

[KX 808]

SEPTEMBER 2010

Sub. Code: 3808

**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**(Regulations 2008-2009 )**

**(Candidates admitted from 2008-2009 onwards)**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Define Disinfection. Classify Disinfectants.  
Write in detail about evaluation of disinfectants.
2. Write the different types of Media. Differentiate bacteria and fungi.  
Write the different methods of identification of bacteria.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Sterility Testing.
2. Types of Immunity.
3. Dry Heat Sterilization.
4. Antigen – Antibody Reaction.
5. Nutritional Requirement of Bacteria.
6. Name different Blot techniques and explain Western Blot.

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[KY 808]

MAY 2011

Sub. Code: 3808

**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**(Regulations 2008-2009 )**

**(Candidates admitted from 2008-2009 onwards)**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Discuss the factors affecting bacterial growth.

What are the various types of nutrient media?

2. Define immunity and elaborate on different types of immunity.

What are antigen antibody interactions and its importance?

**II. Write notes on:**

**(6 x 5 = 30)**

1. Modes of transmission, diagnosis and treatment of any two viral diseases.

2. Classify different categories of disinfectants with examples and their uses.

3. Microbiological assays.

4. Principle involved in sterility testing.

5. Morphology and identification of fungi.

6. Differential staining.

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**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION****SECOND YEAR****PAPER II – PHARMACEUTICAL MICROBIOLOGY***Q.P. Code: 383808***Time: Three Hours****Maximum: 100 marks****Answer ALL questions in the same order.****I. Elaborate on :****Pages Time Marks  
(Max.) (Max.) (Max.)**

- |                                                                                                                        |    |         |    |
|------------------------------------------------------------------------------------------------------------------------|----|---------|----|
| 1. Explain the structure, nutritional requirements and reproduction of Bacteria.                                       | 17 | 40 min. | 20 |
| 2. Define Sterilization.<br>Discuss the different methods of sterilization with examples.<br>Add a note on validation. | 17 | 40 min. | 20 |

**II. Write notes on :**

- |                                       |   |         |   |
|---------------------------------------|---|---------|---|
| 1. Acquired Immunity.                 | 4 | 10 min. | 6 |
| 2. Cultivation of virus.              | 4 | 10 min. | 6 |
| 3. Evaluation of Disinfectants.       | 4 | 10 min. | 6 |
| 4. Antigen-Antibody reactions.        | 4 | 10 min. | 6 |
| 5. ELISA test.                        | 4 | 10 min. | 6 |
| 6. Microbiological assay of Vitamins. | 4 | 10 min. | 6 |
| 7. Tuberculosis.                      | 4 | 10 min. | 6 |
| 8. Hepatitis.                         | 4 | 10 min. | 6 |
| 9. Standardization of vaccines.       | 4 | 10 min. | 6 |
| 10. Immunization programme.           | 4 | 10 min. | 6 |

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**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION****SECOND YEAR****PAPER II – PHARMACEUTICAL MICROBIOLOGY***Q.P. Code: 383808***Time: Three Hours****Maximum: 100 marks****Answer ALL questions in the same order.****I. Elaborate on :****Pages Time Marks  
(Max.) (Max.) (Max.)**

- |                                                                           |    |         |    |
|---------------------------------------------------------------------------|----|---------|----|
| 1. a) Outline the factors affecting the disinfectant action.              |    |         |    |
| b) Write in detail about Western blot techniques?                         | 17 | 40 min. | 20 |
| 2. a) Elaborate on the microbial assay of riboflavin and cyanocobalamine. |    |         |    |
| b) Write in brief about type of culture media                             | 17 | 40 min. | 20 |

**II. Write notes on :**

- |                                                                 |   |         |   |
|-----------------------------------------------------------------|---|---------|---|
| 1. Discuss the technique involved in Isolation of pure culture  | 4 | 10 min. | 6 |
| 2. Write on widal test and Mantoux test                         | 4 | 10 min. | 6 |
| 3. Classify the various process under moist heat sterilization  | 4 | 10 min. | 6 |
| 4. Reproduction of bacteria                                     | 4 | 10 min. | 6 |
| 5. What you know about HEPA filter                              | 4 | 10 min. | 6 |
| 6. Write the principle and procedure of gram staining technique | 4 | 10 min. | 6 |
| 7. Differentiate between exotoxin and endotoxin                 | 4 | 10 min. | 6 |
| 8. Outline the immunization chart                               | 4 | 10 min. | 6 |
| 9. Write on aerobic and anaerobic fungi                         | 4 | 10 min. | 6 |
| 10. Discuss about carbon source and energy source.              | 4 | 10 min. | 6 |

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**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION****SECOND YEAR****PAPER II – PHARMACEUTICAL MICROBIOLOGY***Q.P. Code: 383808***Time: Three Hours****Maximum: 100 marks****Answer ALL questions in the same order.****I. Elaborate on :**

Pages (Max.)	Time (Max.)	Marks (Max.)
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1. a). Define Immunity.

Explain the classifications of immunity with examples.

17 40 min. 20

b) Microbiological assay of antibiotics.

2. a) Describe the sterility testing for different Pharmaceutical preparations.

17 40 min. 20

b) Counting of Bacteria.

**II. Write notes on:**

1. Reproduction of Fungi.

4 10 min. 6

2. Isolation of Bacteria.

4 10 min. 6

3. Evaluation of preservatives in Pharmaceutical preparations.

4 10 min. 6

4. Structure and Types of Antigen.

4 10 min. 6

5. PCR.

4 10 min. 6

6. Mantoux Test.

4 10 min. 6

7. Microbiological assay of Vitamin B<sub>12</sub>.

4 10 min. 6

8. Malaria.

4 10 min. 6

9. Hepatitis.

4 10 min. 6

10. Multiplication of Viruses.

4 10 min. 6

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**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**(2009-2010 Regulation)**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 100 marks**

**Answer All questions**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. a) Explain different type of ELISA and its importance.  
b) How will you separate macromolecules (DNA, RNA) by Agarose gel electrophoresis method?
2. Write detail about symptom and treatment of following diseases:
  - i) Malaria
  - ii) Tuberculosis
  - iii) Cholera
  - iv) Hepatitis.

**II. Write notes on:**

**(10 x 6 = 60)**

1. Preparation of Alum precipitated toxoids.
2. Differentiate active and passive immunity.
3. Write on Viable counting methods.
4. Write differential media with examples.
5. Define validation and explain its importance.
6. Give brief account on Toxin neutralization test.
7. Specify the Function of T cells and B cells.
8. Write on gaseous sterilization method.
9. Antigen antibody interactions.
10. How will you carryout test for Sterility?

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[LD 808]

OCTOBER 2013

Sub. Code: 3808

**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer All questions**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. Write on Bacteriostatic and bactericidal evaluation of disinfectant.
2. Elaborate study about growth and reproduction of bacteria.

**II. Write notes on:**

**(10 x 3 = 30)**

1. Brief notes on widal test.
2. Define immunity and explain naturally acquired active and passive immunity with examples.
3. Outline about gradient plate techniques.
4. Brief notes on total counting method.
5. Differentiate vaccine and sera.
6. Give a brief account of Polymer chain reaction.
7. How will you Preserve the culture by soil and nitrogen gas method.
8. Explain Selective media with example.
9. Expand HAT media and its function.
10. Outline about phagocytosis.

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**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer All questions**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. a) Classify Microbes with examples.

Explain in detail about the morphology of Bacteria. **(10)**

b) Give the different methods of isolation and identification of bacteria with special emphasis to Gram's Staining technique. **(10)**

2. Study of infectious diseases

a) Meningitis.

b) Syphilis.

c) Gonorrhoea and HIV.

**II. Write notes on:**

**(10 x 3 = 30)**

1. Procedure and report of Shick's Test.

2. Define and differentiate Exotoxin and Endotoxin.

3. Enriched media.

4. Maintenance of cultures in laboratory.

5. Rickettsiae with examples.

6. Validation of Autoclave.

7. Explain Pasteurization.

8. Method of counting bacteria by membrane filtration technique.

9. Redial Walker Coefficient Test.

10. Importance of booster dose.

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[LF 808]

OCTOBER 2014

Sub. Code: 3808

**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**(2009-2010 Regulation)**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer All questions**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Explain the use of hot air oven and autoclave to control microorganisms.
2. Classify immunity and describe active immunity with example
3. Explain IMViC test in detail.
4. Elaborate on the structure of bacterial cell wall with a note on peptidoglycan synthesis.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Discuss the life cycle of malarial parasite. Write a note on laboratory diagnosis.
2. Describe bacterial conjugation
3. Define dye and explain different types of dyes with suitable example.
4. Define medium. What is the role of peptone, NaCl and agar in the medium?
5. Classify fungi, with a note on economic importance of fungi.
6. Describe the various Antigen- Antibody reactions in detail.

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[LG 808]

APRIL 2015

Sub. Code: 3808

**DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION**

**(2009-2010 Regulation)**

**SECOND YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer All questions**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Explain about the Isolation and Reproduction of Bacteria.
2. Define Sterilization and describe about the sterilization by heat and chemicals.
3. Classify Disinfectants and discuss in detail about the Evaluation of Disinfectants.
4. Microbiological assay of Antibiotics.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Maintenance of Lab cultures.
2. Cultivation of Virus.
3. Types of Immunity.
4. Immunization programme.
5. Western Blot test.
6. Syphilis and Gonorrhoea.

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[LH 808]

OCTOBER 2015

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**

**(2009-2010 Regulation)**

**FIRST YEAR**

**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code : 383808*

**Time: Three Hours**

**Maximum: 70 marks**

**Answer ALL questions**

**I. Elaborate on :**

**(4 x 10 = 40)**

1. Define validation and explain the validation process.
2. Write in detail about asexual reproduction of bacteria and explain growth and cultivation of bacteria.
3. Explain the various type of counting method.
4. Discuss about factors affecting disinfecting agent.

**II. Write notes on :**

**(6 x 5 = 30)**

1. What is stain? Explain Acid fast staining.
2. Comment on carbon, nitrogen and energy requirement of bacteria.
3. Explain isolation of bacteria by pour plate technique and spread plate technique.
4. What is filtration? Explain any two filters used for sterilization.
5. Write a note on differences between Gram positive and Gram negative cell wall.
6. Explain the process of B – cell maturation, activation and differentiation.

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[LI 808]

APRIL 2016

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on :**

**(4 x 10 = 40)**

1. Explain in detail about the Bacterial Cell Morphology with neat diagram.
2. Define and classify the different methods of Sterilization. Discuss in detail about Sterilization by Radiation method.
3. Define and classify Immunity. Discuss the general principles and cells involved in Innate Immunity.
4. Elaborate on: a) HIV b) Tuberculosis.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Blotting technique.
2. Explain selective and differential medium for bacteria.
3. Different methods of bacterial counting.
4. Microbiological assay of Penicillin.
5. Reproduction methods of Yeast.
6. Evaluation of Bactericidal activity of disinfectants.

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[LJ 808]

OCTOBER 2016

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Discuss in detail about gaseous sterilization method including their merits and demerits.
2. Write elaborately Synchronous culture method.
3. Explain the structure and formation of Immunoglobulin. Discuss the significance of different classes of Immunoglobulin.
4. Write in detail about western blot techniques.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Give the note on QBC test.
2. Discuss about antigen antibody reaction.
3. Cholera and its prevention.
4. Give an account of phagocytosis.
5. Write briefly on preservation of lab culture.
6. Microbiological assay of Riboflavin.

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[LK 808]

MAY 2017

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code : 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Discuss in detail isolation methods and identification test for Bacteria.
2. Write in detail on the principle, instrumentation, procedure, merits and demerits of moist heat and Dry Heat Sterilisation.
3. Explain elaborately on antigen-antibody reactions.
4. Discuss in detail on:  
a) Typhoid    b) Malarial infection.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Schick's test.
2. Discuss morphological features of mold.
3. Give the notes on standardization of vaccine.
4. Discuss the various methods for evaluation of disinfectants.
5. Acid - Fast staining technique.
6. Microbiological assay of Vitamin by Turbidometric method.

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[LL 808]

OCTOBER 2017

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code: 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Define Bacteria. Explain the nutritional requirements and cultivation of bacteria.
2. Define Sterilization. Describe the different methods of sterilization by heat.
3. Define Immunity. Explain in details about types of immunity.
4. Define Microbiological assay and explain the microbiological assay of antibiotics.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Maintenance of lab cultures.
2. Explain the factors affecting disinfection action.
3. Southern blot test.
4. Immunization programme.
5. Malaria.
6. Typhoid.

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

[LM 808]

MAY 2018

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code : 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Discuss in detail about the morphological structure of Bacteria with neat diagram.
2. Discuss the various methods of evaluation of disinfectants.
3. Describe the various steps involved in Phagocytosis process.
4. Discuss on : a) Tuberculosis                      b) Hepatitis-B.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Define staining of bacteria. Explain Gram's staining technique.
2. Write note on various methods of Viable counting of bacteria.
3. Diagnosis and prevention of Cholera.
4. Discuss about southern blotting techniques.
5. Discuss on moist heat sterilization.
6. Write briefly about evaluation of bactericidal activity of disinfectants.

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

[LN 808]

OCTOBER 2018

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code : 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. a) Bacterial Growth Curve.  
b) Viable counting of bacteria.
2. Define Sterilization. Describe the sterilization by radiation and chemical agents.
3. Microbiological assay of antibiotics.
4. Malaria.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Cultivation of Viruses.
2. Evaluation of Disinfectants.
3. Acquired immunity.
4. Enzyme linked immunosorbent assay.
5. Tuberculosis.
6. Meningitis & HIV.

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

[LO 808]

MAY 2019

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code : 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Explain different types of medium and methods to isolate the Bacteria.
2. Describe gaseous sterilization including their merits and demerits.
3. Define Bacterial Exotoxins. Differentiate between exotoxin and endotoxin with examples.
4. Define Microbiological assay. Write the principle and procedure of Microbiological assay of Anti-biotics.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Write about Widal Test.
2. Discuss briefly the morphology of Spirochetes.
3. Explain total count techniques of Bacteria.
4. Write about meningitis.
5. Classify the disinfectant with examples.
6. Add a note on Microbiological assay of penicillin.

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

[LP 808]

OCTOBER 2019

Sub. Code: 3808

**PHARM. D DEGREE EXAMINATION**  
**(2009-2010 Regulation)**  
**SECOND YEAR**  
**PAPER II – PHARMACEUTICAL MICROBIOLOGY**

*Q.P. Code : 383808*

**Time : Three hours**

**Maximum : 70 Marks**

**I. Elaborate on:**

**(4 x 10 = 40)**

1. Discuss the morphological feature of Bacteria with diagram.
2. Describe features influence the growth of Bacteria.
3. Define Immunology. Classify various types of Immunity with examples.
4. Explain stepwise Western blot test procedure.

**II. Write notes on:**

**(6 x 5 = 30)**

1. Differentiate selective and differential media with example.
2. Write about the maintenance techniques of lab cultures.
3. Rickettsiae.
4. Validation of biological sterilization methods.
5. Evaluation of preservatives in pharmaceutical formulations.
6. Bacterial exotoxins.

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