



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2019

TITLE OF PAPER : MEAT HYGIENE

COURSE CODE : EHS 228

DURATION : 2 HOURS

MARKS : 100

- INSTRUCTIONS** :
- : ANSWER **ONLY FOUR** QUESTIONS
 - : QUESTION ONE IS **COMPULSORY**
 - : EACH QUESTION CARRIES 25 MARKS.
 - : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
 - : NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
 - : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

Question 1

Multiple choice questions:

Choose the most appropriate answer;

1. Which lymph nodes are located on the edge of the masseter muscles and covered by the salivary gland which must be incised to expose it and they (is) drain the muscles of the head, eye, and ear, tongue, and cranial cavity in cattle?
 - A. retropharyngeal
 - B. parotid
 - C. prescapular
 - D. popliteal
 - E. precrural

2. Which lymph node is located at least 10 cm in front of the point of the shoulder and it drains the head, neck, shoulder, forelimbs, muscles and bones in cattle?
 - A. retropharyngeal
 - B. parotid
 - C. prescapular
 - D. popliteal
 - E. precrural

3. The lower part of the leg and foot in cattle are drained by the which lymph node;
 - A. retropharyngeal
 - B. prescapular
 - C. parotid
 - D. popliteal
 - E. precrural

4. The skin, prepuce, and superficial muscles are drained by which lymph node?
 - A. retropharyngeal
 - B. prescapular
 - C. parotid
 - D. popliteal
 - E. precrural

5. In pigs, the popliteal lymph nodes is known as the;
 - A. stifle node
 - B. hock node
 - C. superficial node
 - D. superior node
 - E. thigh node

6. Meat from a freshly killed ox carcass usually has a pH of about 6.5 but after 48 hours it is expected to be;
- A. 6.5
 - B. 6.0
 - C. 5.5
 - D. 5.0
 - E. 5.5
7. Which **one** of the statements is **not correct**?
- A. Volatile oils in the fat of mammals give the fat and red muscle their flavor and aroma
 - B. Volatile oils are absent from white and heart muscles, such meats are comparatively tasteless and therefore require strong flavored herbs
 - C. Volatile oils are also absent from meat that has been stored for a long time or overcooked
 - D. Muscles with higher percentage of connective tissue results in tender meat.
 - E. Poor amounts of fats in the muscles results in tough meat
8. Which **one** of these statements is **not correct**?
- A. Rump steak is meat from the sacrum and the wings of the ilium bone
 - B. Topside meat is from the mass muscle below the ischium and the pubis .
 - C. Masseter muscle, is the broad sheet of muscles of the cheek
 - D. Silverside meat is on the outer end of the ischium to the back of the tibia.
 - E. The ilium, ischium and pubis are fused at birth
9. **In pigs**, the site of shooting during stunning of animals is;
- A. the point on the forehead at the intersection of two lines drawn from the base of the horns to the eyes on the opposite side
 - B. the center of the forehead between the ears
 - C. about 1.5 cm above the level of the eyes in the mid line
 - D. about 1.5 cm above the level of the ears in the mid line
 - E. the center of the forehead between the eyes
10. **In goats**, the site of shooting during stunning of animals is;
- A. the point on the forehead at the intersection of two lines drawn from the base of the horns to the eyes on the opposite side
 - B. the center of the forehead between the ears
 - C. about 1.5 cm above the level of the eyes in the mid line
 - D. about 1.5 cm above the level of the ears in the mid line
 - E. the center of the forehead between the eyes.

11. A deflowered **female pig** is known as;
- A. gilt
 - B. steer
 - C. ewe
 - D. sow
 - E. cow
12. A deflowered **female sheep** is known as;
- A. gilt
 - B. steer
 - C. ewe
 - D. sow
 - E. cow
13. The **goat's kidneys** are;
- A. bean shaped , renal pelvis present and (one renal papillae) have no lobules
 - B. left kidney is pyramid shaped, floating, whereas the right is fixed and both kidneys are lobulated (15-25 renal papillae) and have no renal pelvis
 - C. smooth bean shaped but thinner and flatter than the other animals and both kidneys are immovable
 - D. the right kidney is triangular or heart shaped and the left is bean shaped; both kidneys are immovable and non-lobulated
 - E. the right kidney is bean shaped and the left kidney is heart shaped.
14. The **cattle's kidneys** are;
- A. bean shaped , renal pelvis present and (one renal papillae) have no lobules
 - B. left kidney is pyramid shaped, floating, whereas the right is fixed and both kidneys are lobulated (15-25 renal papillae) and have no renal pelvis
 - C. smooth bean shaped but thinner and flatter than the other animals and both kidneys are immovable
 - D. the right kidney is triangular or heart shaped and the left is bean shaped; both kidneys are immovable and non-lobulated
 - E. the right kidney is bean shaped and the left kidney is heart shaped.
15. The **pig's kidneys** are;
- A. bean shaped , renal pelvis present and (one renal papillae) have no lobules
 - B. left kidney is pyramid shaped, floating, whereas the right is fixed and both kidneys are lobulated (15-25 renal papillae) and have no renal pelvis
 - C. smooth bean shaped but thinner and flatter than the other animals and both kidneys are immovable
 - D. the right kidney is triangular or heart shaped and the left is bean shaped; both kidneys are immovable and non-lobulated
 - E. the right kidney is bean shaped and the left kidney is heart shaped.

16. The **spleen of cattle** is;
- A. flat and sickle shaped and bluish in color
 - B. elongated tongue shaped, reddish in color and triangular in cross-section and longitudinal ridge with fat-filled omentum attached
 - C. oyster shaped, soft and elastic to touch, reddish-brown in color
 - D. elongated oval shape, white lymph follicles (malpighian corpuscles) which are easily seen on cross-section
 - E. elongated tongue shape, white lymph follicles (malpighian corpuscles) which are easily seen on cross-section
17. The **spleen of pig** is;
- A. flat and sickle shaped and bluish in color
 - B. elongated tongue shaped, reddish in color and triangular in cross-section and longitudinal ridge with fat-filled omentum attached
 - C. oyster shaped, soft and elastic to touch, reddish-brown in color
 - D. elongated oval shape, white lymph follicles (malpighian corpuscles) which are easily seen on cross-section
 - E. elongated tongue shape, white lymph follicles (malpighian corpuscles) which are easily seen on cross-section
18. The **spleen of sheep** is;
- A. flat and sickle shaped and bluish in color
 - B. elongated tongue shaped, reddish in color and triangular in cross-section and longitudinal ridge with fat-filled omentum attached
 - C. oyster shaped, soft and elastic to touch, reddish-brown in color
 - D. elongated oval shape, white lymph follicles (malpighian corpuscles) which are easily seen on cross-section
 - E. elongated tongue shape, white lymph follicles (malpighian corpuscles) which are easily seen on cross-section
19. Myoglobin is a complex protein that;
- A. carries oxygen in the red muscles
 - B. removes oxygen from red muscles
 - C. stores oxygen in the red muscles
 - D. stores glycogen the red muscles
 - E. carries nutrients to the red muscles
20. In cattle, the ischio-pubic symphysis can be split with a knife up to the age of around;
- A. 2 years
 - B. 3 years
 - C. 4 years
 - D. 5 years
 - E. 6 years

21. In pleurisy is the inflammation of the _____ ;
- A. heart
 - B. liver
 - C. lungs
 - D. kidneys
 - E. pleura membrane
22. Peritonitis is the inflammation of the;
- A. heart
 - B. liver
 - C. lungs
 - D. kidneys
 - E. peritoneum membrane
23. Dark cuts in beef meat are an indication of;
- A. high pH
 - B. acidic pH
 - C. neutral pH
 - D. low pH
 - E. Both A and C
24. Drugs such as antibiotics are to be withdrawn weeks before the animal is slaughtered in order to;
- A. increase the shelf life of the meat
 - B. encourage quick start of rigor mortis
 - C. eliminates the risk of bacterial resistance in meat consumers.
 - D. eliminates the risk of meat poison in consumers
 - E. ensure that meat retains its reddish color after slaughter
25. The fillet meat is located under the ----- vertebrae in cattle
- A. cervical
 - B. dorsal
 - C. loin
 - D. sacral
 - E. coccygeal

[25 Marks]

Question 2

- a. Meat inspection involves the examination of the carcass lymph nodes. Why is this so? [6]
- b. List all the lymph nodes located on the following organs in cattle: [14]
- ◆ Head
 - ◆ Intestines
 - ◆ Lungs
 - ◆ Liver
 - ◆ Thigh
 - ◆ Neck
 - ◆ Genital organs of female
 - ◆ Genital organs of males
 - ◆ Kidney
 - ◆ Abdomen
- c. How does the spleen contribute in the fight against diseases in food animals? [5]
[25 Marks]

Question 3

- a. You are given a table full of heart and trachea of cattle, sheep and pigs. Explain how you would differentiate the organs in relation to goat, pig and cattle. [20]
- b. In Israel, the main meat consumed is 'Kosher' meat. Why this so. [5]
[25 Marks]

Question 4

- a. Describe the process of hormonal digestion in cattle. [8]
- b. Explain the factors that would lead you to suspect that a carcass meat was sourced from a sick animal. [6]
- c. How do "fasting and resting" during the pre-slaughter care of food animals ensures good quality meat? [5]
- d. Sheep and goats have natural white fats, but, if undernourished or starved, the fats turns yellower. Explain this statement. [4]
- e. Why is it important for a carcass to attain acidity after slaughter? [2]
[25 Marks]

Question 5

- a. Explain the difference between “kosher” and “Halal” meat. [5]
 - b. Giving appropriate examples, explain the role of palmitin, olein, and stearin fatty acids in different types of fats in food animals. [10]
 - c. Showing good examples, discuss marbling in meat. [4]
 - d. What causes asthma in food animals? [3]
 - e. White muscle meat and heart (cardiac) meat are tasteless and therefore require strong flavored herbs. Why is that, explain [3]
- [25 Marks]**