

THE UNIVERSITY OF ZAMBIA

TABLE OF CONTENTS

SCHOOL OF PUBLIC HEALTH – 2022

INSTITUTE OF DISTANCE EDUCATION

1. EHS 2110: Anatomy Physiology and Microbiology
2. EHS 2410: Environmental Health, Water Supply and Sanitation
3. EHS 2420: Communicable and Non-Communicable Diseases
4. EHS 2610: Food Chemistry and Nutrition
5. EHS 3210: Principles of Occupational Health, Hygiene and Ergonomics
6. EHS 3310: Pollution and Waste Management
7. EHS 3430: Pestology
8. EHS 3520: Planned Development and Building Services
9. EHS 3620: Food Animals and Slaughter Houses
10. EHS 4120: Research Methodology, Biostatistics and Epidemiology
11. EHS 4535 I: Inspection of Premises and Reporting
12. EHS 4635: Pathology and Practical Meat Inspection
13. EHS 4640: Food Hygiene
14. EHS 5145: Environmental Epidemiology
15. EHS 5320: Environmental Monitoring
16. EHS 5440: Introduction to Health Promotion



UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSc ENVIRONMENTAL HEALTH
EHS 2110 ANATOMY PHYSIOLOGY AND MICROBIOLOGY

DATE : 26th September 2022
TIME : 09:00 – 12:00 hrs
VENUE: SoPH Lecture Hall

INSTRUCTIONS:

1. Write your computer number on the answer sheets
3. There are two sections in this paper:

SECTION A

Multiple Choice questions: Answer **ALL** (50 MARKS)

SECTION B

Short answer questions

There are Eight (8) questions in this section

Answer any **five (5)** questions

Each question carries 10 marks (50 MARKS)

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQ) (50 Marks) answer all

1. Which of the following is associated with the golgi complex
 - a. Cristae
 - b. Cisternae
 - c. Lysosomes
 - d. Cytosol

2. Nuclear membrane is in continuous connection with the
 - a. Smooth endoplasmic reticulum
 - b. Rough endoplasmic reticulum
 - c. Golgi apparatus
 - d. Lysosomes

3. Which of the following is the function of lysosomes
 - a. Autophagy
 - b. Autolysis
 - c. Digestion
 - d. All the above

4. Insulin is a protein produced by certain pancreatic cells and secreted into the blood stream. Which of the following choices describes the route of insulin from production to exit of the cell
 - a. Rough ER, transport vesicles, cell membrane
 - (b) Rough ER, transport vesicles, Golgi apparatus, transport vesicles, cell membrane
 - c. Rough ER, Golgi apparatus, smooth ER, cell membrane
 - d. Smooth ER, rough ER, Golgi apparatus, transport vesicles, cell membrane

5. What features of a membrane are its most important contributors to its selective permeability?
 - (a) Phospholipid bilayer
 - b. Integral proteins
 - c. Glycolipids on outer surface of membrane
 - d. Peripheral membrane proteins on inside of membrane

6. Which of the following membranes has the highest number of proteins
 - a. Erythrocyte membrane
 - b. Myelin sheath membrane
 - c. Inner mitochondrial membrane
 - d. Outer mitochondrial membrane

7. Which of the following transport induces conformational change in membrane proteins
 - a. Simple diffusion
 - (b) Facilitated diffusion
 - c. Active transport
 - d. Ion driven active transport

8. An increase in blood flow to the skin would cause body temperature to
 - a. Increase
 - b. Decrease
 - c. Remain the same

9. The majority of appendages in the skin are located in the
 - a. Epidermis
 - b. Hypodermis
 - c. Subcutaneous layer
 - d. Dermis
 - e. Superficial fascia

10. Which of the following layers of the epidermis consists of a single row of columnar cells that undergo mitosis and includes pigment producing melanocytes?
 - a. Stratum corneum
 - b. Stratum granulosum
 - c. Stratum germinativum
 - d. Stratum spinosum

11. The action of mineralocorticoids involves many actions but only one of the following is correct
 - a. Increase in inflammatory response
 - b. Decreases lipid hydrolysis
 - c. Increases glucose levels
 - d. Regulation of blood volume and pressure
 - e. Increases osteoclast activity

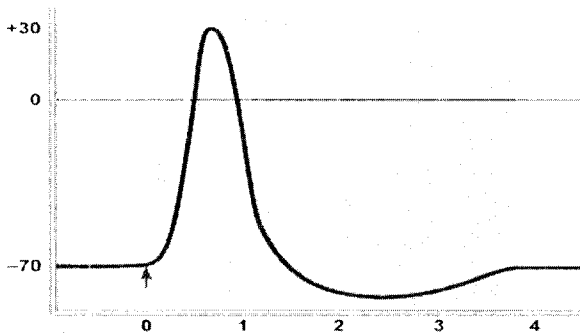
12. Which of the following is not true
 - a. The cerebral hemispheres make up about 80% of the brain
 - b. Ridges in the brain are called sulci
 - c. The longitudinal fissure separates the 2 cerebral hemispheres
 - d. The central sulcus separates the frontal and parietal lobes
 - e. The parietal occipital sulcus separates the parietal and occipital lobes

13. Which of the following is least likely to be found in gray matter
 - a. Neuron somata
 - b. Glial cells
 - c. Dendrites
 - d. Axons
 - e. Myelin

14. A collection of axons in the CNS is referred to as a
 - a. Nucleus

- b. Ganglion
- c. Nerve
- d. Tract
- e. None of the above

Refer to the graph below for questions 13 to 17. The X axis is time in millisecond, the Y axis is voltage (membrane potential) in millivolts. The arrow indicates when a stimulus was applied to the neuron



15. At time = 0.5ms, sodium channels are _____ and membrane is _____
- a. Open ___depolarising
 - b. Closed___depolarising
 - c. Open___repolarising
 - d. Closed___ repolarizing
16. At time = 1ms, _____ channels are inactivated and the membrane is _____
- a. Sodium___depolarising
 - b. Potassium___depolarising
 - c. Sodium____repolarising
 - d. Potassium ___repolarising
17. At which of the following times is the neuron at its resting membrane potential
- a. 1ms
 - b. 2ms
 - c. 3ms
 - d. 4ms
18. If a sodium channel in the plasma membrane of the axon hillock of a neuron is opened, the sodium inside of the cell would
- a. Increase
 - b. Decrease
 - c. Stay the same

19. If a sodium channel in the plasma membrane of the axon hillock of a neuron opened, the potential difference between the inside the cell and the outside of the cell would:
- Increase
 - Decrease
 - Stay the same
20. A rise in blood PCO_2 causes all of the following EXCEPT
- An increase in the H^+ concentration
 - An increase in the affinity of hemoglobin for oxygen
 - A decrease in pH
 - A rise in the concentration of carbaminohemoglobin
 - A rise in bicarbonate concentration
21. During hyperventilation, which of the following would be expected to happen?
- An increase in the PO_2 of arterial blood
 - An increase in the bicarbonate concentration of arterial blood
 - An increase in the acidity of arterial blood
 - All the above
 - An increase in the PCO_2 of arterial blood
22. Which of the following is **ALWAYS TRUE**?
- Intrapulmonary pressure > Atmospheric pressure
 - Atmospheric pressure > Intrapulmonary pressure
 - Intrapulmonary pressure > Intrapleural pressure
 - Intrapleural pressure > Intrapulmonary pressure
 - Intrapleural pressure > Atmospheric pressure
23. The majority of CO_2 is transported in the blood stream
- As carbon monoxide
 - Attached to the outer surface of RBCs
 - Attached to the inner surface of RBCs
 - Attached to hemoglobin
 - As bicarbonate
24. Tidal volume is air
- remaining in the lungs after forced expiration
 - exchanged during normal breathing
 - inhaled after normal inspiration
 - forcibly expelled after normal expiration
25. The rate at which O_2 detaches from hemoglobin when temperature is high is _____ the rate at which O_2 detaches from hemoglobin when temperature is low.
- Greater than
 - Lower than
 - The same as
26. Which of the following factors decreases airway resistance?
- Increased parasympathetic nervous activity

- b. Epinephrine
 - c. Histamine
 - d. Accumulation of mucus within bronchioles
 - e. None of the above
27. After ovulation, the granulosa cells of the follicle develop into a glandular structure called the
- a. Corpus luteum
 - b. Corpus albicans
 - c. Corpus spongiosum
 - d. Corpus carvenosum
28. Which of these layers is shed during menses
- a. Myometrium
 - b. Perimetrium
 - c. basal layer of endometrium
 - d. functional layer of endometrium
 - e. both c and d
29. Which of the following contains the most actin and myosin
- a. Endometrium
 - b. Perimetrium
 - c. Myometrium
 - d. Stratum muscularis
30. Where do sperm cells attain fertilization competence and motility?
- a. Rete Testis
 - b. Epididymis
 - c. Vas deferens
 - d. Seminiferous tubules
31. Which of the following is not compatible with penile erection?
- a. parasympathetic stimulation
 - b. arterial dilation
 - c. venous compression
 - d. blood leaves erectile tissue
32. The most important function of the juxtaglomerular apparatus (JGA) is to:
- a. secrete water and sodium into the filtrate
 - b. reabsorb sodium
 - c. generate bicarbonate ions in response to decreased blood pH
 - d. secrete renin in response to decreased renal blood pressure or blood flow
 - e. constrict the afferent arterioles and decrease sodium reabsorption
33. If the diameter of the afferent arteriole is smaller than the diameter of the efferent arteriole,
- a. the net filtration pressure will decrease
 - b. blood pressure in the glomerulus will decrease

- c. GFR will increase
 - d. a and b only
 - e. a, b and c
34. Renin is produced by
- a. The glomerulus
 - b. Macula densa
 - c. Proximal convoluted tubule
 - d. juxtaglomerular cells
35. The stomach lining contains several types of cells. Which statement about them is correct?
- a. Mucous cells secrete the glycoprotein mucin
 - b. Chief cells secrete the hormone gastrin (which stimulates acid secretion).
 - c. Parietal cells secrete pepsinogen, the inactive precursor of pepsin
 - d. G Cells secrete hydrochloric acid
36. Which list proceeds from the superior to the inferior end of the stomach?
- a. pylorus, fundus, cardia, body
 - b. cardia, body, fundus, pylorus
 - c. cardia, fundus, body, pylorus
 - d. body, cardia, pylorus, fundus
37. Arrange the segments of the colon in the sequence through which digested material passes prior to defecation: (1) sigmoid (2) transverse (3) descending (4) ascending
- a. 4, 2, 3, 1
 - b. 2, 1, 4, 3
 - c. 1, 3, 4, 2
 - d. 3, 1, 2, 4
38. A gall stone that blocks the common bile duct would cause the fat content of faeces to
- a. Increase
 - b. Decrease
 - c. Stay the same
39. What effect would compressing the inferior vena cava just below the diaphragm have on cardiac function:
- a. stroke volume would decrease
 - b. cardiac output would decrease
 - c. sympathetic stimulation of the heart would eventually increase
 - d. heart rate would eventually increase
 - e. all of the above
40. During ventricular systole:
- a. the atria are contracting

- b. the AV valves are closed
 - c. the pressure inside the ventricles is less than in the atria
 - d. the mitral valve is closed
 - e. blood is ejected into the atria
41. The action potential of cardiac muscles differs from that of skeletal muscles in
- a. It is propagated more slowly
 - b. It is shorter in duration
 - c. It has a higher amplitude
 - d. It has no plateau
 - e. All of the above
42. If communication between the SA node and the AV node becomes blocked which is most certainly affected
- a. the ventricles will contract at a slower rate
 - b. the atria will contract at a slower rate
 - c. stroke volume will increase
 - d. all of the above
43. If Natasha has a stroke volume of 70 ml and a cardiac output of 5950 ml/min, which of the following is her heart rate (in beats/min)?
- a. 70
 - b. 75
 - c. 80
 - d. 85

Use the following answer choices for questions 44-50

- a. Increase
 - b. Decrease
 - c. Stay the same
44. Binding of ACh to a nicotinic receptor on the motor end plate will cause the calcium levels in the SR to:
45. An increase in sarcoplasm calcium levels will cause the number of myosin-binding sites on actin that are blocked by tropomyosin to:
46. A drug that blocked acetylcholinesterase would cause ACh levels in the synaptic cleft of a neuromuscular junction to:
47. During muscle relaxation, the distance between adjacent Z discs will:
48. During sarcomere contraction, the size of the I band will:
49. During sarcomere contraction, the size of the A band will:

50. During sarcomere contraction, the size of the H zone will:

SECTION B

ANSWER ANY FIVE (5) QUESTIONS. EACH QUESTION CARRIES 10 MARKS

1. Explain the difference in mode of action between steroid and peptide based hormones
2. Explain the difference in the functional roles of the myocardial contractile cells and myocardial conductive cells
3. Briefly describe the roles that calcium plays in the body
4. Draw the oxygen haemoglobin saturation curve and briefly describe the factors that influence it
5. Explain how intramembranous ossification differs from endochondral ossification in bone growth and development
6. Explain the three major activities that happen in the excretory system
7. Name two glial cells and explain their roles
8. In the digestive system explain the difference between mechanical and chemical digestion. Further explain how mechanical digestion is carried out in the stomach, small intestine and large intestine

END



THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSc DEGREE IN ENVIRONMENTAL HEALTH
2021/22 ACADEMIC YEAR FINAL EXAMINATIONS

EHS 2410 – ENVIRONMENTAL HEALTH, WATER SUPPLY AND SANITATION

DATE : 27/09/22

TIME : 14:00 – 17:00 hours

VENUE: SOPH MAIN LECTURE HALL

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are two sections in this paper
3. Answer each question in a separate Examination answer booklet
4. Section **A**: Short Answer Questions, **ANSWER ALL**
5. Section **B**: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A: SHORT ANSWER QUESTIONS

- Answer all Questions
- Each Question carries 10 Marks, except for Question 5 with 20 marks.

1. Briefly describe any Five (5) major disciplines in Public Health; showing the importance of each discipline to health service provision. **(10 Marks)**
2. Briefly explain any five (5) elements of Health promotion; indicating how each element can enhance health service provision in a community. **(10 Marks)**
3. List and briefly discuss methods of excreta disposal in temporal or camping situations. **(10 Marks)**
4. List and briefly describe the methods used to treat bottled water. **(10 marks)**
5. Write short notes on the following:
 - a. Water quantity
 - b. Grit chamber
 - c. Surface spring
 - d. Infiltration gallery
 - e. Potable water
 - f. Ground water catchment system
 - g. Confined aquifer
 - h. Night soil
 - i. Water based diseases
 - j. Deep well
 - k. Partially separate system
 - l. Sanitary sewage
 - m. Biological oxygen demand
 - n. Total solids
 - o. Wash down system
 - p. Bidet
 - q. Sterilization
 - r. Per capita demand
 - s. Thermal desalination

t. Sparking water (20 marks)

SECTION B: LONG ANSWER QUESTIONS

- **Answer Any Two (2) Questions in Section B**
- **Each Question Carries 20 Marks**

1. The challenges posed to mankind by inadequate management of environmental factors, emerging and re-emerging of infectious diseases in communities, have necessitated the need to enhance Environmental Health activities in any population.
 - a) Explain the five (5) Facets of Environmental Health; showing why it is important to prioritise Environmental Health activities for maintenance of a healthy population. **(10 Marks)**
 - b) Explain any five (5) skills that an Environmental Health Officer (EHO) requires to perform their functions effectively in the community. **(10 Marks)**
2. Describe the conventional process of surface water treatment. **(20 Marks)**
3. Describe the types of waste stabilization ponds and their operation. **(20 Marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION

FINAL EXAMINATION: BSc ENVIRONMENTAL HEALTH PROGRAMME

COURSE: EHS 2420 COMMUNICABLE AND NON-COMMUNICABLE DISEASES

DATE: 21/09/22

TIME: 09:00 – 12:00 HOURS

VENUE: SoPH MAIN LECTURE HALL

INSTRUCTIONS:

- a) Write your computer number on each of your answer booklet(s) provided
- b) There are two sections in this paper attempt both
- c) Section A is short answer questions
- d) Section B is long answer questions

SECTION A: SHORT ANSWER QUESTIONS

- a) Answer all questions in this section
 - b) All questions are of equal value and each carries **10 marks**
-
1. Briefly describe the life history of hookworms. How may this parasitic infection be prevented?
 2. Write short notes on the following:
 - a) Vaccination
 - b) Natural immunity
 - c) Acquired immunity
 3. How may the spread of pulmonary tuberculosis in a community be prevented?
 4. What do you understand by the following terms and illustrate your answers by using the life cycle of *Schistosoma haematobium*:
 - a) Definitive host
 - b) Intermediate host
 5. What is meant by “incubation period” and its bearing (if any) on the quarantine? State how such knowledge helps in the prevention of infection.
 6. Describe briefly the nature of rabies. State its mode of spread and the essential preventive measures to be undertaken against the disease.

B. Long
SECTION B: SHORT ANSWER QUESTIONS

- a) Answer only two questions in this section
 - b) All questions are of equal value and each question carries **20 marks**
-
- 7. A case of typhoid has been notified in your district. What investigation would you make and what action would you take?
 - 8. What are the causative organisms of bacillary dysentery? How can this disease be spread and how would you deal with an outbreak in an orphanage or children's home in a rural area?
 - 9. In what kind of area might a major outbreak of cholera occur? What mode of spread would you expect it to follow and what methods would be used in its control?

END



THE UNIVERSITY OF ZAMBIA

INSTITUTE OF DISTANCE EDUCATION

BSC. ENVIRONMENTAL HEALTH

COURSE: FOOD CHEMISTRY AND NUTRITION

EHS 2610

DATE: 23/09/2022

TIME: 09:00 – 12:00 hours

VENUE: SOPH Main Lecture Hall

INSTRUCTIONS: READ QUESTIONS CAREFULLY BEFORE ANSWERING. QUESTIONS ARE ORGANIZED INTO TWO SECTIONS.

SECTION A COMPRISES SHORT-ANSWER QUESTIONS FOR 40 MARKS

SECTION B CONTAINS LONG-ANSWER QUESTIONS FOR 60 MARKS.

Section A: Answer four (4) out of the six (5) options in section A.

1. Differentiate between the following terms:

- (a) Chemical bond and covalent bond (10 marks) ✓
- (b) Functions of amino acids and fatty acids in the body (10 marks) ✓
- (c) ATP and oxidative phosphorylation (10 marks)
- (d) Clinical examinations and Laboratory examinations (10 marks) ✓
- (e) Nutrition and the process of catabolism (10 marks) ✓

Section B: Answer three questions (3) out of the four (4) questions in section B.

- ✓1. Maintaining general public health in any country requires consideration to educating citizens on food labelling.
- (a) Briefly discuss **three** (3) of the components that must be included on food Labels for products sold to the general public; and
 - (b) Briefly discuss the functions (20 marks).
2. Anaemia is one of the major health changes in Zambia. Briefly discuss four (4) interventions that may be implemented to lower the prevalence rate. (20 marks)
- ✓3. General wellbeing can be enhanced by maintaining ideal body weight:
- (a) Calculate the Body Mass Index (BMI) for a person whose weight is 70 kg and height of 150 cm; and
 - (b) Based on the calculated BMI, advice the individual on how to promote and maintain acceptable nutritional status (20 marks)
- ✓4. Zambia is facing a double burden of malnutrition. To address the problems associated with overweight and obesity,
- (a) Briefly explain steps you would take in your community to support overweight or obese teenagers; and
 - (b) Briefly discuss challenges associated with overweight and obesity among in Zambia (20 marks).

End of Exam

Best Wishes



THE UNIVERSITY OF ZAMBIA

BSc. DEGREE IN ENVIRONMENTAL HEALTH

EXAMINATION

**EHS 3210 - PRINCIPLES OF OCCUPATIONAL HEALTH, HYGIENE AND
ERGONOMICS**

DATE : 30/09/2022

TIME : 09:00hrs to 12:00hrs

VENUE: SOPH Main Lecture Hall

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are two sections in this paper
3. Answer each question in a separate Examination answer booklet
4. Section A: Short Answer Questions, **ANSWER ALL**
5. Section B: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A

Answer all questions in this section.

Question 1

Define the following:

- a. Threshold Limit Values (TLVs). **(2 marks)**
- b. Occupational hygiene. **(2 marks)**
- c. Hierarchy of hazards control. **(3 marks)**
- d. Aerosols. **(1 mark)**
- e. Makeup air. **(1 mark)**
- f. Breathing zone. **(1 mark)**

Question 2

- a. Define vibration. **(2 marks)** and describe the characteristics of vibration. **(3 marks)**
- b. Describe the two types of occupational vibration exposures and their effects. **(5 marks)**

Question 3

- a. Define noise. **(2 marks)**
- b. State the units of noise measurement and allowable standards in a workplace. **(3 marks)**
- c. List the different types of noise and briefly describe ways to control noise hazards in a workplace. **(5 marks)**

Question 4

Define illumination survey and describe how to conduct an illumination survey? **(10 marks)**

Question 5

Explain the difference between the following

- a. Toxin and toxicant
- b. Mutagen and teratogen
- c. Synergist effect and potentiation
- d. Vapour and aerosol
- e. Toxicodynamics and toxicokinetics. **(10 marks)**

Question 6

- a. Define maximum oxygen capacity and its importance in Occupational Health.
- b. Explain the steps you would take to determine the VO_2 Max of an individual.
- c. State five (5) factors that influence VO_2 Max, briefly explain how the factors influence VO_2 Max. **(10 marks)**

SECTION B

Answer any two (2) questions.

Question 1

- a. What is industrial ventilation? **(2 marks)**
- b. List and describe the types/classifications of ventilation systems. **(13 marks)**
- c. List and briefly explain Ten (10) processes that generate dust. **(5 marks)**

Question 2

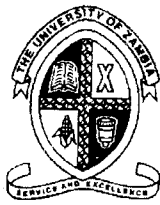
- a. Define musculoskeletal disorders (MSDs). **(2 marks)**
- b. List and briefly explain any five (5) common MSDs. **(5 marks)**
- c. Describe the risk factors of MSDs and ways of controlling ergonomic hazards and MSDs in a workplace. **(13 marks)**

Question 3

- a. Define radiation. **(2 marks)** and state the different types of radiation. **(3 marks)**
- b. Discuss the health effects of exposure to radiation and ways of controlling exposure to radiation in a workplace. **(15 marks)**

END OF EXAMINATION

BEST WISHES



THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSc DEGREE IN ENVIRONMENTAL HEALTH
2021/22 ACADEMIC YEAR FINAL EXAMINATIONS

EHS 3310 - POLLUTION AND WASTE MANAGEMENT

DATE : 19/09/22

TIME : 09:00 – 12:00 hours

VENUE: Main Lecture Hall

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are two sections in this paper
3. Answer each question in a separate Examination answer booklet
4. Section **A**: Short Answer Questions, **ANSWER ALL**
5. Section **B**: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A: SHORT ANSWER QUESTIONS

- **Answer all Questions**
- **Each Question carries 10 Marks**

1. Briefly explain any four (4) communal methods of solid waste storage; giving advantages and disadvantages of each method. **(10 Marks)**
2. Briefly describe two (2) basic methods of sanitary landfill operations; showing advantages and disadvantages in each method. **(10 Marks)**
3. Explain three (3) principles that may be employed to minimise generation of e-waste. **(10 marks)**
4. “Working as a Director of Public Health in a Local authority, you have observed that it has become very expensive to run solid waste collection services in the City using small open trucks and big compactor trucks to collect solid waste from townships where roads are narrow”. In this case, the same trucks are also used to transport waste to the dump site which is in a remote area of the City.
 - a) Design an alternative waste collection system that you feel may be suitable for the current situation to reduce operational costs; showing key factors that should be put into consideration before this system is adopted. **(5 Marks)**
 - b) Give reasons apart from reduction in operational costs, why you feel the Local authority should adopt the waste collection system you have designed. **(5 Marks)**
5. Define thermal pollution and fully describe how it affects aquatic systems. **(10 Marks)**
6. Distinguish between point sources and non-point sources of Water Pollution. **(10 Marks)**

SECTION B: LONG ANSWER QUESTIONS

- Answer Any Two (2) Questions in Section B
- Each Question Carries 20 Marks

7. Discuss the factors that may affect generation of solid waste in the Capital City of a Developing Country in Africa. **(20 Marks)**
8. As a newly qualified Environmental Health Officer (EHO), deployed in the Local Authority in one of the Cities in your Country, you have been notified that there are suspected Cholera cases in one of the shanty townships in the City and five (5) people have already died following the disease outbreak. Design a program that you will present to the District Local Authority for implementation by different stakeholders to contain the disease outbreak. **(20 Marks)**
9. “Rapid increase in human population has resulted in soil pollution and land degradation”. Using at least **four (4)** examples, discuss this statement clearly showing the linkages between human population growth and land degradation. **(20 Marks)**

END OF EXAMINATION



THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSc DEGREE IN ENVIRONMENTAL HEALTH
2021/22 ACADEMIC YEAR FINAL EXAMINATIONS

EHS 3430 – PESTOLOGY

DATE : 27/09/22

TIME : 09:00 – 12:00 hours

VENUE: SoPH Main Lecture Hall

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are two sections in this paper
3. Answer each question in a separate Examination answer booklet
4. Section **A**: Short Answer Questions, **ANSWER ALL**
5. Section **B**: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A: SHORT ANSWER QUESTIONS

- Answer all Questions
- Each Question carries 10 Marks

1. It is well known that no single strategy or method of control is feasible or applicable in all different pest situations including rodents.
 - a) Explain any two (2) Mechanical methods that can be used in rodent control. (4 Marks)
 - b) Explain three (3) Environmental and Cultural methods that can be used in rodent control. (6 Marks)
2. Write short notes on the following terms as applied in rodent control:
 - a) "Bait shyness." (2 Marks)
 - b) "Pre-baiting", (2 Marks)
 - c) "New object reaction", (2 Marks)
 - d) "Gnawing" (1 Mark)
 - e) "Subacute Rodenticides" (3 Marks)
3.
 - a) Explain the mosquito collection method that you would use to determine the movement of mosquitos during the night and their resting behavior (5marks)
 - b) List five requirements that need to be met for you to carry out a successful indoor residual spraying exercise (5 marks)
4.
 - a) State four beneficial effects of insects (2 marks)
 - b) What advantages does the exoskeleton provide in insects? (2 marks)
 - c) Explain the role of the following parts of the insect digestive tract
 - i) Crop
 - ii) Gizzard
 - iii) Mesenteron (3 marks)
 - d) The salivary secretions of most haematophagous insects has several chemicals that aid in the process of feeding. State any three (3 marks)
5.
 - a) Where in the human body can you find the adult *Schistosoma mansoni*? (1 marks)
 - b) Where in the human body can you find the adult *Schistosoma haematobium*? (1 marks)
 - c) How would you distinguish between the male and female schistosomes(1 marks)
 - d) Why are the early stages of schistosomiasis infection associated with a dry unproductive cough? (2 marks)
 - e) How does schistosomiasis infection cause anaemia? (2 marks)
 - f) Briefly explain how ectopic schistosomiasis arises (1 mark)
 - g) What morphological features of intermediate host snails for schistosomiasis can allow you to identify up to genus level (2 marks)

- 6.a) What is the recommended method for control of Black flies? **(2 marks)**
- b) State two diseases transmitted by the body louse **(2 marks)**
- c) Zambia normally records sporadic outbreaks of Tungiasis. State two methods that can be used to reduce the cases of Tungiasis **(2 marks)**
- d) State insects of Public Health importance that are able to penetrate and establish within the skin **(2 marks)**
- e) How is environmental management used in control of the sand fly **(2 marks)**

Tungiasis

SECTION B: LONG ANSWER QUESTIONS
Answer Any Two (2) Questions in Section B
Each Question Carries 20 Marks

1. Describe briefly on the following
 - a) What is the essential aim of the International Health Regulations of 2005?
 - b) What is the significance of a ship entering a harbor flying a yellow flag (Q flag)?
 - c) What are the duties of a Port Health Inspector when the ship has come from where Cholera exists?

2. There are numerous reported cases of insecticide resistance in various parts of the country. You are appointed to Head a Technical team tasked to develop a Position Paper on the reported insecticide resistance.
Clearly describe the at least three (3) different possible mechanisms of this Insecticide resistance and outline what recommendations you would make to avoid and reduce there- occurrence of the resistance. **(20 marks)**

3. Discuss the different methods that are used to control Tse tse flies. Explain the merits and demerits of each method. **(20 marks)**

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END OF EXAMINATION



THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSc ENVIRONMENTAL HEALTH: EHS 3520
PLANNED DEVELOPEMENT AND BUILDING SERVICES
END OF YEAR EXAMINATION

DATE: 23rd September, 2022
TIME: 09:00-12:00
PLACE: SOPH Main Lecture Hall

INSTRUCTIONS:

1. Please write your Computer number on your answer sheet(s)
2. There are two sections in this paper:

SECTION A

Short answer questions

Answer all questions

Each question carries 10 marks

Total marks 60marks

Time allowed 90 minutes

SECTION B

Long answer questions

Answer two questions, **question 7** and one other

Each question carries 20 marks

Total marks 40marks

Time allowed 90minutes

SECTION A: SHORT ANSWER QUESTIONS

Instructions:

Answer all questions

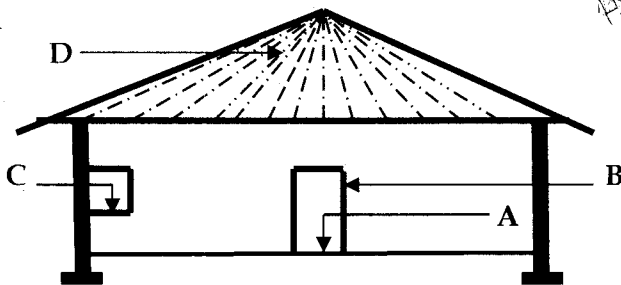
Each question carries 10 Marks

Total marks 40 Marks

Time allowed 90 Minutes

PART I – OPENINGS IN WALLS/ROOF COVERINGS/FLOORS

Consider Figure 1, and answer question 1-2

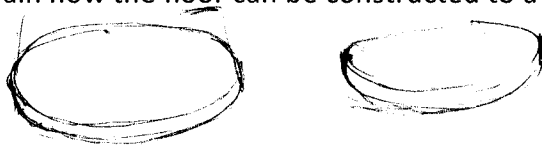


Handwritten notes:
 D: Ridge beam
 B: Timber post
 C: Timber
 A: Timber post
 B: Timber post
 C: Timber
 D: Ridge beam

FIGURE 1: ELEVATION OF CIRCULAR LOW COST HOUSE

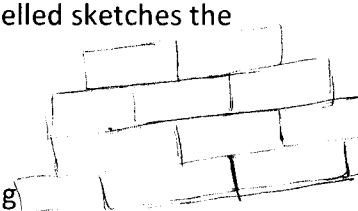
Q.1 A low-cost house as shown in Figure 1, has been designed using traditional and conventional building materials

- Name the parts labelled A,B,C, and clearly explain the function of each member
- If the roofing material is thatch, name the components labelled 'D', and explain how the thatch will be constructed on. *will be constructed on*
- Sketch and explain how the floor can be constructed to avoid in-flow of rain water



Q.2 If the walls are to be constructed in brickwork, illustrate with labelled sketches the following:

- Header and stretcher bonds
- weathered, recessed, and overhung struck pointing
- Internal plastering



PART II- Foundations

Q.3 A 2 metre lintel rests on walls above a door opening. The height of the walls upon which it rests is 2.2metres. A cross section of the lintel and the walls is given in Figure 2 below

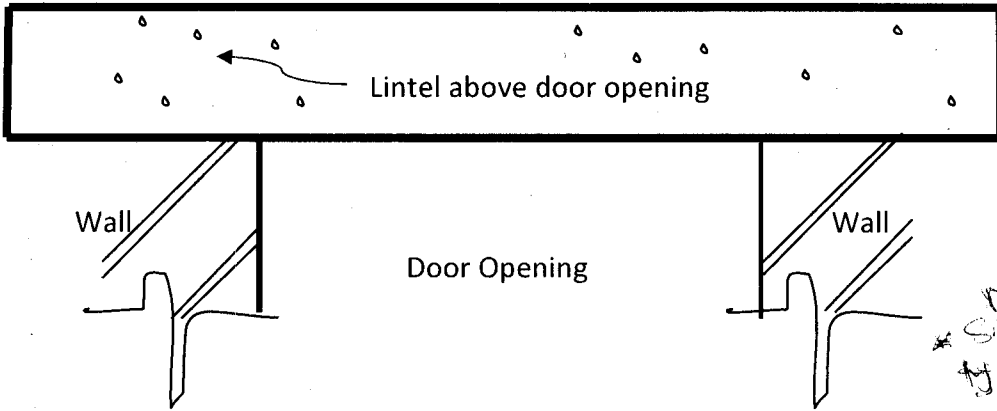


Figure 2: Cross section of beam and column

Site survey
 * Do analysis
 * Type of soil
 * Test to check the condition of the soil
 * Consider loads on the structure
 * Type of foundation to be used.

- a) List the stages that you would follow in designing the foundation of the load bearing walls.
- b) If the foundation is to be constructed in cohesive soil, illustrate the modifications that will withstand the inevitable ground pressures

low strength
 Run deep foundation outside pile foundation for the foundation goes to level beyond the bedrock.
 as low strength, shallow foundation use deep foundation with reinforced concrete & soil is able to withstand the ground pressure

PART III- Lighting

Q 4. Define the following terminologies

- a) Daylight factor
- b) Passive solar design

DF = $\frac{\text{amount of light that reaches direct from the sun}}{\text{total amount of light that reaches the surface}}$

PART IV- Noise

Q 5. What-short notes on the following?

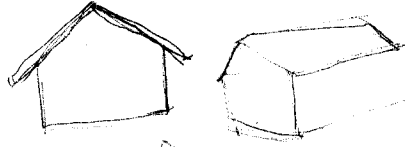
- a) Utilization factor
- b) Angle of Azimuth
- c) Maintenance factor
- d) sound absorption coefficient
- e) impact noise

noise that results in damage to health.

PART V- Roof Space Ventilation

Q.6 With the aid of a sketch, briefly explain the following, in relation to ventilation:

- i) Eaves and ridge ventilation
- ii) Vermin protection



SECTION B: LONG ANSWER QUESTIONS

Instructions:

Answer two questions, **Question 7** and one other. (i.e. from Questions 8 and 9)

Each question carries 20 Marks

Total marks 40 Marks

Time allowed 60 Minutes

PART VI Air and Ventilation – Comfort Factors and Design

Q7. List and explain the eight factors that affect human comfort.

- Air motion velocity
- Effective temperature
- ~~As appropriate~~ amount of heat
- ~~the site~~ ~~to~~ ~~the~~ space & ventilation
- Amount of moisture

PART VII Drainage

Q8. With regard to drainage, discuss the following:

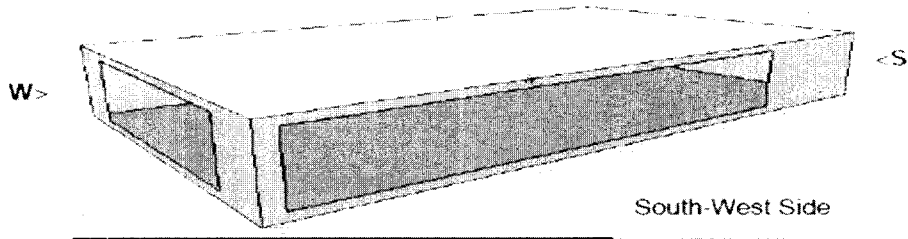
- (i) Branched networks of sewerage designs
- (ii) Inspection chambers and manholes
- (iii) Storm water collection.

These are chambers used when doing inspection of sewerage lines. Manholes are used to locate the upper of the sewer and may be used when ~~collecting~~ collecting storm water in street pipes.

Storm water is ~~not~~ rain water. Storm water systems are used to channel/collect storm water out of a building site. Storm water may result in

PART VIII Lighting

Q9 The building below is a class room situated in India and has the parameters stated below.



- The location is Delhi (77.2 E, 28.6 N).
- Date and Time: March 22nd, 12:00 p.m.
- Outside sky: 8500 lux
- Room dimensions- 20m x 12m x 3m
- Window dimensions:
 - North: 9m x 2.4m
 - South: 15m x 2.4m
 - West: 8m x 2.4m

$$T = 0.6$$

$$\theta = 50^\circ$$

$$R = 0.6$$

$$M = 0.7$$

- a) Find the daylight factor for this classroom
- b) Explain the light and air movement challenges typical of such a region
- c) What insulation and ventilation strategies would one employ in such a region?

END OF EXAM



THE UNIVERSITY OF ZAMBIA

INSTITUTE OF DISTANCE EDUCATION

BSc DEGREE IN ENVIRONMENTAL HEALTH

EHS 3620 - FOOD ANIMALS AND SLAUGHTER HOUSES

DATE : 21/09/2022

TIME : 09:00 – 12:00 hours

VENUE: SOPH Main Lecture Hall

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are three sections in this paper.
3. Section A: Multiple Choice Questions, **ANSWER ALL**
4. Section B: Short Answer Questions, **ANSWER ALL**
5. Section C: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A

INSTRUCTIONS:

- Answer **all questions** in this section (Section A)
 1. The following are pre-evisceration areas of the abattoir except.
 - A. Livestock entrance area
 - B. Lairage
 - C. Ante mortem inspection area
 - D. Post mortem inspection area ✓
 2. In cattle, horns can be used to estimate age of animals by means of counting the rings on the horns. Therefore, when an Ox has four rings, the estimated age is?
 - A. 8 years
 - B. 6 years
 - C. 4 years
 - D. 2 years
 3. The diaphragm forms a physical boundary between the:
 - A. Pelvic and abdominal cavities ✓
 - B. Pelvic and thoracic cavities in birds
 - C. Body air sacs in birds
 - D. Thoracic and abdominal cavities in ruminants
 4. Which of the following list of organs best describes regional anatomy
 - A. Heart, spleen and uterus
 - B. Spleen, trachea and kidneys
 - ✓C. Heart, lungs and part of the oesophagus
 - D. Liver, spleen and trachea
 5. All are used for age estimation in cattle except use of:
 - A. Cornual rings
 - B. Tear and wear of the teeth ✓
 - C. Size of the scrotum in bulls
 - D. Ossification of cartilage
 6. Meat Lymph nodes....
 - A. Is a term used to refer to lymph nodes that drain the carcass and associated tissue as well as the mucous membranes only.
 - B. Is a term used to refer to lymph nodes that drain the carcass and associated tissue as well as the visceral organs only.
 - C. Is a term used to refer to lymph nodes that drain the carcass, its associated tissue, the mucous membranes and the visceral organs.
 - D. All of the above statements ✓
 7. Ventricular furrows on the heart correspond to:
 - A. The septum between the atria and ventricles ✓
 - B. The septum between the ventricles
 - C. The septum between atria
 - D. The position of the origin of the aorta
 8. The mesenteric part of the small intestines refers to the:
 - A. Caecum
 - B. Duodenum

- C. Ileum and Jejunum
 - D. Colon
9. One of the major distinguishing features of ritual methods of slaughter from humane methods of slaughter is that:
- A. In ritual methods the animals must be in a state of consciousness at time of slaughter ✓
 - B. The Bleeding must be incomplete
 - C. Slaughter is not always performed by authorized trained personnel
 - D. All of the above
10. Myoglobin is a complex protein that;
- A. Carries oxygen in the red muscles
 - B. Removes oxygen from red muscles
 - C. Stores Oxygen in the muscles
 - D. Carries Nutrients to the red muscles
11. All are considered potential spaces except:
- A. Peritoneal cavity
 - B. Thoracic cavity
 - C. Subcutaneous tissue
 - D. Scrotum
12. Which of the following does not depicts the ideal design of the lairage?
- ✓ A. Should have sufficient accommodation for the number of animals intended to be held
 - B. Allow a two-way flow of animals from unloading to the point of slaughter
 - C. Permit inspection of animals at any time
 - D. Should be belt with non-slip concrete floor
13. Which of the following statements is incorrect?
- A. The ribs are flat with uncinat processes projecting backwards in fowl while in the rabbit the ribs are long and slender with no uncinat processes.
 - B. The metatarsus is very large in fowl and has a spur in the male
 - C. In fowl the pelvis and sternum are very typical and not at all like those in mammals.
 - D. In fowl the clavicle (wishbone) is present as also is the coracoid, but these are also present in the rabbit but they are slightly bigger.
14. 4 or 5 lobes. This is a landmark feature of the.....
- A. The left lung of an ox
 - B. The right lung of a porcine
 - C. The right lung of a deer
 - ✓ D. None of the above options is correct.
15. The branch of anatomy mainly concerned with meat inspection is:
- ✓ A. Microscopic anatomy
 - B. Macroscopic anatomy
 - C. Developmental anatomy
 - D. Histology
16. In cattle slaughter abattoirs, the region formed by intersection of the diagonals joining the lateral angles of the eyes to the nearest parts of the opposite horn bases is the:
- A. Target spot for stunning

- B. Target region for assessing facial asymmetry
 - C. An area prone to traumatic injuries especially during bull fights
 - D. Can be used for age estimation
17. During slaughter of sheep and goats' butchers often facilitate skinning by flaying of small ruminants. What is the main disadvantage of this procedure?
- A. Mask conditions such as arthritis
 - B. Mask conditions such as immaturity or emaciation
 - C. Inflation by blowing might promote spread of diseases
 - D. All of the above
18. The region of the vertebrae column characterized long spinous processes is the:
- ✓ A. Cervical
 - B. Thoracic
 - C. Lumbar
 - D. Sacrum
19. The vertebrae region interposed between the Cervical and Lumbar region is the:
- A. Coccygeal region
 - ✓ B. Thoracic region
 - C. Sacrum
 - D. Caudal region
20. Which of the following is not the function of the Liver?
- ✓ A. Produces and secretes bile ✓
 - B. Stores Iron
 - C. Prepares fat for utilisation
 - ✓ D. Removes foreign materials from blood

C.T.A.S. CO

SECTION B

INSTRUCTIONS:

- Answer **All questions** in Section B

1. A beef carcass is offloaded aboard Ethiopian Airline and the following information is obtained from the document accompanying the consignment:

Species: Bovine **Breed:** Holstein Friesian **Sex:** Female **Age:** 6 Years
Position: Left Lateral Recumbence **Kidney shape:** Bean Shaped non lobulated
Number of Ribs: 18 **Humerus:** 3 Tuberosities

As a Meat Inspector, you have been assigned to thoroughly examine the consignment and give a report based on scientific evidence and institute appropriate action (10 Marks).

02
 13
 Sheep
 18
 Kidney kidney
 4
 10 lobes

- b) Outline the basic requirements (at least 10) for siting, layout, design and construction of an export slaughter house or meat processing plant (10 marks).
3. Discuss the Avian Digestive system in detail. (20 marks)
4. Zeus is a bovine specie that has been brought to Real Meat abattoir for slaughter where you are designated. On ante mortem examination, you observe **Structure P** which is a pendulous pouch in between the hindlegs and provides a favourable environment for the production and maturation of “**Fluid R**” which is vital for propagation of life. **Structure P** contains **Structure Q** which produces **Compound D**. **Compound D** promotes the development of secondary sex organs, causes development of secondary sex characteristics, and promotes male sexual behaviour. The functions of Structure Q are regulated by chemical X and Y which are produced by the “**Master Gland**”. The “**Master Gland**” receives signals from the **Structure Z** for regulation.
- Correctly identify **Structure P** and “**Fluid R**” (2 marks)
 - Correctly identify **Structure Q** and carry out comparative anatomy in Equine, Bovine, Caprine and porcine (5 marks)
 - Correctly identify **Compound D** (2 marks)
 - Correctly identify **Compound X** and **Y** and explain their function (4 marks)
 - Explain in detail the “**Master Gland**” (4 marks)
 - Identify **Structure Z** and its anatomy (5 marks)

The End.....



**THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION**

2021/2022 END OF YEAR EXAMINATION

EHS 4120: Research Methodology, Biostatistics and Epidemiology

20th September 2022

TIME ALLOCATED: 3 HOURS

INSTRUCTIONS:

1. There are FOUR Sections in this paper.
2. Answer All Questions in Section A and ~~B~~^C. Answer any 3 (THREE) questions in section ~~B~~^C
3. **PLEASE READ THE QUESTIONS CAREFULLY BEFORE ANSWERING**

SECTION A: EPIDEMIOLOGY – ANSWER ALL – [30 Marks]

1. With practical examples applicable to today's modern society, explain the application of the Epidemiological Triad/Triangle in understanding disease causation.
2. The field of epidemiology is key to the practice of the Public Health. Using examples, discuss the core functions of epidemiology in Public Health.
3. Using short notes, define and explain the following Epidemiological terms.
 - a. Incidence vs prevalence
 - b. Mortality vs morbidity
 - c. Child mortality vs infant mortality
 - d. Pandemic vs Endemic

SECTION B: RESEARCH METHODS – ANSWER ANY THREE (3) QUESTIONS [30 Marks]

1. Write short notes on the following Qualitative research designs
 - A. Ethnography
 - B. Phenomenology
 - C. Case Study
 - D. Grounded Theory
2. A 4-months survey was implemented with the primary goal of measuring the prevalence of childhood diarrhoea in Chief Mpanta's area on the shores of Lake Bangweulu. Alongside the survey, the researchers also implemented a parallel qualitative study among child care-givers to explore child-care hygiene practices at household level. The qualitative study was conducted over 4 weeks and the results disseminated. The principle investigator then decided to conduct a follow-up survey to determine the prevalence of 6 child-care hygiene practices in the area that were reported by the qualitative study.
 - a. Name and explain the type of research methodology to which this study belongs.

b. Using ontological and axiological research paradigms, differentiate qualitative from quantitative research.

c. Define and explain the following terminologies used in experimental studies

I. Randomization

II. Control

III. Manipulation

3. With practical examples, explain at least FIVE (5) criteria used to select and prioritize a research topic.

4. What is a literature review? Why is this important when conducting research?

c

SECTION D: BIostatISTICS – ANSWER ALL QUESTIONS [40 Marks]

1. A chicken farmer in Nakonde district is keen on keeping a record of how many eggs are produced per day by his over 40,000 chickens. He decides to randomly select 10 chickens to study, and he records the following number of eggs produced per chicken over a period of 7 days.

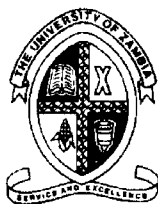
48, 36, 22, 47, 34, 28, 30, 32, 44, 45

A. Calculate and interpret the mean, mode and median of the eggs produced over this period
[10 Marks]

B. Find and interpret the Range of the egg production of this period.

C. Calculate the Interquartile Range of the eggs production over this period

D. Calculate the standard deviation and give the interpretation of the figure calculated. **[10 Marks]**



THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSc DEGREE IN ENVIRONMENTAL HEALTH
2021/22 ACADEMIC YEAR FINAL EXAMINATIONS

EHS 4535 I – INSPECTION OF PREMISES AND REPORTING

DATE : 22/09/22

TIME : 09:00 – 12:00 hours

VENUE: SOPH Main Lecture Hall

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are two sections in this paper
3. Answer each question in a separate Examination answer booklet
4. Section **A**: Short Answer Questions, **ANSWER ALL**
5. Section **B**: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A: SHORT ANSWER QUESTIONS

- **Answer all Questions**
- **Each Question carries 10 Marks**

1. Swimming pool sanitation is a process of ensuring healthy conditions in swimming pools and similar recreational water venues.
 - a) Briefly explain with examples the ways you can use to raise the pH of water in a swimming pool. **(3 Marks)**
 - b) Briefly explain with examples the ways you can use to lower the pH of water in a swimming pool. **(3 Marks)**
 - c) Briefly explain the problems that may come as a result of low pH in swimming pool water to the users and the infrastructure. **(4 Marks)**
2. As a newly qualified Public Health Specialist, you have been given a job in the Local Authority in a Tourist Capital whose main revenue source is inspection of Hotels. The Director of Public Health asks you to design an inspection tool to be used in the inspection of the **main structures** of hotels to ensure that public health standards are upheld. Show the areas that you would include in the tool. **(10 Marks)**
3. What do the two acronyms (**FIFO** and **FEFO**) stand for; why is it important for Environmental Health Officers (EHOs) to understand them when applied in food industry? **(10 Marks)**
4. Describe the factors that you would consider at the planning stage of construction of the Office Block to ensure that Public Health requirements are followed. **(10 Marks)**
5. State six (6) nuisance conditions liable to be dealt with under the Public Health Act Cap 295 of the laws of Zambia. What procedure should be followed to abate a nuisance? **(10 Marks)**
6. Briefly explain the Environmental and Public health impacts that may come with the operation of a tannery; showing how these impacts could be mitigated. **(10 Marks)**

SECTION B: LONG ANSWER QUESTIONS

- **Answer Any Two (2) Questions in Section B**
- **Each Question Carries 20 Marks**

8. As a newly qualified Environmental Health Officer (EHO), you have been deployed in one of densely populated Cities in Zambia. After Seven (7) months of working, you have been asked to give advice on amenity requirements (Water supply and sanitary accommodation) in a construction camp in the out skirt of the City.

Explain these requirements to the contractor, with a view to ensuring a safe environment that will promote human health in the Camp and the surrounding areas. **(20 Marks)**

9. Elucidate the four (4) features that make up good operation and management of the recreational water environment (Swimming pools) to minimize possible negative health impacts to the users. **(20 Marks)**

10. Discuss the advantage and disadvantages of the services of informal notices. Draft an 'informal notice' to the appropriate person to abate a nuisance arising from a choked drain leading from a house to a septic tank. **(20 Marks)**

END OF EXAMINATION



THE UNIVERSITY OF ZAMBIA

INSTITUTE OF DISTANCE EDUCATION

BSc DEGREE IN ENVIRONMENTAL HEALTH

EHS 4635 - PATHOLOGY AND PRACTICAL MEAT INSPECTION

DATE : 26/09/2022

TIME : 09:00 – 12:00 hours

VENUE: SOPH Main Lecture Hall

INSTRUCTIONS:

1. Please write your computer number on your answer sheet(s)
2. There are two sections in this paper.
3. Section **A**: Short Answer Questions, **ANSWER ALL**
4. Section **B**: Long Answer Questions, **ANSWER ANY TWO (2)**

SECTION A: Short Essay Questions. Answer all Questions (60 Marks)

1. Write short concise notes on the following pathological conditions **(10 marks)**
 - a) Tissue Calcification
 - b) Emaciation
 - c) Imperfect bleeding
 - d) Emphysema
 - e) Septicaemia
2. Blackleg is often confused with Anthrax. How would you differentiate the symptoms and lesion of Blackleg from those of Anthrax? **(10 marks)**
3. Explain the impact of zoonotic diseases and the roles of an Environmental Health Officer (EHO) in zoonotic diseases **(10 marks)**.
4. Discuss the symptoms, transmission and pathology of Tuberculosis in livestock **(10 marks)**.
5. Mention **5 vector borne diseases** that affect food animals and their causative agents. List 2 pathognomic signs associated with named diseases **(10 marks)**.
6. Systematically describe stages of the general ante mortem inspection of pre-slaughter animals in a local slaughter **(10 marks)**

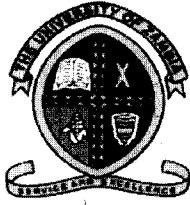
SECTION B: Long Answer Questions (40 marks)

Instructions: Answer 2 Questions Only

1. The Public Health Director has assigned you to be conducting meat inspection at the local abattoir in Chibombo district of Central Province where there has been a report of a disease outbreak. During your routine general AM inspection, the abattoir manager explains to you that there is sudden increase in the number of farmers supplying animals. Furthermore, 2 two animals were reported dead during the night in the lairage. Owing to this clue, you decide to perform a thorough general Ante-mortem inspection. You notice many emaciated animals have extended necks facing the direction of the wind and are reluctant to move. Fever (40 °C) is an additional finding.
 - a) What is your tentative (suspected) diagnosis and the causative agent **(4 Marks)**
 - b) Explain in detail the expected PM picture **(5 Marks)**
 - c) Discuss the possible judgment you would pass on such a carcass? **(5 Marks)**.

- d) What are the trade implications and economic importance of the disease **(6 Marks)**?
2. Abscess causes considerable losses of organs and carcass during meat inspection especially in feedlot cattle.
- What is an abscess? **(2 marks)**.
 - List the 3 common bacteria that cause lung and liver abscesses **(3 marks)**.
 - Discuss the pathogenesis of abscess formation in feedlot cattle **(5 marks)**
 - Describe how you can differentiate a primary from a secondary abscess **(5 marks)**
 - Discuss in detail on the judgement for abscess **(5 marks)**.
3. During the outbreak of unknown disease, one observes the following:
- It is a highly contagious viral disease
 - Predominantly of cattle but will affect all cloven-footed animals including pigs
 - It is manifested by initial fever and lesions on the Oral cavity and hooves
 - The virus is highly resistant to freezing and even to some strong disinfectants.
- What disease do you suspect **(2 marks)**?
 - List 3 differential diagnoses **(3 marks)**
 - Discuss the causative agent(s) of the named disease **(3 marks)**
 - What is the distribution & occurrence of this disease and its risk factors **(5 marks)**
 - Discuss the Public Health and Economic importance of this disease **(7 marks)**
4. You have been assigned as an EHO in charge of meat inspection at one of the newly established abattoirs in Nyimba district. On a particular day of slaughter, Mr Tembo brings his animals for slaughter. On ante-mortem, you notice some animals have fever, ticks on the body, look pale and weak, inactive and have yellow mucous membranes. Despite all these signs, you decide to proceed with the slaughter to salvage the animals.
- What pathological condition(s) do you suspect? **(2 marks)**
 - What organ do you suspect has been affected for this condition? **(2 mark)**.
 - Discuss the post-mortem findings you would find **(3 marks)**
 - List and describe the different forms of the condition named in (a) and the disease(s) associated with named condition **(9 marks)**.
 - Discuss the disposition of this particular case **(4 marks)**.

The End.....



**THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION**

FINAL EXAMINATION: BSc ENVIRONMENTAL HEALTH PROGRAMME

COURSE: EHS 4640 FOOD HYGIENE

DATE: 23/09/22

TIME: 14:00 – 17:00 HOURS

VENUE: SoPH MAIN LECTURE HALL

INSTRUCTIONS:

- a) Write your computer number on each of your answer booklet(s) provided
- b) There are two sections in this paper and attempt both
- c) Section A is short answer questions
- d) Section B is long answer questions

SECTION A: SHORT ANSWER QUESTIONS

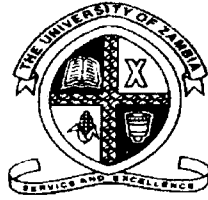
- a) Answer all questions in this section
- b) All questions are of equal value and each carries **10 marks**

1. Enumerate methods of preserving perishable food stuffs for limited or indefinite periods
2. When inspecting premises used for the manufacture of cooked meats, to what points would you give attention to satisfy yourself that recognized standards of food hygiene are being observed?
3. What are the main points to be noted in the investigation of food poisoning in any household?
4. The cat carcase may be substituted for a rabbit in a trading shop, how you would differentiate the carcasses and flesh of the cat and that of a rabbit?
5. What are the sources of bacterial contamination of milk?
6. (a) By means of a sketch illustrate the physical features of a fish
(b) Outline the distinguishing features of stale fish

SECTION B: LONG ANSWER QUESTIONS

- a) Answer only two questions in this section and question
 - b) All questions are of equal value and each question carries **20 marks**
7. Zambezi River flooding has occurred, affecting 800 houses and shops to a depth of 30 cm, submerging the sewerage system. Discuss the immediate public health problems. How would you deal with:
- a) Bottled soft drinks
 - b) Tinned meat and
 - c) Boxes of chocolates that had been submerged?
8. Bacteriological examination results of food samples from a large meat and meat products factory show continuous unsatisfactory results. Describe in detail the steps you would take to improve the situation, in cooperation with a case of suspected food poisoning –
9. What are the signs of health and of disease in live poultry? Describe the condition known as fowl or pneumo-encephalitis and state whether or not the disease is transmissible to man.

END



THE UNIVERSITY OF ZAMBIA
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF ENVIRONMENTAL HEALTH
EHS 5145- ENVIRONMENTAL EPIDEMIOLOGY
26th September, 2022

SECTION A

Short answer questions.

Answer **ALL** questions on separate answer sheets.

(60 marks)

1. Differentiate the following:
 - a. Panel studies and Cohort studies. (2 marks)
 - b. Serial autocorrelation and correlation. (2 marks)
 - c. Observation and intervention studies. (2 marks)
 - d. Discrete and continuous data. (2 marks)
 - e. Cycles and seasonality. (2 marks)

2. With the aid of graphs illustrate the difference between panel and times ^{series} studies. (10 marks)

3. a) Discuss at least three main uses of cross sectional studies. (6 marks)
b) Outline two advantages of cross sectional studies over other study designs (4 marks)
(10 marks)

4. Define ecological fallacy and explain two (2) possible solutions for it. **(10 marks)**

8. Answer the following questions:

- a. Define interrupted time series studies. (2 marks).
- b. Give three (3) uses of Interrupted Time Series Studies. (3 marks)
- c. Define a statistical model. (2 marks).
- d. Give three (3) major classes of research questions that can be addressed using ARIMA models. (3 marks) and three (3) examples of Poisson Time Series Data. (3 marks)
- e. Discuss three (3) advantages and four (4) disadvantages of Panel Studies. (7 marks)

(20 marks)

9. Using at least four (4) examples, explain the linkages between environmental health factors and diseases/health conditions. **(20 marks)**

THE END



THE UNIVERSITY OF ZAMBIA
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF ENVIRONMENTAL HEALTH
EH 5320- ENVIRONMENTAL MONITORING (IDE)
30th SEPTEMBER, 2022

SECTION A

Six answer questions.

Answer ALL.

60 marks

1. Discuss three (3) reasons why air emissions should be monitored in industrial settings. **(10 marks)**
2. Write short notes on the following:
 - a. Sampling network. (3 marks)
 - b. Piezometers. (1 mark)
 - c. Nonpoint pollution source. (1 mark)
 - d. Define and briefly discuss the effects of water pollution. (5 marks)
3. Classify the main sources of indoor air pollution with at least two (2) examples of each. **(10 marks)**
4. Outline at least five (5) factors that influence the perception of risk in various populations. **(10 marks)**
5. With the aid of a diagram, show the stage (s) of the Environmental and Social Impact Assessment (ESIA) process at which Public Consultation is undertaken. **(10 marks)**
6. Explain three ways in which noise pollution can be eliminated/minimized. **(10 marks)**

SECTION B

Three (3) long questions

Answer Question 7 and any other Question

7. a. Discuss twelve (12) reasons for water quality monitoring. **(12 marks)**
b. List and describe three (3) types of water monitoring points. **(3 marks)**
c. When sampling water for analysis there are several factors to consider some of which include the types of containers and types of preservation methods to ensure the integrity of the sample. Based on this background fill in the gaps in the table below. **(5 marks)**

Analysis	Container	Preservation
General	Glass PE	
COD, NH ₃ , NO ₂ , NO	Glass PE	
P	Glass	
DO		
BOD	Glass, PE	
Coliform		4°C, dark
Heavy metals	Glass, PE	
Pesticides		4 °C, dark

8. A company is planning to establish an open pit mine and ancillary infrastructure which includes a smelter in a forestry reserve of the Eastern Province of Zambia. You have been assigned to conduct an Environmental Risk Assessment (ERA) of this project on behalf of the Zambia Environmental Management Agency (ZEMA).
- a. With the aid of a diagram, fully outline what steps you would follow in carrying out the ERA.
- b. Further, discuss the various experts you would involve in this undertaking justifying the reasons for your choice/s. **(20 marks)**.

9. a. Show how poor solid waste management is a major source of environmental pollution.
- b. Describe in detail at least three (3) impacts it has on land systems.
- c. Further, discuss two factors that may influence the magnitude of these impacts. **(20 marks)**

END OF EXAMINATION



**THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION
BSC. ENVIRONMENTAL HEALTH**

2021/2022 END OF YEAR EXAMINATION

EHS 5440: Introduction to Health Promotion

28th September 2022

TIME ALLOCATED: 3 HOURS

INSTRUCTIONS:

1. There are **TWO SECTIONS** in this paper, A and B
 2. In Section A, Answer Any 4 Questions (Short Answer Questions – 40 Marks]
 3. In Section B, **Question 1 is compulsory**, plus **ANSWER ANY TWO QUESTIONS** (20 Marks Each – 60 Marks)
- IV. PLEASE READ THE QUESTIONS CAREFULLY BEFORE ANSWERING**
5. Use a **SEPERATE ANSWER BOOKLET** for each question.

SECTION A: Short Answer Questions. ANSWER ANY FOUR (4)

1. Define the following terms [2 Marks]
 - a. Health Promotion [2 Marks]
 - b. Salutogenesis [2 Marks]
 - c. Community development [2 Marks]
 - d. Pathogenesis [2 Marks]
 - e. Development [2 Marks]
2. Health communication has been said to increase health literacy in people. However, when someone gets health information on a particular health issue, it does not render them health literate. Thus said, define Health Literacy. With practical examples, state and explain the three health literacy levels that a person can aim to achieve.
3. Write brief notes on the social cognitive theory and theory of reasoned action [10 marks]
4. What are social determinants of health? Discuss at least FOUR (4) social determinants of health [10 Marks]
5. Explain Settings in Health Promotion. Briefly describe at least THREE types of settings [10 Marks]
6. Define and write brief notes on the following commonly used terms in gender and health
 - a. Gender equity [2 marks]
 - b. Gender equality [2 marks]
 - c. Gender sensitivity [2 marks]
 - d. Gender discrimination [2 marks]
 - e. Gender [2 marks]
7. What is noise in the Communication Process? With examples, discuss any 4 types of noise in communication. [10 Marks]

SECTION B: QUESTION ONE IS COMPULSORY, plus answer ANY OTHER TWO questions in this section.

1. Despite the continued disastrous effects of Covid-19 on human life, people still shun away from accessing Covid-19 vaccines in Zambia. Using concepts from behavior change communication and specifically the Health Belief Model, advise the Ministry of Health

- how they can structure their communication materials on Covid-19 vaccines in order to increase uptake of the vaccine among Zambians. **[20 Marks]**
2. What is community participation? With practical examples, discuss how you can apply at least three community participatory methods to conduct a community diagnosis of any health issue of your choice. **[20 marks]**
 3. You have been appointed as the Minister for the newly created Ministry of Health Promotion and Social Determinants. You have been asked to make a presentation to the President of Zambia on the importance of Health Promotion in improving the lives of Zambians. Using guidelines from the Ottawa Charter, how would you explain the relevance of Health Promotion to the president? **[20 Marks]**
 4. Social marketing is one of the most commonly used strategy in health promotion. What is social marketing? With examples, discuss the similarities and differences between social marketing and traditional marketing. **[20 Marks]**

===== END =====

GOOD LUCK!!