



FACULTY	HEALTH SCIENCES AND VETERINARY MEDICINE		
SCHOOL	VETERINARY MEDICINE		
DEPARTMENT	PARA-CLINICAL STUDIES		
PROGRAMME	VETERINARY MEDICINE		
MODULE	VETERINARY PUBLIC HEALTH I		
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DURATION	3 hours	Marks	150

Second Opportunity Examination Paper

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This question paper consists of 11(eleven) pages including this front page

Instructions

Read the questions carefully

Answer all questions

Write clearly and concisely

Hand in this question paper together with the answer booklet

Part 1:

Multiple Choice questions:

**Tick the correct answer (1 (one) or 2 (two) answers might be possible)
(1 mark for each correct answer) (Total marks 31)**

1.	1. Which pathogen is associated with waterborne disease and is resistant to chlorination? - a.) <i>Giardia spp</i> - b.) <i>Cyclospora spp</i> - c.) <i>Cryptosporidium spp</i> - d.) Cholera 2. Give the medical term for the zoonotic disease, commonly called “ringworm”? - a.) Dermatophilosis - b.) Dermatophytosis - c.) Malassezia - d.) Chicken pox 3. Which pathogenic organism that could lead to abortion in humans? - a.) <i>Campylobacter jejuni</i> - b.) <i>Escherichia coli</i> O157:H7 - c.) <i>Listeria monocytogenes</i> - d.) <i>Toxoplasma gondii</i> 4. Name the bacteria that can be obtained from undercooked or raw Hamburger - a.) <i>Listeria monocytogenes</i> - b.) <i>Escherichia coli</i> O157:H7 - c.) <i>Leptospira interrogans</i> - d.) <i>Campylobacter jejuni</i> - e.) <i>Shigella</i> 5. The organism that can lead to Guillian Barre’s Syndrome is: - a.) <i>Campylobacter jejuni</i> - b.) <i>Escherichia coli</i> O157:H7 - c.) <i>Listeria monocytogens</i> - d.) <i>Campylobacter coli</i>	31 marks
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6. With reference to the HACCP system: The periodical check of the temperature in a chilled storage room by means of thermometer is falling under the:

- a.) Auditing for prerequisites
- b.) Monitoring action
- c.) Corrective action
- d.) Company action
- e.) Competent authority check

7. How would you evaluate, during an inspection, the total absence of identified Critical Control Points (CCPs) in a HACCP plan?

- a.) Negatively: Food Business Operator doesn't have the process under control.
- b.) Positively, if critical limits are properly identified and managed.
- c.) Positively, if there are evidences that all possible hazards are properly managed by the pre-requisite programmes.
- d.) Negatively: HACCP must include CCPs.
- e.) The Food Business operator can decide if or if not he will use CCPs.
- f.) Evaluation of CCPs are not part of an inspection.

8. In the European Union (EU) legislation, food safety systems or HACCP based systems with equivalent results are:

- a.) Prepared by the Competent Authority (CA) together with HACCP team in the establishment
- b.) It is required by law (based on import EU regulations)
- c.) On voluntary basis
- d.) Approved by the Competent Authority
- e.) Developed by the company and implemented by the Competent Authority
- f.) Recommended by the Competent Authority

9. How can evidence be collected during an audit?

- a.) Just with direct observation
- b.) Through documentary review and management meeting reports In different ways: direct observation, interview with workers, documents and records analysis and measurements
- c.) Only workers and supervisor interviews are relevant
- d.) During an audit it is not necessary to collect evidence
- e.) Microbiological and residue results comparison

10. What shall be done if, during the assessment, deviations which may have serious consequences on the safety of the product are observed?

- a.) Adoption of immediate corrective measures shall be requested.
- b.) A written notification shall be delivered to the FBO within 15 days.
- c.) Nothing, it is up to the FBO to decide if and how to adopt corrective action.
- d.) The product will get destroyed.
- e.) Product samples will be taken and results will determine what steps will be taken.

11. Which of the following can cause food contamination because of chemical hazards from food handlers?

- a.) Dust
- b.) Earring
- c.) Live insects
- d.) Perfume
- e.) Hair

12. Which zoonotic food borne agent is a commonly linked to Ready-To-Eat food?

- a.) *Campylobacter jejuni*
- b.) *Escherichia coli* O157:H7
- c.) *Listeria monocytogenes*
- d.) *Brucella melitensis*
- e.) *Salmonella enteritidis*

13. The main complication for zoonotic shiga toxin-producing *Escherichia coli* (STEC) is:

- a.) Chronic reactive arthritis
- b.) Hemolytic uremic syndrome
- c.) Meningitis
- d.) Crohn's disease
- e.) Guillain Barre syndrome

14. A main complication for zoonotic Listeriosis is

- a.) Chronic reactive arthritis
- b.) Meningitis
- c.) Hemolytic uremic syndrome
- d.) Crohn's disease
- e.) Guillain Barre syndrome

15. In a slaughter house the knife sterilisers must be available for cleaning and sanitation purpose therefore the sterilizer water must have a minimum temperature of:

- a.) 42°C
- b.) 82°C
- c.) 62°C
- d.) 100°C
- e.) Above 132°C

16. The most important limiting criteria for the maximum daily slaughtering throughput in an abattoir are:

- a.) the slaughterline the chiller/freezer capacity
- b.) the size of the premises
- c.) the slaughterline speed/hourly throughput
- d.) the amount of workers
- e.) all of the above

17. What is a Critical Control Point (CCP)?

- a.) Each non-conformance detected during auditing activity.
- b.) A procedure, a step, an operational phase that if not controlled properly can lead to an unacceptable risk.
- c.) A target value.
- d.) A point which is critical but possible to control.
- e.) A point which indicates a microbiological sample point.

18. The causative agent of Neurocysticercosis is

- a.) *Ancylostoma caninum*
- b.) *Cysticercus suis*
- c.) *Cysticercus cellulosae*
- d.) *Toxocara suis*

19. A cattle truck has arrived at an export abattoir. During offloading, one of the cattle is unable to stand and remains lying in the truck. How should this animal be handled?

- a.) It must be dragged out and slaughtered at the end of the slaughter day.
- b.) A prodger must be used to get it out of the truck.
- c.) It must be shot/killed on the spot.
- d.) The animal will be sent back to the farm of origin.
- e.) It must be brought to the slaughter floor and slaughtered immediately.

20. Define the term “disinfection” in the context of food safety

- a.) The main objective of a cleaning programme is to control microbial activity; an adequate cleaning programme will eliminate nearly all the soil present.
- b.) To destroy or irreversibly inactivate specified infectious fungi and bacteria, but not necessarily their spores, on hard surfaces using chemicals, heat or ultraviolet rays
- c.) To reduce microorganisms of public health importance to levels considered safe, based on established parameters, without adversely affecting either the quality of the product or its safety
- d.) It is vital to product wholesomeness and an essential foundation for HACCP systems

21. What does the word “insanitary” mean in the Food Safety context?

- a.) A state or occurrence which may lead to the avoidable contamination of edible food products when it is exposed, processed, handled, stored or packaged.
- b.) Any edible food products produced, packed, or held under required conditions where it may have become contaminated with filth or may have been rendered injurious to health.
- c.) An avoidable occurrence which causes contamination of edible food products.
- d.) A state, condition, or occurrence which may lead to the contamination or adulteration of edible food products when they are exposed, processed, handled, stored, or packaged.

22. Which one of these cestodes species does not have zoonotic potential?

- a.) *Taenia multiceps*
- b.) *Taenia saginata*
- c.) *Taenia serialis*
- d.) *Taenia solium*
- e.) *Taenia ovis*

23. Select the *Salmonella* strain that is restricted to animals ONLY

- a.) *S. enteritidis*, *S. paratyphi*, *S. dublin*
- b.) *S. gallinarum*, *S. enteritidis*, *S. dublin*
- c.) *S. paratyphi*, *S. dublin*, *S. choleraesuis*
- d.) *S. pullorum*, *S. dublin*, *S. choleraesuis*

24. Which ones of the following principles are NOT part of the seven principles of HACCP?

- a.) Conduct hazard analysis
- b.) Identify the HACCP team
- c.) Identify critical control points
- d.) Identify critical limits
- e.) Implement pre-requisite programmes

25. The purpose of the Veterinary Cordon Fence (VCF) in Namibia is

- a.) To prohibit movement of game species from the northern to the southern regions.
- b.) To demarcate the WOAHA recognized Foot and Mouth Disease free zone from the rest of the country, which is not FMD free.
- c.) To assist the Namlit (Namibia Livestock Identification and Traceability) system in controlling livestock movement in all regions.
- d.) To recognize the area south the VCF as free from Lumpy Skin Disease.
- e.) To prevent Namibia from losing access to high value export markets that require specific FMD disease freedom

26. Why do we pasteurize milk?

- a.) To remove the milk fat
- b.) For destruction/reduction of pathogenic micro-organisms and spoilage bacteria
- c.) For change of taste
- d.) For reduction of sugar
- e.) To increase the shelf-life
- f.) For increasing the protein content

Part 2: True/False questions:

If the answer is false, provide the correct information.

Questions with false answers are awarded 3 marks whereas those with true answers are awarded 1 mark Total (20 marks).

If the false answer is not rectified correct, 0 (zero) mark will be granted.

2.1	<i>Trichinella spiralis</i> is a parasite in pigs, which might be detected during meat inspection.	True	False
2.2	The term " <u>condemned product</u> " means the product has passed the veterinary inspection and is declared fit for human consumption	True	False
2.3	Anthrax, Plague, <i>Erysipelas</i> and Lyme disease are zoonotic and cause lesions on the skin.	True	False
2.4	<u>Control measure/point</u> (food safety) action or activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level	True	False
2.5	The Ministry of Agriculture, Water and Land Reform (MAWLR) is recognized as the competent authority for food processing export facilities, responsible for the certification of plants, animals and animal products and they are the custodian for food safety in Namibia	True	False
2.6	A carcass, including all body parts is conditionally passed and must undergo freezing treatment when during postmortem inspection excessive <i>Cysticercus bovis</i> cysts are observed.	True	False
2.7	Food chain means series of processes involved in the production, processing, distribution, storage, and handling of an animal from primary production to consumption	True	False
2.8	The main responsibilities of a state veterinarian at an abattoir are ante mortem, postmortem, certification based on the respective export requirements and verification of the Food Safety system of the company.	True	False
2.9	The hand washbasins in a food processing establishment must be outside the processing area and be supplied with warm water running not less than 60°C	True	False

3.0	Waste water from an abattoir which slaughter cattle and sheep, containing blood and ingesta can be used for irrigation of fruit trees and vegetable fields.	True	False
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Part 3: Short and long answer questions (99 marks)

3.1	The consequence of underreporting of foodborne zoonotic infections in the Namibian population has resulted in very little information available for epidemiological mapping and statistics. Under the One Health Concept, give 6 constructive suggestions on how the One Health approach can be achieved to address the problem statement. (12 marks)	12 marks
3.2	It is the function and responsibility of the food processing company to implement an approved food-safety system and to validate the effectiveness of this system on a continuous basis. It is the responsibility of the official Veterinarian to verify that an approved food-safety system is indeed in place and that the pre-requisite programs (PRP) and associated monitoring systems reflect the accurate representation of the system and procedures implemented at the establishment. Elaborate why the PRPs are the foundation of any food safety system (6 marks)	6 marks
3.3	In the food industry, chemicals are routinely used to sanitize and disinfect product contact surfaces. These chemicals provide a necessary and required step to ensure that the foods produced and consumed are as free as possible from microorganisms that can cause foodborne illness. In the context of the above answer the questions below. a.) Explain the difference between <u>Disinfecting</u> and <u>Sanitizing</u> (4 marks) b.) Elaborate on the principles of disinfection in a cleaning programme. (4 marks)	8 marks
3.4	Transmission of foodborne pathogens occurs via the oral route. How those pathogens contaminate milk and milk products can vary based on the organism, its reservoir, food handling/processing, and cross-contamination prior to serving.	10 marks

	Contamination by foodborne pathogens can occur at several points along the milk production chain. a.) Explain the most important points where contamination might occur along the milk production chain. (6 marks) b.) A dairy farmer wants to sell raw milk to a milk plant and is looking for information on the possible risks of bacteriological zoonotic diseases. As a veterinarian you need to give him the most common bacterial pathogens. List four (4) organisms at genus or species level which may be present in raw milk. (4 marks)	
3.5	a.) Name and define the inspections which should be performed by a veterinary public health official (Veterinarian) at an abattoir to guarantee that meat is safe for human consumption (4 marks) b.) State the aims/objectives of <u>each inspection</u>. (16 marks)	20 marks
3.6	Food Safety of Products of animal origin applying the HACCP based principles provides direction on the obligations and responsibilities of the Food Business Operator and the Veterinarian with regards to the implementation and maintenance of a HACCP system in food business establishments. a.) Give the definition of HACCP and the basic requirements which are necessary to develop a fully functioning Food Safety system. (15 marks) b.) Illustrate in the form of a diagram the main components of a food safety system within a quality management programme. (4 marks)	19 marks

3.7	Definition flow diagram for a beef slaughterhouse: a schematic and systematic presentation of the sequence and interactions of steps of the food production process for a beef slaughter facility. Draw a flow diagram of the different process steps in the dirty and clean areas respectively, including ante and post mortem inspection points (14 marks)	14 marks
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3.8	One health serves as a link between safety, health, environment, and sustainable development. The common pillars typically considered for sustainable development are <u>economic</u>, <u>social</u>, and <u>environmental factors</u>. Name at least two other pillars that were introduced to the existing triple pillars to form the six interconnected pillars of sustainable development. (3 marks)	3 marks
3.9	Microbiological testing at specific points in the food chain is an important tool for verifying a risk-based approach in a modern food safety system. Two criteria for microbiological performance should be included in a complete food safety system to guarantee that the produced product is safe for the consumer. a.) Name the two criteria (2 marks) b.) What is the difference between these criteria (5 marks)	7 marks
	END OF EXAMINATION PAPER	