

College of Science

Department of Botany & Microbiology

كلية العلوم

قسم النبات والاحياء الدقيقة

First Midterm Exam
Academic Year 1447 Hijri- Second Semester

Exam Information معلومات الامتحان			
Course Name	Antibiotics	مضادات حيوية	اسم المقرر
Course Code	463 MBIO	463 حنق	رمز المقرر
Exam Date	2026-04-08	1447-10-21	تاريخ الامتحان
Exam Time	02 00 PM		وقت الامتحان
Exam Duration	2 hours	ساعة واحدة	مدة الامتحان
Classroom No.	1B 13 B. 5	اب ١٣ م ٥	رقم قاعة الاختبار
Instructor Name	Dr. Naiyf S Alharbi	د. نايف بن سلطان الحربي	اسم أستاذ المقرر

Student Information معلومات الطالب		
Student's Name		اسم الطالب
ID number		الرقم الجامعي
Section No.	911	رقم الشعبة
Serial Number		الرقم التسلسلي

General Instructions:

- Your Exam consists of PAGES (Except this page). صفحة (باستثناء هذه الورقة).
- Keep your mobile and smart watch out of the classroom. يجب إبقاء الهواتف والساعات الذكية خارج قاعة الامتحان.

هذا الجزء خاص بأستاذ المادة

This section is ONLY for instructor

#	Course Learning Outcomes (CLOs)	Related Question (s)	Points	Points earned	Final	Actual Score
1	CLO 1: Initial concepts of antibiotics	Q1 (2: A, B) Q2 (1,7,8) Q3 (2,4)	0.5+0.5+0.5+ 0.5+0.5+0.5+ 0.5	3.5	10	
2	CLO 2: Comprehension of extracting and measuring the rate of reaction of antibiotics and antibiotic biosynthesis	Q1 (1) Q2 (3,5,6)	1+0.5+0.5+0. 5	2.5		
3	CLO 3: How to use antibiotic treatment and methods of use in the prevention	Q2 (2,4) Q3 (3,5)	0.5+0.5+0.5+ 0.5	2		
4	CLO 4: Learn how to detect the activity of antibiotics	Q3 (6,7)	0.5+0.5	1		
5	CLO 5: Discuss where antibiotics come from.	Q3 (1)	0.5	0.5		
6	CLO 6: Discuss the causes of the development of antibiotic resistance	0	0	0		
7	CLO 7: How to use antibiotics in the treatment and side effects.	Q3 (8)	0.5	0.5		

EXAM COVER BAGE

Q1: Mention and discuss as required:

(2 Marks)

1- How can the activity of an antibiotic be measured using an enzyme activity method?

(1 Mark)

2- Define the following terms:

A- *In vitro*:

(0.5 Mark)

B- Antitoxin:

(0.5 Mark)

Q2: Put a check (✓) mark if the statement is correct and (×) mark if incorrect.

(4 Marks)

1	Narrow -spectrum antibiotic is an antibiotic that is effective against a wide range of microbial species.	
2	Most antibiotics used clinically target specific and unique targets, such as peptidoglycan, bacterial 70S ribosome, and bacterial DNA.	
3	Technological methods are traditional and slow.	
4	Selective toxicity is the ability of an antibiotic to kill or harm the cells of a microorganism without harming the cells of the host organism.	
5	Nephelometry is less sensitive than turbidimetry.	
6	Synthetic antibiotics are fully manufactured by chemical synthesis and are designed to mimic or improve natural structures.	
7	All antibiotics are antimicrobials.	
8	The sedimentation coefficient of ribosomal proteins in bacteria is different from that in fungi.	

Q3: Select the correct answer for the following Multiple-Choice Questions.

(4 Marks)

1. Which of the following organisms produces penicillin?

A. *Pseudomonas aeruginosa* B. *Penicillium notatum* C. *Escherichia coli* D. *Lactobacillus* spp

2. Which substance is used to reduce microorganisms on non-living surfaces (like tables, floors) to destroy microorganisms.?

A. Disinfectant B. Sanitizer C. Antiseptic D. Antibiotic

3. What does MBC stand for in microbiology?

A. Minimum Bacterial Concentration B. Minimum Bactericidal Concentration C. Microbial Bacterial Colony D. Maximum Bacterial Count

4. What distinguishes antibiotics from other antimicrobials?

A. Effective only inside the body and against bacteria B. Effective only against viruses C. Work on surfaces D. Synthetic chemicals

5. What does selective toxicity refer to?

A. The ability to kill all cells B. The ability to treat viral infections C. The ability to harm microbes without harming host cells D. The ability to resist degradation

6. Monitoring changes in the electrical resistance of a bacterial sample exposed to an antibiotic over time.

A. Enzyme Activity B. Impedance Analysis C. HS- GC D. Nephelometry

7. One standard method for determining the effect of antibiotic activity is based on measuring the scattered light.

A. Enzyme Activity B. Impedance Analysis C. Nephelometry D. Turbidimetry

8. What is an example of an antibiotic combination that produces synergism?

A. Ampicillin and cephalexin B. Ampicillin and gentamicin C. Quinolone and tetracycline D. Penicillin and streptomycin