FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: GENERAL MICROBIOLOGY I (FOR SAAT STUDENTS)
COURSE CODE: MCB211 **UNIT: 2 UNITS**
INSTRUCTIONS: Answer any FIVE (5) Questions
DATE: 09/09/2023_8:00AM **Time Allowed: 2hr 30mins**

1a. Define Microscope
1b. List and explain the types of Microscope and give two (2) examples each.

2. As a Microbiologist how can you prepare a specimen for light microscope examination, using fixed, smear and stained method.
3a. Define Microbial culture.
3b. In a tabular form list five (5) types of culture media, based on component and uses.

4. With the aid of a diagram, explain the following isolation/plating Methods
   i. Streak plate method
   ii Spread plate method
   iii Pour plate method
   iv Stab method

5a. What is Ecosystem?
5b. Briefly explain the effect of a keystone species in an ecosystem.

6a. State the roles of organisms in an Ecosystem
6b. Differentiate between food chain and food web.

7. Write short note on any Four (4) of the following:
   i. Commensalism
   ii Amensalism
   iii. Mutualism
   iv. Parasitism
   v. Predatory
   vi. Ecology

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: GENERAL MICROBIOLOGY I (FOR MICROBIOLOGY STUDENTS)
COURSE CODE: MCB211 **UNIT: 2 UNITS**
INSTRUCTIONS: Answer any three (3) questions.
DATE: 09/09/2023_8:00AM **Time Allowed: 1hr 30mins**

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1. Write short notes on the following

(a) Germ theory of disease

(b) Archaea

(c) Coliphages

(d) Horizontal gene transfer

2. (a) Draw a well-labelled prokaryotic cell

(b) List five basic component of a bacteria cell and specify their functions.

(c) In a tabular form, state the distinguishing features between prokaryotic and eukaryotic cell

3. (a) Describe the methods of naming bacteria.

(b) List five (5) Microbiologists and their major contributions to the history of Microbiology.

4. Discuss binary fission in bacteria.

5. Write short note on any two (2) of the following:

(a) Classification of organisms

(b) Mechanism of bacteria evolution

(c) Asexual reproduction in eukaryotes

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: PRINCIPLES OF STERILIZATION AND DISINFECTION
COURSE CODE: MCB312 **UNIT: 2 UNITS**
INSTRUCTIONS: Answer any 3 (three) questions. At least one (1) from each section

DATE: 09/09/2023_8:00AM **Time Allowed: 1hr 30mins**

SECTION A

1. Write short notes on the following

(a) Artificial preservatives

(b) Chelating agents

(c) Antioxidants

2. (a) Briefly explain the significance of mutation on bacteria.

(b) State five ways of reducing resistance

3. (a) Explain Agar well diffusion technique.

(b) State the principle of Agar well diffusion technique.

SECTION B

4(a) Explain heat-based sterilisation with appropriate examples

(b) In a tabular form, differentiate between sterilisation and disinfection

5. Briefly explain the bacterial growth phase.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: MICROBIAL ECOLOGY

COURSE CODE: MCB313 **UNIT: 3 UNITS**

INSTRUCTIONS: Answer any Five (5) Questions.

Time Allowed: 2hrs 30mins

1. (a) Define Microbial Ecology.

(b) Discuss the role of Microbial Ecologists in the global climate change campaign.

2. Discuss morphological and physiological adaptations of microorganisms to their environment.

3. Discuss microbial interactions that take place in the rhizosphere.

4. With the aid of a diagram, explain the nitrogen cycle in nature.

5. (a) Define bioremediation.

(b) A plot of land contaminated with diesel oil was inoculated weekly with *Bacillus subtilis*. After four weeks, about 95% of the polycyclic aromatic hydrocarbons had been reduced to non-toxic compounds. Name and discuss the remediation process employed.

6. (a) What is acid mine drainage?

(b) List any three sources of acid mine drainage.

(c) How can you prevent or clean up acid mine drainage?

7. Discuss the future prospects of Microbial Ecology in Nigeria.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

Course Title: Industrial Microbiology
Course Code: MCB 413
Instruction: Answer four (4) questions in all. Attempt any two (2) questions in each section
Time allowed: 2 hours

SECTION A

1. (a) Describe the scope of Microbiology as a course.

(b) Discuss the applications of the science of Microbiology.

2. (a) Explain culturing.

(b) Apply culturing methods for the production of penicillin and citric acid.

3. (a) Give the overview of locally fermented foods in Nigeria

(b) Describe how to obtain the following fermented foods:

i. *Fufu*

ii. *Ogiri*

iii. *Iru*

SECTION B

4. (a) Briefly discuss the types of biodeterioration

(b) In a tabular form, list five (5) types of biodeteriorable material and two organisms involved in each action.

5. Write short notes on the production of any two of the following:

i Vinegar

ii Ethanol

iii Penicillin

iv Yoghurt

6. Discuss strain improvement by mutation and protoplast fussion using *Aspergillus* sp. as a case study.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: PRINCIPLES OF EPIDEMIOLOGY AND PUBLIC HEALTH

COURSE CODE: MCB414 **UNIT: 3 UNITS**

INSTRUCTIONS: Answer question 1 and any other four (4) questions

Time Allowed: 2hrs 30mins

1. Define epidemiology and explain briefly the keywords in last's definition of epidemiology.

2a. Explain the two types of epidemics

2b. Outline six (6) importance of epidemiology to public health.

3. Discuss the steps involved in the investigation of an epidemic.

4. List five (5) zoonotic diseases, stating their etiological agents, host animal and major symptoms in humans.

5. Write short notes on the following:

- **i.** Epidemic
- **ii.** Endemic
- **iii.** Prevalence
- **iv.** Surveillance
- **v.** Risk factor
- **vi.** Morbidity
- **vii.** Zoonoses

6a. Describe the chain of infection for cholera.

6b. Differentiate between Cohort and Case-Control Studies.

7a. The total population of women in Gidan Kwano community is 1600, 450 of this population were already infected with vulvovaginal candidiasis and 120 women were recently diagnosed of the same infection. Calculate the incidence rate per 100 population.

7b. Discuss the six intertwined factors involved in the causation of infectious disease.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

DEPARTMENT OF MICROBIOLOGY,

FIRST SEMESTER EXAMINATION 2022/2023 SESSION

COURSE: MICROBIAL GENETICS AND MOLECULAR BIOLOGY (MCB 415)/3 UNITS

INSTRUCTION: Answer FIVE (5) Questions in All; At least TWO (2) Questions from EACH Section. Section A (Questions 1a-f) is Compulsory.

DATE: 8th September, 2023_:300pm **Time Allowed: 2 Hours 30 Minutes**

SECTION A

1. **(a).** Describe in a few words the process of inserting a gene into the host genome in genetic engineering. What is the phenomenon called?
   (b). Describe concisely the structure of bacterial chromosome.
   (c). Enumerate seventeen (17) and eight (8) types of genes and genome respectively.
   (d). What are mutants and mutagen?
   (e). Describe excision repair and the two main categories.
   (f). A donor transforming double-stranded DNA that attached to the recipient cell surface has gene conferring streptomycin resistance (Str^R) while the recipient DNA has gene conferring streptomycin sensitive (Str^S).
   (i). Describe the product of this process.
   (ii). How many cells are formed when the end-products in **(i)** undergo replication?
   (iii). Provide a suitable name for the cells formed in **(ii).**
   (iv). What happens if the cells are grown on medium that contains streptomycin?
   (v). What is the name of the process whereby the donor DNA replaces the recipient DNA precisely in the aforementioned phenomenon?
   (vi). What is the mechanism of recombination in which the homologous region of the recipient DNA is replaced by donor DNA in the aforementioned phenomenon?

2. **(a).** What is the significance of degradative plasmid found in *Burkholderia hospita*?
   (b). Describe the different types/forms of DNA.
   (c). How many base pairs would have to be deleted in a mutational event to eliminate a single amino acid from a protein and not change the rest of the protein?

3. **(a).** What would happen to the duplex structure of the double-stranded DNA introduced into a cup of hot coffee tea?
   (b). Elucidate how sex is determine in bacteria.

4. **(a).** Briefly elucidate the salient characteristics of DNA structure as regards to its reliability and fidelity generation after generation.
   (b). It is physically separated from the chromosomal DNA within a cell. What is the name of the genetic structure?
   (c). Lifeless bacteria of one strain confer virulence to another strain. Provide a suitable name for the above process.

SECTION B

5. In replication, template strand **A** moves in $\mathbf{3^1\text{-}5^1}$ direction while template strand **B** moves in $\mathbf{5^1\text{-}3^1}$ direction.
   (a) What is the complementary strand of **B** called and why?
   (b) Describe the replication of **B,** specifying the enzymes involved.

(c) Mention two differences between conjugation and high frequency recombination.

6. An mRNA carrying the sequence **3^{1}**AUGAGCAUAUAA **5^{1}** is to be transformed into protein **Z.**
(a) What is the above process called?
(b) What is the amino acid sequence for protein **Z**?
(c) What is gene regulation?

7. **(a)** What is the difference between structural genes and regulatory genes?
(b) What does **m** & **t** in mRNA and tRNA stands for and what is their function in gene expression?
(c) Mention four **(4)** enzymes involved in replication and their functions.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: PATHOGENIC BACTERIOLOGY

COURSE CODE: MCB511 **UNIT: 3 UNITS**

INSTRUCTIONS: Answer **FIVE** questions in **All;** **Time Allowed: 2hrs 30mins**

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1 (a) List the virulence factors of *Staphylococcus aureus* and describe a disease condition caused by *Staphylococcus aureus*

(b) How will you differentiate *Staphylococcus aureus* from *Staphylococcus epidermidis* from a clinical specimen?

2 Briefly, discuss the Lancefield grouping of Streptococci. List the characteristics and diseases caused by two members of the group A Streptococci.

3 (a) Name the possible agents of mycobacterial diseases and state how they differ from other bacteria.

(b) Describe the Ziehl-Neelsen staining technique for Mycobacteria.

(c) Briefly describe pulmonary tuberculosis and lepromatous leprosy.

4 (a) Why are members of the Enterobacteriaceae important in health?

(b) How will you isolate and identify *Escherichia coli* from a case of cystitis?

(c) List the pathogenic types of *Escherichia coli*.

5. List and comment briefly on host and bacterial factors that are important in host/pathogen interaction.

6. Write short notes on the following:

i. Chlamydial diseases **ii.** *Helicobacter pylori*

iii. Milk Ring Test **iv.** Triple Sugar Iron Test

7 (a) List the important species of the order Spirochaetales.

(b) Describe primary syphilis.

(c) How will you isolate *Salmonella enterica* from a stool specimen?

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: FERMENTATION TECHNOLOGY

COURSE CODE: MCB512 **UNIT: 3 UNITS**

INSTRUCTIONS: Answer **two** (2) questions from each section. **Question 1** is compulsory

Time Allowed: 2hrs 30mins

SECTION A

1.(a) i. Describe the production of beer from a named grain
ii. Outline the steps involved in alcohol production from a named substrate
iii. Explain the production of vinegar from a fruit
iv. State the processes involved in wine production
v. Explain in detail the production of yoghurt
(b) Give ten (10) examples of fermented foods

2.(a) Define fermentation
(b) List four (4) types of fermentation and explain any two (2).

3.(a) i. What is fermentation medium?
ii. Name two (2) types of industrial fermentation media.
(b) State five (5) benefits of fermented foods

SECTION B

4. (a) i. Define Cell Disruption
ii. Explain two (2) methods each of chemical and mechanical cell disruption.
(b) State the criteria that determines the choice of product recovery and purification processes.

5. Discuss the processes involved in product purification

6. (a) Filtration is a process of product recovery. Discuss with examples
(b) Write short notes on:
(i) Secondary effluent treatment **(ii)** Decanter centrifuge **(iii)** Precipitation

SECTION C

7. Discuss 5 fundamental components that contribute to the success and diversity of any fermentation process.

8 (a). Outline the different modes of fermentation.
(b). Briefly explain batch fermentation highlighting its advantages and shortcomings.

9 (a). Succinctly explain any four (4) factors to be considered when designing a fermenter.
(b). State 4 basic functions of a fermenter
(c). Outline the different kinds of fermenter

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

DEPARTMENT OF MICROBIOLOGY

FIRST SEMESTER EXAMINATION 2022/2023 SESSION

MCB 513 – General Toxicology (3 Credit Units)

Instruction: Answer **FIVE** questions and at least **ONE** question from each section **TIME:** 2½ Hours

SECTION A

1. Discuss extensively the major groups of mycotoxins.
2. **a)** Highlight the factors that determines the toxicity of drugs in an individual

   b) Write short notes on any two classes of plant toxins.
3. **a)** How would you manage acute drug toxicity?

   b) Highlight the factors that modulates the effects of toxicants in the human body.

SECTION B

4. **(a) i.** Define heavy metal poisoning

   ii. Give four (4) examples of heavy metals associated with human poisoning.

   (b) Mention three (3) animal toxins, their animal sources and mechanisms of action.
5. **a)** With a toxic example, discuss any two (2) primary classes of pesticides.

   b) Write short notes on the followings:

   i. Antidotes **ii.** Ion exchange **iii.** Chelating agent

SECTION C

6. a) What are food additives? Give five (5) examples of food additives.

   b) Enumerate five (5) benefits of food additives
7. a) Define airborne poisoning.

   b) Briefly discuss the sources of airborne poisoning.

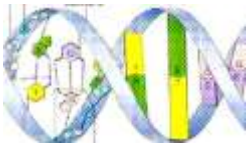
   c) Give two (2) examples each of gaseous and particulate air toxins.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY,
FIRST SEMESTER EXAMINATION 2022/2023 SESSION
INTRODUCTION TO BIOTECHNOLOGY (MCB 516) 2 UNITS
Instruction: Answer THREE (3) Questions in All. At least ONE (1) Question from EACH Section. Section A (Questions 1a-e) is Compulsory.

Time Allowed: 1 Hr 30 minutes

SECTION A

1. **(a).** Biotechnology is a combination of two words. Concisely provide additional details.
   (b). Catalogue the development of biotechnology.
   (c). What is gene editing? Clarify how gene editing tool is used in making pig organs more compatible with human recipient.
   (d). Describe one of the most widely used gene editing tool and its application in cancer research and treatment, infectious disease control and organ transplantation.
   (e). The latest rise in the price of petroleum products in Nigeria has caused pandemonium. What are the probable alternative sources of fuel? Briefly provide relatable facts to support your response.
2. **(a).**

 +  =?

(a)? **(b)?**

Complete the above phenomenon. What does this symbolize in biotechnology and genetic engineering?

(b). Discuss briefly one of the **most** promising biotechnological processes.

3. Describe the role of centrifugation in product recovery from fermentation broth?

SECTION B

4. **(a).** Write brief notes on any four (4) of the following terms used in tissue culture.

   i. Trypsinization, **ii**. Adherent cells **iii**. Suspension cells,

   iv. Primary cell lines **v**. secondary cells **vi**. Passaging cells.

   (b). Elucidate four (4) applications of animal cell culture

   (c). State five (5) genetic methods for strain improvement

5. **(a).** What is biological regulation?

   (b). Briefly explain the key aspects of biological regulation

   (c). Outline the various methods of enzyme immobilization

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: ENTREPRENEURSHIP II
COURSE CODE: MCB517 **UNIT: 2 UNITS**
INSTRUCTIONS: Answer **any THREE questions**. **Time Allowed: 1hr 30mins**
DATE/TIME: 6TH SEPTEMBER, 2023/3:00PM

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1. How would you use effective microorganisms to boost agricultural productivity in Niger State?
2. You are provided with five milligrams (5 mg) of Amoxicillin, describe how to prepare discs of 40 micrograms potency assuming that each disc can absorb 20 microliters of the drug suspension. How many discs can you prepare from the 5mg of Amoxicillin?
3. Carry out a SWOT analysis of the Department of Microbiology laboratory, Federal University of Technology, Minna, assuming that it is a diagnostic laboratory.
4. (a). Briefly explain five applications of microbial entrepreneurship.

(b). As an entrepreneur in Pharmaceutical Microbiology, how can you actualize your business idea?

5. Write notes on **ANY TWO** (**2**) of the following:

i. Single cell protein (SCP) ii. Biogas iii. Mushroom.

SECOND SEMESTER EXAMINATION QUESTIONS

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF LIFE SCIENCES
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER EXAMINATION
2022/2023 ACADEMIC SESSION

Course Title: Petroleum Microbiology
Course Code: MCB522 **Unit: 2 Units**
Instructions: Answer **THREE (3)** questions in all**.** At least **ONE (1)** question from **EACH** section
Date: 15th December, 2023_8:00am **Time Allowed:** 1½ Hours

SECTION A

1(a). Discuss extensively the mechanisms involved in microbial enhanced oil recovery.

(b). Write short note on cycloalkanes in petroleum.

2(a). Highlight five (5) characteristics of microorganisms capable of degrading hydrocarbons.

(b). How would you employ the potential of microorganisms to prospect for petroleum deposit in Gidan Kwano campus of Federal University of Technology, Minna?

SECTION B

3. How would you use the following to remediate crude oil polluted soil;

(a) Chicken droppings

(b) *Sida acuta* (Stubborn grass)

(c) Mixed bacterial cells

4(a) Describe the stages of biofilm formation.

(b) Explain the consequences of microbial growth in fuel system.

5(a) Define methanogenesis.

(b) Discuss the microbial and biochemical processes involved in methanogenesis, stressing the impacts of methanogenesis on the environment.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

Course Title: Virology
Course Code: MCB521 **Unit: 3 Units**
Instructions: (i) Answer any **Five (5)** questions.
(ii) Do not write or scribble on the question paper.
Date/Time: 11th December, 2023/11:30AM **Time Allowed: 2hr 30mins**

1(a). Describe the most important mechanism of genetic modification in viruses.
(b). What advantages does non-enveloped virus have over enveloped virus?
(c). State five major differences between virus and bacteria.

2(a). Write short notes on the following;
i. Prions **ii.** Defective viruses **iii.** Virusoids **iv.** Pseudovirions
(b). Highlight the basic structural form of virus and give one example in each case.

3(a). Describe the general properties of virus using the following sub-headings;
i. Genomes **ii.** Structure **iii.** Size **iv.** Metabolism
(b). Distinguish between fusion and endocytosis as form of viral entry into the host cell.

4(a). Describe the strategies employed in viral assembly and release.
(b). Criticize the statement "virus has done more harm than good to our society".

5(a). State the significance of plaque count technique for enumeration of phages
(b). Give three examples of viruses that can be transmitted through the following means;
(i) respiratory **(ii)** genitourinary **(iii)** blood **(iv)** sexual contact **(v)** zoonoses **(vi)** fecal-oral routes.

6a. Enumerate the type(s) of cancer associated with the following virus:
i. Hepatitis C virus **ii.** Human papillomaviruses **iii.** Epstein-Barr Virus
iv. Human T lymphotropic virus **v.** Human cytomegalovirus
b. Discuss two (2) applications of genetically engineered viruses

7. Techniques for cultivating and isolating animal viruses are: inoculation into embryonated egg; Inoculation into animal; and Cell culture techniques.
a. Which of these techniques is the most widely used for isolating animal virus?
b. State the advantages and disadvantages of the technique in (a) above
c. Which of the techniques above can be used for vaccine production?
d. Which of the three techniques would you prefer to use when cultivating animal virus? Give reasons.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

Course Title: Environmental Microbiology
Course Code: MCB523 **Unit: 3 Units**
Instructions: Answer **Five** (5) questions in all. At least **ONE** question from each section
Date_Time: 12th December, 2023_11:30am **Time Allowed: 2hr 30mins**

SECTION A

1. **(a)** Distinguish between limnology and microlimnology.

(b) What is an ideal pesticide?

(c) Mention the types of mineral transformation

2. (a) Itemize the types of biopesticides.

(b) Classify the types of aquatic ecosystems and state the methods for microbial air sampling.

(c) List the common methods of sludge treatment and disposal.

SECTION B

3 (a) With the aid of a diagram, discuss one biogeochemical cycle.

(b) State the importance of (a) above in balancing the ecosystem

4(a) Based on function; briefly explain the classification of bacteria within the soil.

(b) List four (4) importance of soil organisms.

SECTION C

5(a) Bio-aerosols in the environment have been implicated in a number of diseases.

(b) Discuss any three groups of diseases of concern to human health.

6(a) Mention four (4) characteristics of a typical indicator organism

(b) Describe all steps involved in water treatment.

7. Discuss the following:

(a) Air microflora in laboratories **(b)** Air microflora in hospitals

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER, 2022/2023 SESSION
EXAMINATION QUESTIONS

Course Title: Pharmaceutical Microbiology (2 Units)
Course Code: MCB 525
Time: 1 hour 30 minutes
Instruction: Answer **THREE (3)** questions in all. Attempt **one (1)** question only in each section

SECTION A

7. (a) Enumerate common preservatives useful in prolonging shelf lives of foods

(b) Discuss antimicrobial agents used in treatment of infectious diseases and their distinctive properties

(c) Outline certain terminologies commonly used in pharmaceutical microbiology

8. **(a)** Make large well labelled diagrams of the chemical structures of representatives of beta-lactam antibiotics.
(b) Describe spoilage and preservation of pharmaceutical products
(c) Why are pharmaceutical products prone to microbial attacks?

SECTION B

9. **(a)** Define Antibiotic Susceptibility testing
(b) Mention two methods of dilution susceptibility testing
(c) Succinctly explain the major mechanism of antibiotic resistance

4. **(a)** What is Drug Discovery?
(b) Discuss three medicinal plants stating their phytochemical content

SECTION C

5. Explain measurement of bacterial growth using direct method.

6. Highlight the action of quaternary ammonium compounds on Microorganisms?

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER EXAMINATION,
2022/2023 ACADEMIC SESSION

COURSE TITLE: PARASITOLOGY
COURSE CODE: MCB526 **UNIT: 3 UNITS**
INSTRUCTIONS: Answer **FIVE (5)** questions in all. At least **ONE (1)** question must be answered in each section
Time Allowed: 2hr 30mins

SECTION A

1. Discuss onchocerciasis.

2. **a.** Name the stages in the life cycle of *Schistosoma haematobium*.

b. Describe the diseases that can be caused by *Entamoeba histolytica*.

3. Discuss the life cycle, pathology, diagnosis and control of a named intracellular protozoa.

SECTION B

4. Write short notes on the following;

i. *Giardia lambia*

ii. *Paragonimus westermanni*

iii. *Clonorchis sinensis*

5. Discuss parasite and host factors that influence parasitic infections.

SECTION C

6. a. Describe the life cycle of *Taenia saginata*.

b. In a tabular form, differentiate between the adult *Taenia solium* and *Taenia saginata*.

7. a. Describe the developmental stages of haemoflagellates.

b. Explain the pathogenesis of *Leishmania donovani*.

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
SECOND SEMESTER EXAMINATION
2022/2023 ACADEMIC SESSION

COURSE TITLE: GENERAL MICROBIOLOGY II

COURSE CODE: MCB 321 **UNIT: 3 UNITS** **TIME: 2hr 30mins**

INSTRUCTION: Answer **FIVE (5)** questions in all. At least **ONE (1)** question must be answered in each section

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SECTION A

1. (a) What are the major importance of microorganisms in food?
   (b) Write short note on marine microbiology.
2. (a) Describe the salient points in cycle of infection.
   (b) State the necessary action a pathogen must undertake in order to cause disease.
3. (a) Enumerate four (4) roles of microorganisms in maintaining life on Earth.
   (b) Write short notes on any five (5) of the following:
   i. Normal Flora **ii.** Antibody **iii.** Infectious disease
   iv. Immune system **v.** Innate Immune response **vi.** Adaptive immune response

SECTION B

4 **(a).** Succinctly discuss transformation.
(b). Mention the two types of bacteriophage and their life cycles.

5 **(a).** What is a recombinant cell?
(b). Write a detailed note on conjugation.

SECTION C

6. (a) Describe Industrial fermentation and list ten (10) products of the process.

(b) As a Microbiologist, elucidate the process of producing one of the products mentioned above.

7. **(a)** What is symbiosis?

(b) Explain four (4) types of symbiotic relationships in bacteria, citing specific examples in each case.