



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2017

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 Best Answer)*

1. The stomachs and intestines in ruminants are located in which of the following vertebrae columns;
 - A. cervical
 - B. thoracic
 - C. lumber
 - D. sacral
 - E. caudal

2. A virgin female pig is known as the;
 - A. gilt
 - B. gimmer
 - C. heifer
 - D. crone
 - E. porcine

3. A castrated male goat is known as the;
 - A. stag
 - B. wether
 - C. rig
 - D. hog
 - E. ovine

4. Marbling in meat refers to::
 - A. the muscle fiber that is served by a nerve fibril and contains an amount of myoglobin.
 - B. the proportion of connective tissue to muscle tissue and the amount of fat intertwined within the muscle bundles.
 - C. the muscle or flesh or meat that forms most of the carcass, it's made of voluntary striated muscles and attaches to bones.
 - D. the involuntary muscles found in visceral organs associated with digestive and respiratory systems.
 - E. muscle fibers which are arranged in bundles surrounded by fibrous connective tissue.

5. Which lymph node drains the skin, and the superficial muscles?
 - A. submaxillary
 - B. parotid
 - C. prescapular
 - D. popliteal
 - E. precrural

6. Which lymph node drains the heart, thoracic wall, lungs, diaphragm, surface of the liver and spleen?
- A. portal
 - B. mediastinal
 - C. bronchial
 - D. renal
 - E. retropharyngeal
7. ----- stores oxygen in the red muscles.
- A. actinomyosin
 - B. glycogen
 - C. epimysium
 - D. haemoglobin
 - E. myoglobin
8. The muscle meat that is located in the inner side of the thigh, and composed of mass muscles starting from below the ischium and pubis and joining the inner surface of the femur is known as ----- meat.
- A. topside
 - B. silverside
 - C. rump
 - D. chuck
 - E. brisket
9. ----- muscle meat is made of the triceps, part of scapula, supra and infra spinatus, trapezius and rhomboid muscles.
- A. topside
 - B. silverside
 - C. rump
 - D. chuck
 - E. brisket
10. Which one of the statements is **not correct** in relation to the vertebrae column?
- A. The lumber is also known as the loin or abdominals.
 - B. The dorsal is also called the thoracic or chest.
 - C. The sacral is also known as the pelvic or hip.
 - D. The lumber is sometimes called the pelvic or loin.
 - E. The coccygeal may also be called the caudal or tail.

11. Which one of the statements is **not correct** in relation to the heart circulation?
- A. The heart is made of cardiac muscles known as myocardium.
 - B. The pericardium consists of two thin membranes, the parietal (inner) and the epicardium (outer)
 - C. The internal heart is lined with a thin coat of fibrous tissues known as the endocardium.
 - D. The heart is divided into four chambers, the upper chambers are known as the auricles while the lower ones are called ventricles.
 - E. There is a valve known as the mitral valve which is located between the right auricle and the right ventricle.
12. In cattle, the aortic semilunar valve is supported by two (2) pieces of cartilage, the ossa cordis or heart bones. But in cattle over----- the cartilages hardens into actual bones.
- A. 2 years old
 - B. 3 years old
 - C. 4 years old
 - D. 5 years old
 - E. 6 years old
13. Choose the statement that best describes the heart of cattle.
- A. The general heart look twisted as the right ventricle appears to sag
 - B. There are three (3) furrows that are seen on the ventricle and the right or posterior furrow extend to about 3-4 cm above the apex.
 - C. The lower edge of the left auricle is notched and lower than the right.
 - D. The heart has less fat but oily and yellow.
 - E. The heart is more globular, broad and shorter than goat heart, and it has a blunt apex.
14. In which of the four stomach compartments in goats is sometimes known as the "bible".
- A. rumen
 - B. abomasum
 - C. reticulum
 - D. omasum
 - E. rumen and reticulum
15. ----- enzyme is found in the abomasum of calves.
- A. rennin
 - B. lipase
 - C. ptyalin
 - D. pepsin
 - E. invertase

16. Pig fat is;
- A. Fairly firm and white in color with slight yellow tint
 - B. Very firm and pure white
 - C. Fairly firm and yellow
 - D. Very soft and grey white
 - E. Soft and golden yellow
17. The positional term, ventral refers to;
- A. nearer the head
 - B. nearer the back
 - C. nearer the front
 - D. nearer the tail
 - E. nearer the central line
18. In goat, 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. the point on the forehead at the intersection of two lines drawn from the base of the ears to the eyes on the opposite side
 - E. the center of the forehead between the horns
19. 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
20. Which one of these statements is **not correct** about the pelvic girdle?
- A. In female, the front of the pubis is sharp and convex
 - B. In males, the front edge of the pubis is rounded and blunt
 - C. The pelvic cavity of males is much narrower and the floor formed by ischium and pubis is concave
 - D. The pelvic cavity of females is wide to contain the uterus and the vagina, and the ischium and pubis form a level floor
 - E. The ilium, ischium and pubis are fused at birth

21. Which statement is **not correct** in relation to the kidney of pigs?
- A. the kidneys are thinner and flatter than the other food animals.
 - B. both kidneys are immovable or fixed
 - C. pig kidneys are elongated and smooth bean shaped
 - D. there is no renal pelvis
 - E. pig's kidneys have 10-12 renal papillae
22. Which statement is **not correct** in relation to haemal lymph nodes?
- A. are small lymph nodes commonly found in the lumber region in cattle.
 - B. haemal lymph nodes are not so common in pigs.
 - C. are small dark red nodes often found in association with lymph nodes.
 - D. haemal lymph nodes are sometimes known as small accessory spleens.
 - E. are common in sheep more especially in the lumber and pelvic regions.
23. The tongue of ox is (has);
- A. smooth and devoid of papillae except for two vallate papillae near the root.
 - B. edges that have large piliform papillae which interlock with similar papillae inside the cheek
 - C. comparatively smooth tongue with very short papillae and very small dorsal prominence.
 - D. the piliform papillae near the tip of the tongue are short and blunt, giving a smooth feel
 - E. long and round ended, giving a shape of a spatula
- [25 Marks]**
24. The tongue of horse is (has);
- A. smooth and devoid of papillae except for two vallate papillae near the root.
 - B. edges that have large piliform papillae which interlock with similar papillae inside the cheek
 - C. comparatively smooth tongue with very short papillae and very small dorsal prominence.
 - D. the piliform papillae near the tip of the tongue are short and blunt, giving a smooth feel
 - E. short, narrow and pointed at the tip and on part it is smooth.
25. The tongue of sheep is (has);
- A. smooth and devoid of papillae except for two vallate papillae near the root.
 - B. edges that have large piliform papillae which interlock with similar papillae inside the cheek
 - C. comparatively smooth tongue with very short papillae and very small dorsal prominence.
 - D. the piliform papillae near the tip of the tongue are short and blunt, giving a smooth feel
 - E. short, narrow and pointed at the tip and on part it is smooth.

Question 2

- a. Discuss the importance of the lymphatic system and lymph nodes in meat inspection. [5]
 - b. List all the cattle lymph nodes that are incised and examined during routine meat inspection in the abattoir. [8]
 - c. How does “fasting and resting” during 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 the statement. [4]
 - e. Cattle when resting, they are seen chewing. Explain why? [3]
- [25 Marks]**

Question 3

- a. You are given a table full of spleens and lungs of cattle, sheep and pigs. Explain how you would differentiate the organs in relation to sheep, pig and cattle. [18]
 - b. During meat inspection of cattle in the abattoir, you observe that the fat is yellow but in others it is white. Explain this observation. [4]
 - c. In old age, it is common to see cattle sleep while standing. Explain why? [3]
- [25 Marks]**

Question 4

- a. Describe the process of hormonal digestion in cattle. [8]
 - b. What causes asthma in food animals? [3]
 - c. How would you estimate the age of cattle carcass in relation to the incisors teeth? [5]
 - d. Explain the factors that would lead you to suspect that a carcass meat was sourced from a sick animal. [6]
 - e. Explain the major purpose of bile in the digestion process. [3]
- [25 Marks]**

Question 5

Meat hygiene is very important in the production of meat and ensuring meat safety. Meat safety starts from the care given to the animal in the farm, [pre-slaughter care] ante- and post-mortem. When customers buy meat at the supermarket, they should be protected from contracting zoonotic diseases.

- a. Identify at least ten [10] diseases that are likely to be found in meat in Swaziland. (pork or red meat) [10]
- b. Discuss the reasons likely to contribute in meat inspection failure or slow pace in Swaziland [15]

[25 Marks]