FACULTY	Faculty of Health Sciences and Veterinary Medicine		
	School of Veterinary Medicine		
DEPARTMENT	Para-clinical Studies		
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1st Opportunity Examination Paper

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This Memorandum 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, please mark the correct answer (1 (one) mark or 2 (two) marks answers might be possible). (Total marks 30)

1.	**1. How many steps are required to complete the Hazard Analysis Critical Control Point (HACCP) food safety system?** a.) 4 b.) 7 c.) 12 d.) 10 e.) 8 **2. In the European Union (EU) legislation, food safety systems or HACCP based systems with equivalent results are:** a.) On voluntary basis. b.) Prepared by the Competent Authority (CA) together with HACCP team (Hazard Analysis Critical Control point team) in the establishment. c.) Approved by the Competent Authority. d.) Developed by the company and implemented by the Competent Authority. e.) Recommended by the Competent Authority. **3. Concerning the preparation of a food safety system, when should pre-requisite be in place?** a.) After the development of the flow diagram. b.) Before the food producing establishment is built. c.) After determination of the Critical Control Points. d.) Before the establishment starts the production. e.) At the beginning, prior to the development of the Hazard Analysis Critical Control point. f.) After the food safety system is developed, but not yet implemented. **4. What is a Critical Control Point (CCP)?** a.) Each non-conformity detected during auditing activity. b.) A procedure, a step or an operational phase that if not controlled correctly can lead to an unacceptable food safety risk. c.) A target value in the food safety system, which needs to be controlled. d.) A point which is critical but possible to control. e.) A point which indicates a microbiological sample point. f.) One non-conformity detected during production.	30 marks

5. In case that a critical limit is exceeded

a.) The food must be treated as a by-product.
b.) HACCP plan shall be revised.
c.) A communication must be sent immediately to Competent Authority.
d.) The production line must be stopped until the issue is solved.
e.) A corrective action shall be adopted.
f.) The product must be separated until further notice.

6. What needs to be done after the identification of a Critical Control Point (CCP)?

a.) Identify corrective actions for every Critical Control Point.
b.) Identify and set critical limits for the identified Hazard.
c.) Develop a flow diagram and do the HACCP analysis.
d.) Check if pre-requisites are capable to control the possible identified hazard.
e.) Identify the monitoring procedures.

7. What is "monitoring of a critical control point" in the context of food safety?

a.) Permanent visual check to be carried out in correspondence of a control point.
b.) Sporadic check of a critical point during production.
c.) Continuous but spontaneous verification of a critical control point.
d.) End product sampling after each production day.
e.) Planned sequence of observations or measurements to assess whether a critical control point is under control.

8. What is the role of the official state veterinarian working at a food processing company regarding food safety system failures:

a.) To provide the company with solutions to solve the problems.
b.) To make a deal with the company in order to find a solution in case of problems in their food safety system.
c.) To set corrective actions and provide corrective measures.
d.) To verify if problems in the Food safety system implemenation have been identified and corrected by the company.
e.) To stop the production until the problem is solved

9. With reference to the Food safety system development, which ONE of the following is included in the "steps" that can be used in the process of developing a Hazard Analysis Critical Control Point (HACCP) plan for food safety?

a.) Use a master cleaning schedule
b.) Establish ante mortem procedures
c.) Construct a flow diagram
d.) Establish post mortem procedures

e.) Responsibilities of the official state veterinarian
f.) Documented checks on stunning and bleeding

10. Which ones of the following principles are NOT part of the Hazard Analysis Critical Control Point (HACCP) principles?

a.) Conduct hazard analysis

b.) Implement pre-requisite programmes

c.) Identify critical control points

d.) Identify the HACCP team

e.) Identify critical limits

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

a.) Negatively: Food Business Operator doesn't have the process under control

b.) Positively, if there are evidences that all possible hazards are properly managed by pre-requisite programs

c.) Negatively: HACCP must include CCPs

d.) The Food Business operator can decide if or if not he will use CCPs

e.) Evaluation of CCPs are not part of an inspection

12. During the Food safety audit execution at a Food business establishment:

a.) Auditors can be accompanied by representatives of the company
b.) Represenatives of the company will lead the audit.
c.) The auditor can decide if he want to be accompnied by company represenatives.
d.) The exporting country will provide the rules for the audit execution.
e.) Representatives of the company should not be present
f.) Auditors should always be accompanied by representatives of the company

13. How can evidence be collected during a food safety audit?

a.) Just with direct observation

b.) Only workers and supervisor interviews are relevant

c.) Through documentary review and managment meeting reports

d.) In different ways: directe observation, interview with the workers, documents and records analysis, measurements

e.) During an audit it is not necessary to collect evidence

f.) Microbiological and residue results comparison

14. 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.

15. At the end of your monthly state veterinarian inspection at an abattoir, you detect non-compliances related to the implementation of HACCP plan. How will you address the non-compliance?

a.) Write a report indicating possible solutions that must be adopted
b.) Prepare a draft of a new HACCP plan, together with the Food Business Operator.
c.) Localize the endproducts until the non-compliaces are adressed.
d.) Request a new HACCP analysis, made by an consultant.
e.) Write a report on the parts of the plans in which non-comliances were detected, without indicating possible solutions.
f.) Close the establisment until all the non-compliances are rectified.

16. 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 assist the Namlits (Namibia Livestock Identification and Traceability) system in controlling livestock movement in all regions.
c.) To demarcate the World Health Organisation for Animal Health (WOAH) recognized Foot and Mouth Disease (FMD) free zone from the rest of the country, which is not FMD free.
d.) To recognize the area south of the VCF as infected from CBPP (Contagious Bovine Pleuropneumonia) only.
e.) To control the spread of Lumpy Skin Disease to the northern areas.
f.) To prevent Namibia from losing access to high value exports markets that require specific FMD freedom.

17. Which of the following statements are true about thermometers and their calibration in a food production environment?

a.) All of the below mentioned points.
b.) A thermometer must be available at all times in a food service establishment.
c.) A thermometer must be checked regularly to ensure that it is accurate.
d.) A thermometer must be at least once a year calibrated.

e.) The calibration company must be accredited.
f.) A thermometer must be accurate to 1°C.

18. 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 microbes, but not necessarily their spores, on hard surfaces through the use of 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.) Proper cleaning is vital to product wholesomeness and an essential foundation for HACCP systems.

19. 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.) 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 packed.

d.) An avoidable occurrence which causes contamination of edible food products.

20. In judging an animal carcass, it is important to differentiate between a localized and a generalized condition. Indicate the most common signs of a generalized disease:

a.) The animal's defense mechanisms are able to stop the spread of the disease process by way of the circulatory or lymphatic systems.
b.) Inflammation of lymph nodes including the lymph nodes of the head, viscera and/or lymph nodes of the carcass.
c.) Lesions in different organs including liver, spleen, kidneys and heart usually require less severe judgement as they may be condemned.
d.) The presence of multiple abscesses in different portions of the carcass, including the vertebral lymph nodes.
e.) Localized lesions usually require more severe judgment than generalized lesions.
f.) In a generalized condition, a lesion is restricted to a certain area or organ by the animal's defence mechanisms.

21. Why is it important that outside garbage containers be covered at all times?

a.) To prevent people from picking through the trash.
b.) To look cleaner to pedestrians
c.) To contain odours that may attract pests
d.) To hide how much food is thrown away
e.) To give work to people to clean the garbage containers.
f.) All points are important.

22. Which of the following actions could be taken in order to "conditionally pass" a carcass with parasitic cysts?

a.) The carcass is stored for 7 days before human consumption
b.) The carcass is deboned
c.) The carcass is frozen for 10 days at minus 10 degrees Celsius
d.) The carcass is chilled to 4 degrees Celsius
e.) The carcass is frozen for 3 days at minus 18 degree Celsius
f.) The carcass must be cooked.

23. Which of the following diseases of pigs are zoonotic?

a.) Porcine Reproductive and Respiratory syndrome (PRRS)
b.) Swine flu
c.) African Swine Fever
d.) Diamond Skin Disease
e.) Porcine Parvovirus
f.) Coccidiosis

24. Why do we pasteurize milk?

a.) To remove the milk fat
b.) Change of taste
c.) Destruction/reduction of pathogenic micro-organisms and spoilage bacteria
d.) Reduction of sugar
e.) Increase in shelf-life
f.) Increasing the protein content

25. Possible sources for *Brucella melitensis* in milk

a.) Dirty tails
b.) Dirty udders
c.) uncooked milk
d.) Water
e.) Infected animal

Part 2 True/False questions

If the answer is false, provide the correct information.

In questions with false answers the corrections are awarded 3 marks whereas those with true answers are awarded 1 mark (Total 30 marks).

1.	Prerequisite programmes (PRP's) are food safety basic conditions and activities that are necessary to maintain a hygienic environment throughout the food chain suitable for the production, handling and provision of safe end products and safe food for human consumption.	True	False
2.	Verification with regards to food safety means obtaining evidence that the control measures managed by the HACCP plan and by the operational PRPs are capable of being effective.	True	False
3.	Critical control point (CCP) with regards to food safety means a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.	True	False
4.	Control measure/point ⟨food safety⟩ is an action or activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.	True	False
5.	Validation in food safety means confirmation, through the provision of objective evidence, that specified requirements/standards have been met	True	False
6.	The term "adulterated" in the Food Safety context, means a state, condition, or occurrence which may lead to the contamination or adulteration of edible meat or poultry product when it is exposed, processed, handled, stored or packaged.	True	False
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
8.	The main responsibilities of a state veterinarian at an abattoir are ante mortem, post mortem, certification based on the respective export requirements, maturation and verification of the Food Safety system compliance of the company.	True	False
9.	Pasteurization of milk is the destruction of pathogenic micro-organisms, and most spoilage organisms, by making noticeable changes to the taste and additions to the nutritional value, and so promote an increased shelf-life.	True	False

10.	Safe food implies that food must not be injurious to the health of the consumer and food must be free from noxious materials such as poisonous substances and micro-organisms.	True	False
11.	*Oesophagostomum* infestations cause lesions which render the animal's gut (large and small intestine) unsuitable for sausage processing, thereby causing economic losses.	True	False
12.	The Ministry of Agriculture, Water and Land Reform (MAWLR) is recognized as the competent Authority for local and export facilities, responsible for the certification of plants, animals and animal products as well as their food safety standards for the safety of human consumption in Namibia.	True	False
13.	Wholesome food implies that food must have a nutritive value up to certain specifications/expectations.	True	False
14.	Sound food implies freedom from defects, judged on aesthetic and organoleptic parameters and tend to be subjective.	True	False
15.	Food-borne infections are defined as Type I, when enterotoxins are released as the infecting organism multiplies, sporulates, or lyses in the intestinal tract and Type II, when the intestinal mucosa is penetrated and the infecting organism multiplies therein or passes to other tissues where it multiplies or lodges.	True	False
16.	Maximum residue limits (MRLs) are determined in order to officially lay down the lowest limits of residues and contaminants so as not to pose a risk to human health. These limits depend on the toxicity of the substance in question.	True	False

Part 3 Short answer questions (34 marks):

1.	**1.1 Mechanical stunning renders an animal unconscious and ensures freedom from pain. Elaborate the visible signs you can observe on an animal that was effectively stunned? (5 marks)** **1.2 Emergency slaughter is usually instituted to end pain and suffering of a slaughter animal. Give two examples of when you would execute an emergency slaughter? (2 marks)**	7 marks
2.	**Explain the difference between "HACCP" and "the HACCP system"?**	7 marks
3.	**There are various meat processing technologies behind meat products that adhere to associated food safety practices to render safe consumable meat product.**	7 marks

	3.1 Heat treatment is an important technology used during meat processing. How can heat treatment be used for the reduction of microbial content in a meat product? (4 marks) **3.2 The safety and storage stability of processed meat products depend on a combination of several hurdles. In your own words, briefly explain the hurdle concept and give 3 examples of hurdles that can be used for meat preservation (3 marks)**	
4.	**4.1 Processors can influence or "control" the spoilage of meat by introducing ingredients (e.g., salt, cure) to influence the microbial environment. Briefly explain how this act can result in microbial inversion? (3 marks)** **4.2 Name the process that usually follows after microbial inversion has been achieved. (2 mark)**	5 marks
5.	**Explain the difference between residues and contaminants under the general food safety aspect.**	8 marks

Part 4 Long answer questions (56 marks):

6	**All animals which will undergo slaughtering for human consumption should undergo ante and post mortem inspection as stipulated in the Codex Alimentarius and related requirements. However, worldwide discussions on the reduction of the meat inspection requirements are taking place!** **Discuss pro and cons of the current meat inspection requirements and provide recommendation for the meat industry in Namibia (12 marks)**	12 marks
7.	**Namibia has an act for the control of residues in meat and meat products.** **7.1 Give the number and year when this act was enacted and describe briefly the title (functions) of this act. (5 marks)** **7.2 Explain the different substances categorized- only the group sections? (6 marks)**	11 marks
8.	**Microbiological testing at specific points in the food chain is an important tool for verifying a risk-based approach to food safety. Where appropriate, microbiological performance objectives or**	14 marks

	performance criteria should be included in the verification of process control. Name and explain both criteria. (14 marks)	
9.	**A delegation of international OIE inspectors visiting an export abattoir south of the Veterinary Cordon Fence would like to know the practical measures that are in place to ensure the "inactivation" of the Food and Mouth Disease virus in cattle or small stock carcasses after slaughter.** **9.1 Provide the information that you would use to explain the procedure to the OIE inspector. (6 marks)** **9.2 Which practical measures are in <u>place after slaughtering and post mortem</u> inspection of the carcasses? (3 marks)**	9 marks
10.	**10.1 Differentiate the words food fraud and food defence in context with international Food safety standards (6 marks)** **10.2 and explain under the aspects mentioned in 10.1 the term Intentional adulteration, as an additional step which can be covered in comprehensive food safety system (4 marks).**	10 marks
	End of the examination paper	