

B PHARM
(SEM III) THEORY EXAMINATION 2022-23
PHARMACEUTICAL MICROBIOLOGY

Time: 3 Hours

Total Marks: 75

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief.

10 x 2 = 20

- (a) Mention any two reagents used for acid fast staining.
- (b) Classify physical method of sterilization.
- (c) Mention type of media used for cultivation of fungi.
- (d) Write in brief about the principle of sterility testing.
- (e) What is the role of agar in culture media?
- (f) What are Rodac plates?
- (g) Write the incubation conditions for cell culture.
- (h) List out different types of spoilage in pharmaceuticals.
- (i) Write a note on Grade B room.
- (j) Write a short note on bio-indicators for thermal sterilization.

SECTION B

2. Attempt any *two* parts of the following:

2 x 10 = 20

- (a) Enlist various methods of evaluation of bacteriostatic and bactericidal disinfectant. Explain any method of bacteriostatic disinfectant.
- (b) Write about importance of microbial preservation technique. Write procedure, merit, and demerit of any four preservation techniques.
- (c) Explain the source, mechanism of sterilisation, merit, demerits, and applications of sterilization using radiations.

SECTION C

3. Attempt any *five* parts of the following:

7 x 5 = 35

- (a) Write in detail about the construction and design of aseptic room.
- (b) What are the methods used for the evaluation of microbial stability of formulations?
- (c) Explain in detail about the principle involved in autoclaving.
- (d) Describe steps involved in replication of virus.
- (e) Explain IMViC tests used for identification of bacteria.
- (f) Write briefly on different methods used for microbiological assay of antibiotics.
- (g) Give the principle and main characteristic of phase contrast microscopy.

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B PHARM
(SEM III) THEORY EXAMINATION 2018-19
PHARMACEUTICAL MICROBIOLOGY

Time: 3 Hours**Total Marks: 75****Note:** Attempt all Sections.**SECTION A**

1. Attempt *all* questions in brief. 10 x 2 = 20

- a. Differentiate between Prokaryotes and Eukaryotes in two main aspects.
- b. What is contribution of Alexander Flemming in Microbiology?
- c. How will you define Pasteurization?
- d. What do you understand by aseptic and clean area?
- e. Draw a neat labeled diagram of a bacterial cell.
- f. What is the difference between Yeast and Mould?
- g. Enlist the vegetative modes of reproduction in Fungi.
- h. Define Sterilization.
- i. What do you understand by IMViC?
- j. Enlist different types of phenol Coefficient tests.

SECTION B

2. Attempt any *two* parts of the following: 2 x 10 = 20

- a. Enumerate the parameters required for designing of Aseptic area.
- b. Describe the method for microbial standardization of Vitamin B₁₂ or streptomycin.
- c. Discuss various types of animal cell cultures and write the procedure for isolation of cells for *in-vitro* culture.

SECTION C

3. Attempt any *five* parts of the following: 7 x 5 = 35

- a. Describe various factors affecting bacterial growth.
- b. Explain the reproductive cycles of Virus.
- c. Differentiate between dry and moist heat sterilization.
- d. Write principle, procedure and applications of Ziehl-Neelson staining.
- e. What are the various air flow patterns in laminar flow equipments?
- f. Write principle, applications, advantages and disadvantages of Phase contrast microscopy.
- g. Elaborate various factors affecting microbial spoilage.

B. PHARM
(SEM-III) THEORY EXAMINATION 2019-20
PHARMACEUTICAL MICROBIOLOGY

Time: 3 Hours**Total Marks: 75****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

a.	Define antiseptic and disinfectant.
b.	Differentiate microbial spoilage of pharmaceutical product.
c.	Define microbial assay with two examples.
d.	What is disinfectant with two examples?
e.	Enlist the different staining technique.
f.	Differentiate bactericidal & bacteriostatic.
g.	Define aseptic area.
h.	Define microbial contamination.
i.	Write application of cell culture.
j.	What is difference between yeast & moulds

SECTION B**2. Attempt any two parts of the following:****2 x 10 = 20**

a.	Write in detail about scope and application of pharmaceutical microbiology.
b.	Write classification and mode of action of disinfectant.
c.	Write principle, procedure & application of Ziehl Neelson staining.

SECTION C**3. Attempt any five parts of the following:****5 x 7 = 35**

a.	Explain ultra structure and morphological classification of bacteria.
b.	Write principle, application, advantages and disadvantages of phase contract microscopy.
c.	Explain microbial assay of erythromycin.
d.	Differentiate moist heat and dry heat sterilization.
e.	Explain different source of contamination an aseptic area and method of prevention.
f.	Explain cell cultures in pharmaceutical industry and research.
g.	Describe the concept and design of clean and aseptic area.



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B PHARM
(SEM-III) THEORY EXAMINATION 2020-21
PHARMACEUTICAL MICROBIOLOGY

Time: 3 Hours**Total Marks: 75****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

a.	Differentiate between Pharmaceutical and Medical Microbiology.
b.	Give the difference between Prokaryotic and Eukaryotic cell.
c.	How will you define cell culture?
d.	Write any four names of equipments for sterilization.
e.	Give the contribution of Louis Pasteur in the field of Microbiology.
f.	Enlist types of Microscopy.
g.	Define Mechanical Sterilization with example.
h.	Give the difference between bacteriostatic and bactericidal.
i.	Enumerate the sources of contamination in aseptic area.
j.	What is microbial spoilage?

SECTION B**2. Attempt any two parts of the following:****2 x 10 = 20**

a.	Give the morphological classification of bacteria with suitable examples and diagram.
b.	Write the mechanism, procedure and advantages of gram staining technique.
c.	Discuss the applications of cell culture in pharmaceuticals and research.

SECTION C**3. Attempt any five parts of the following:****7 x 5 = 35**

a.	Describe the bacterial growth curve with all phases.
b.	Discuss the methods for prevention of contamination in aseptic area.
c.	Give the principle, working and application of moist heat sterilizer.
d.	What are the factors influencing disinfection?
e.	Discuss the factors affecting microbial spoilage of pharmaceutical products.
f.	Describe different types of sterility indicators for evaluation of sterilization.
g.	How to preserve pharmaceutical products with the help of antimicrobial agent?



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BPHARM
(SEM III) THEORY EXAMINATION 2021-22
PHARMACEUTICAL MICROBIOLOGY

Time: 3 Hours**Total Marks: 75****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

a.	Outline the differences between Prokaryotic and eukaryotic cell.
b.	Enlist (only names) equipments employed in large scale sterilization.
c.	Explain the uses of biological Sterility Indicators.
d.	Discuss the differences between gram positive and gram-negative bacteria.
e.	Explain the advantages of Chick Martin Test over Rideal Walker test.
f.	Illustrate the Media suitability test and Growth promotion test.
g.	Classify clean area in pharmaceutical industry.
h.	Enlist various sources of contamination in sterile area.
i.	Write a note on bacterial spoilage.
j.	Why are eye drops advised to be used or discarded within 30 days after opening?

SECTION B**2. Attempt any two parts of the following:****2 x 10 = 20**

a.	Discuss morphology, Classification and Reproduction of Fungi.
b.	Classify sterilization methods and explain sterilization by autoclaving.
c.	Discuss the design of an aseptic area. What special precautions are to be kept before designing to reduce the risk of contamination?

SECTION C**3. Attempt any five parts of the following:****7 x 5 = 35**

a.	Explain the bacterial growth curve.
b.	Discuss the biochemical tests for microbial identification in brief. Elaborate the Indole production test.
c.	Write a descriptive note on Sterility testing of Liquids and Solids as per IP.
d.	Describe in detail the methods for viral cultivation.
e.	Elaborate the methods for standardization of Vitamins.
f.	Enlist the applications of cell culture in pharmaceutical Industry.
g.	Write a note on different types of preservatives used in pharmaceutical industry.

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B PHARM
(SEM III) THEORY EXAMINATION 2022-23
PHARMACEUTICAL MICROBIOLOGY

Time: 3 Hours**Total Marks: 75****Note:** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.**10 x 2 = 20**

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- (b) Classify physical method of sterilization.
- (c) Mention type of media used for cultivation of fungi.
- (d) Write in brief about the principle of sterility testing.
- (e) What is the role of agar in culture media?
- (f) What are Rodac plates?
- (g) Write the incubation conditions for cell culture.
- (h) List out different types of spoilage in pharmaceuticals.
- (i) Write a note on Grade B room.
- (j) Write a short note on bio-indicators for thermal sterilization.

SECTION B

2. Attempt any two parts of the following:**2 x 10 = 20**

- (a) Enlist various methods of evaluation of bacteriostatic and bactericidal disinfectant. Explain any method of bacteriostatic disinfectant.
- (b) Write about importance of microbial preservation technique. Write procedure, merit, and demerit of any four preservation techniques.
- (c) Explain the source, mechanism of sterilisation, merit, demerits, and applications of sterilization using radiations.

SECTION C

3. Attempt any five parts of the following:**7 x 5 = 35**

- (a) Write in detail about the construction and design of aseptic room.
- (b) What are the methods used for the evaluation of microbial stability of formulations?
- (c) Explain in detail about the principle involved in autoclaving.
- (d) Describe steps involved in replication of virus.
- (e) Explain IMViC tests used for identification of bacteria.
- (f) Write briefly on different methods used for microbiological assay of antibiotics.
- (g) Give the principle and main characteristic of phase contrast microscopy.



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BPHARM
(SEM III) THEORY EXAMINATION 2023-24
PHARMACEUTICAL MICROBIOLOGY

TIME: 3HRS**M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A**1. Attempt all questions in brief.****10 x 2 = 20**

a.	What are prokaryotes and eukaryotes? Give one example of each.
b.	Enlist the factors affecting the microbial spoilage of pharmaceutical products.
c.	Give difference between Antiseptic and Disinfectant with example.
d.	Elucidate about clean area classification according to ISO.
e.	Comment on co-relation between D-value and Z-value in sterilization.
f.	Explicate about primary cell culture.
g.	Explain about DOP test of HEPA filter.
h.	Admit all the physical parameter required for bacterial growth.
i.	How will you explain about discovery of Penicillin?
j.	Give a annotate note on microbiological assay of amino acid.

SECTION B**2. Attempt any two parts of the following:****2 x 10 = 20**

a.	Expound the physical methods of sterilization with principle, procedure & applications.
b.	Explain the Ultra structure of bacteria and give its brief morphological classification.
c.	Discuss general procedure for animal cell culture. Write any two application of cell culture in pharmaceuticals and research.

SECTION C**3. Attempt any five parts of the following:****7 x 5 = 35**

a.	Why do we need to preserve the microbes? Explain any two methods for preservation.
b.	Detailed note on sources and types of microbial contaminants in pharmaceuticals.
c.	Write about gram staining in detail with its principle and procedure.
d.	Define virus. Give methods of cultivation of virus in details.
e.	Illustrate about methods for sterility testing of pharmaceutical products according to IP.
f.	Discuss about the construction and design of aseptic room in proper details.
g.	Elaborate different methods used for microbiological assay of antibiotics or vitamins.



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BPHARM
(SEM III) THEORY EXAMINATION 2024-25
PHARMACEUTICAL MICROBIOLOGY

TIME: 3 HRS**M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A**1. Attempt all questions in brief.****10 x 2 = 20**

a.	Define D-value and Z-value.
b.	Explain IMViC test and its importance.
c.	Write contribution of Robert Koch and Louis Pasteur in Microbiology.
d.	Define microbiological assay and its importance.
e.	Define and classify clean room.
f.	Name methods used to evaluate air quality in aseptic area.
g.	Explain cell line and its types.
h.	Differentiate between mold and fungi.
i.	Describe the sources of contamination in the aseptic area.
j.	Explain antimicrobial agents with example.

SECTION B**2. Attempt any two parts of the following:****2 x 10 = 20**

a.	Explain the working principle and application of phase contrast microscopy with a diagram.
b.	Discuss the principle and procedure of acid-fast staining.
c.	Describe sterilization and details of physical methods of sterilization with diagram.

SECTION C**3. Attempt any five parts of the following:****5 x 7 = 35**

a.	Write a detailed note about culture media and its composition and types.
b.	Discuss methods used for quantitative measurement of bacterial growth.
c.	Explain the phenol coefficient method of disinfectant evaluation.
d.	Discuss methods used for sterility testing of pharmaceuticals.
e.	Describe methods used for antibiotics standardization. .
f.	Discuss the design, construction, and layout of the aseptic area.
g.	Explain the importance of cell culture in pharmaceutical industry.



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BPHARM
(SEM. III) THEORY EXAMINATION 2025-26
PHARMACEUTICAL MICROBIOLOGY

TIME: 3 HRS**M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief.

10 x 2 = 20

a.	Define prokaryotic cell.
b.	What is IMViC test?
c.	Define sterilization indicator with one example.
d.	What is acid-fast staining?
e.	Define virus.
f.	What is phenol coefficient?
g.	Define clean area classification.
h.	What is microbiological assay?
i.	Define viable count.
j.	What is an established cell culture?

SECTION B

2. Attempt any *two* parts of the following:

2 x 10 = 20

a.	Describe the principle, procedure, applications, merits and demerits of radiation sterilization.
b.	Explain the morphology, classification, reproduction and cultivation of fungi.
c.	Discuss the sterility testing of sterile pharmaceutical products as per IP, BP and USP.

SECTION C

3. Attempt any *five* parts of the following:

7 x 5 = 35

a.	Differentiate between prokaryotic and eukaryotic cells with suitable examples.
b.	Describe quantitative measurement of bacterial growth by total count and viable count methods.
c.	Explain the classification and mode of action of disinfectants. Discuss factors affecting disinfection.
d.	Explain the design of aseptic areas and discuss various sources of contamination and their prevention.
e.	Describe the principles and methods of microbiological assay. Add a note on standardization of antibiotics.
f.	Explain the preservation of pharmaceutical products using antimicrobial agents and discuss evaluation of microbial stability.
g.	Discuss primary, established and transformed cell cultures along with their applications in pharmaceutical industry and research.