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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

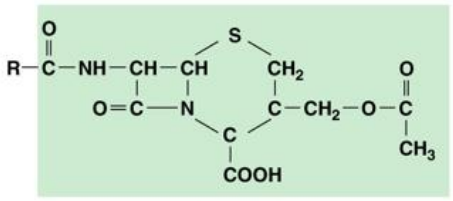
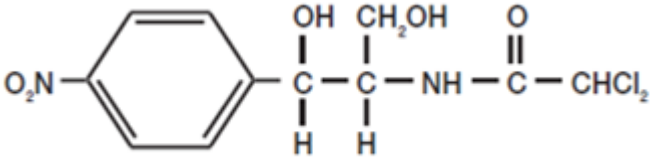
End Semester Examination, December 2021

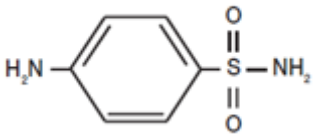
Course: Antimicrobial Drug Resistance **Semester: III**

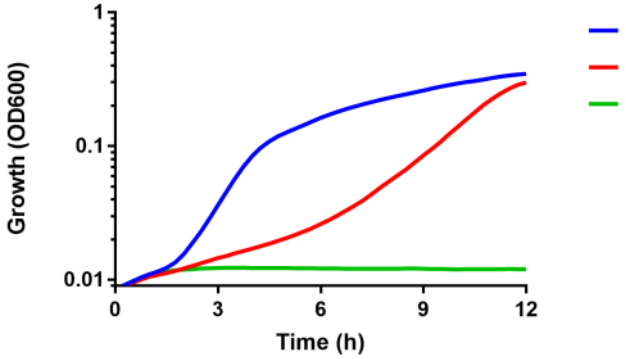
Program: M.Sc. Microbiology **Duration: 03 hrs.**

Course Code: HSMB8006P **Max. Marks: 100**

Instructions:

	SECTION A **(Type the answers in test box)**	**(20Q x1.5M= 30 Marks)**	**CO**
	MCQs or Fill in the blanks	**1.5**	
Q1	Pick the most relevant antibiotic for treating unknown bacterial infection a) Tetracycline b) Rifampicin c) Penicillin **d)** Isoniazid	**1.5**	**CO1**
Q2	---------- is a cell membrane targeting antibiotic.	**1.5**	**CO1**
Q3	See the image below and write the name of the antibiotic: 	**1.5**	**CO1**
Q4	Pick the target of the following antibiotic:  A) Nucleic acid B) Cell wall C) Cell membrane D) Ribosome	**1.5**	**CO1**
Q5	MecA and MecC are associated with antimicrobial resistance in A) Staphyloccous spp. B) MRSA C) Beta lactam resistant bacteria D) None of the above	**1.5**	**CO2**
Q6	Colistin resistance is associated with	**1.5**	**CO4**

	A) Lipids B) Peptidoglycan **C)** DNA **D)** Lipopolysaccharide		
Q7	Expand ESBL.	**1.5**	**CO2**
Q8	Isoniazid resistance happens due to mutations in InhA only. True/False	**1.5**	**CO2**
Q9	Ofloxacin, Ciprofloxacin are ----------type of antibiotics. A) Peptides B) Aminglycosides C) Fluoroquinolones D) Macrolides	**1.5**	**CO1**
Q10	When an unknown bacterial infection is suspected which antibiotic of the ones given below is likely to be useful: A) Penicillin B) Tetracycline C) Rifampicin D) None of the above	**1.5**	**CO4**
Q11	Ethambutol is a broad spectrum antibiotic. True/False	**1.5**	**CO4**
Q12	Antiviral drugs are cidal in nature and therefore rarely used. True/False	**1.5**	**CO4**
Q13	Define MDR TB	**1.5**	**CO3**
Q14	mcr-1 gene is associated with antibiotic ----------	**1.5**	**CO2**
Q15	Expand HAART	**1.5**	**CO1**
Q16	Expand AZT	**1.5**	**CO1**
Q17	Gram positive bacteria treated with Penicillin give rise to ---------- while gram negative give rise to ----------.	**1.5**	**CO4**
Q18	----------, ---------- and ---------- are three types of beta Lactamases.	**1.5**	**CO2**
Q19	---------- is an antibiotic associated with ototoxicity.	**1.5**	**CO2**
Q20	---------- and ---------- are two types of antimicrobial resistance.	**1.5**	**CO2**
	SECTION B **(Scan and upload)**	**(4Qx5M=20 Marks)**	**CO**
Q	Short Answer Type Question (5 marks each)	**5M**	
Q1	Identify the drug below and explain mode of action. 	**5M**	**CO1**
Q2	Elaborate advantages and disadvantages of antibiotic therapy? What should be the advise for person taking antibitoics and why?	**5M**	**CO1**
Q3	Name few antibiotic producing microbes with species OR What is the role of serendipity in discovery of antibiotic and which antibiotic was discovered serendipitously?	**5 M**	**CO2**
Q4	What are nucleoside inhibitors? Can they be used as antimicrobials?	**5M**	**CO4**

	SECTION C **(Scan and upload)**	**(2Qx15M=30 Marks)**	**CO**
	Two case studies 15 marks each subsections		
Q1	A patient has lost a lot of weight, has suspected active TB. Based on this answer the following: a) What samples would you take from patient? (2) b) What are the diagnostic tests available esp. how do you distinguish between latent and active TB? (5) c) There is suspected MDR TB, then what tests are you likely to follow (5) d) What is DOTS and why is it required? (3)	**15 M**	**CO3**
Q2	 Bacterial species were grown in three types of media giving rise to three curves shown (blue, green and red) in figure; one with no antibiotic, one with low conc. and third with high conc. of antibiotic : (i) Label the curves accordingly. Mark no antibiotic, low antibiotic conc. and high antibiotic conc. curves (3M) (ii) What is the concentration of antimicrobial at which microbe does not grow called? (1 M) (iii) What are the standards followed in different parts of the world to do AST? (2M) (iv) What are the databases with repository of antimicrobial resistance genes? (5M) (v) What is an E-test. List out its advantages and disadvantages. (4M)	**15 M**	**CO2**
	SECTION- D **(Scan and upload)**	**(2Qx10M=20 Marks)**	**CO**
	Long Answer type Question		
Q1	(i) Give classification of antibiotics and explain mode of action of few OR The mechanism of antimicrobial resistance.	**10 M**	**CO1**
Q2	(ii) What are common methods of performing antimicrobial susceptibility and what are advantages and disadvantages of each?	**10 M**	**CO2**