FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF LIFE SCIENCES
DEPARTMENT OF MICROBIOLOGY

SECOND SEMESTER EXAMINATION 2015/2016 SESSION

COURSE CODE: MCB 525
COURSE TITLE: PHARMACEUTICAL MICROBIOLOGY (3 UNITS)
CLASS: 500 LEVEL
TIME: 2 HOURS

Instruction: Answer FOUR questions, at least two from each section.

SECTION A

1(a). Write short notes on the following:
- (i) Chemostat
- (ii) Biofilm
- (iii) Bisphenol
- (iv) Alcohol
- (v) Organic acids

1(b). A 23-year old woman has 10 *Escherichia coli* inoculated into her bladder while having sex. These E. coli have a generation time of 20 minutes. After a lag of 20 minutes, the *E. coli* entered the logarithmic phase of growth. Calculate the total number of cells.

2(a). The application of heat as a physical agent of sterilization is the simplest means of sterilizing materials" Discuss

2(b). A 73-year old woman was admitted to the hospital for intravenous treatment of an abscess caused by *Staphylococcus aureus*. Subsequent to her treatment and discharge from the hospital, it was necessary to disinfect the hospital room. One thousand of the *S. aureus* cells were exposed to a disfectant. After 10 minutes, 90% of the cells were killed. How many cells remain viable after 20 minutes?

3(a). "Biocides are chemical and physical agents that inactivate microorganisms" Discuss

3(b). Outline the procedure for isolating antibiotic producing bacteria in soil sample. What is the role of "control" in the experiment?

SECTION B

4(a). Explain the role phenol plays in disinfection

4(b). How would you prevent recontamination of pharmaceutical products?

5. Explain five structures specific microorganisms use to adapt to physiological stress exerted on them by antimicrobial agents.

6. Compare and contrast dilution and diffusion methods as models for determining the activity of an antimicrobial agent.