h) Thermoduric          | (viii) <i>Staphylococcus aureus</i> |
| (i) Coagulase test       | (ix) Gram negative                  |
| (j) PCR                  | (x) Survive Pasteurization          |
2. (a) Describe the different type of microbiological media. 5+5=10  
(b) Briefly describe the fermented soyabean products.
3. Write brief note on : 5x2=10
- (a) ELISA technique
  - (b) Nucleic Acid Probes
4. (a) Define spoilage. What are the types of spoilage encountered in food products ? 1+4  
(b) What are the extrinsic factors that affect spoilage ? 5
5. (a) What are the various types of staining used to study bacterial cultures ? 5  
(b) What are the components of flow cytometry ? 5

6. Write short notes on any four of the following : 2.5x4=10
- (a) MBRT
  - (b) Biosensors
  - (c) Growth curve of microorganisms
  - (d) Mycotoxins
  - (e) Diseases caused by Parasites
7. (a) Enlist the principles of food preservation. 4
- (b) Differentiate between endotoxins and exotoxins. 4
- (c) Give two examples of diseases caused by natural toxins. 2
- 



No. of Printed Pages : 3

**MVPI-001**

**POST GRADUATE DIPLOMA IN FOOD  
SAFETY AND QUALITY  
MANAGEMENT (PGDFSQM)**

**Term-End Examination**

**June, 2020**

**MVPI-001 : FOOD MICROBIOLOGY**

*Time : 2 Hours*

*Maximum Marks : 50*

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

*(ii) All questions carry equal marks.*

*(iii) All the parts of a question must be attempted together.*

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1. Match the following :

1'each

(i) Petroff-Hausser Counter (a) Milk quality

(ii) Laminar airflow (b) Protozoa

(iii) Comma shaped (c) Below 8°C

**P. T. O.**

- |                               |                               |
|-------------------------------|-------------------------------|
| (iv) Cold storage             | (d) Aseptic work area         |
| (v) Spore                     | (e) Vibrio                    |
| (vi) <i>Toxoplasma gondii</i> | (f) Direct microscopic count  |
| (vii) MBRT                    | (g) Inactive or Dormant state |
| (viii) MYP Agar               | (h) Degree of Pathogenicity   |
| (ix) <i>Salmonella</i>        | (i) <i>Bacillus cereus</i>    |
| (x) Virulence                 | (j) BSA, XLD Agar             |

2. What are the sources of food contamination ?  
Explain intrinsic factors affecting food spoilage.

5 + 5

3. Write brief notes on the following : 5 each

- (a) PCR
- (b) DNA chips and microarrays

4. (a) Write the importance of fermented foods. 5  
(b) What are secondary metabolites ? Give *three* examples. 2 + 3

[ 3 ]

5. (a) Explain the dye reduction tests used to detect quality of milk. 5
- (b) Define different fermented dairy products. 5
6. Write short notes on any *four* of the following :  $2\frac{1}{2}$  each
- (a) Negative Staining
  - (b) Antibiotic Resistance
  - (c) CAMP test
  - (d) Water activity
  - (e) Bacterial growth curve
7. (a) Explain the common methods of food preservation. 5
- (b) Explain the principle of LST-MUG method for the detection of *E. coli*. 5