



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2016

TITLE OF PAPER : MEAT HYGIENE

COURSE CODE : EHM 304

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. Ruminants store grass in the -----and then during rest it regurgitates it back to the mouth for chewing;
 - A. reticulum
 - B. omasum
 - C. rumen
 - D. abomasum
 - E. both abomasum and omasum

2. 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

3. Which lymph node is located on the edge of the masseter muscle and covered by the salivary gland, at least 3 cm in front of the ear.
 - A. retropharyngeal
 - B. parotid
 - C. prescapular
 - D. popliteal
 - E. precrural

4. Which lymph node drains the head, neck, shoulder, and forelimb:
 - A. retropharyngeal
 - B. parotid
 - C. prescapular
 - D. popliteal
 - E. precrural

5. Silverside bone in beef meat refers to the meat surrounding the;;
 - A. Tibia
 - B. Fibula
 - C. Femur
 - D. Sternum bones
 - E. Pelvic bones

6. Aitch and rump in beef refers to the meat surrounding the;
A. Tibia
B. Fibula
C. Femur
D. Sternum bones
E. Pelvic bones
7. Brisket meat in beef refers to meat surrounding the;
A. Tibia bone
B. Fibula bone
C. Femur bone
D. Sternum bones
E. Pelvic bones
8. The pelvic bones in cattle consist of;
A. Pubis, ilium, ischium bones
B. Pubis, radius, ulna bones
C. Pubis, shin, clod bones
D. Pubis, ischium, cramp bones
E. Tibia, fibula, femur bones
9. If a food animal has a high stearin fatty acid, the resultant fat will be;
A. A firm texture
B. An oily texture
C. A yellow color
D. A white color
E. None of the above
10. The pH of a recent slaughtered cattle carcass is 6.5 but after 24 hours it is expected to be;
A. 8.5
B. 7.5
C. 6.5
D. 5.5
E. 4.5
11. Which one of the statements is **not correct** in relation to fats?
A. Fats prevent loss of heat from the body
B. Saturated fats are commonly solid at room temperature
C. Double bonds in fatty acids increases the melting point in fats
D. Barley fed cattle has white fat while grass fed, the fat is yellow
E. The fat of a mammal contains a certain amount of stearin fatty acid (stearin is liquid at 38⁰ C but solid at 16⁰ C)

12. Stifle joint in food animals refers to;
- A. Carpus joint
 - B. Tarsus joint
 - C. Femero-tibio-patello joint
 - D. Metatarsus joint
 - E. Metacarpus joint
13. In cattle, horns can be used in the estimation of age by means of counting the rings upon the horns. Therefore when an ox has four (4) rings on the horns it is;
- A. 6 years old
 - B. 5 years old
 - C. 4 years old
 - D. 3 years old
 - E. 8 years old
14. In young animals, the cartilages are associated with the bones. As the animal ages, the cartilages are converted into bones. The ischio-pubic symphysis can be cut by knife since it remains a cartilage up to;
- A. 1 year
 - B. 2 years
 - C. 3 years
 - D. 4 years
 - E. 5 years
15. In which of the four stomach compartments does digestion occur or begin;
- A. rumen
 - B. abomasum
 - C. reticulum
 - D. omasum
 - E. rumen and reticulum
16. Meat tenderizing (partially digesting of tough meat) to make it palatable is through which enzyme;
- A. pepsin
 - B. lipase
 - C. renin
 - D. ptyalin
 - E. amylase

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17. Goat 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
18. The positional term, posterior, refers to;
- A. nearer the head
 - B. nearer the back
 - C. nearer the tail
 - D. nearer the front
 - E. nearer the central line
19. In cattle, 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
20. Which statement is **not correct** in relation to the circulatory system in food animals?
- A. pulmonary veins carry arterial blood.
 - B. pulmonary artery carries venous blood.
 - C. arteries are thin walled and veins have thick walls
 - D. the tricuspid valve is located between the right auricle and the right ventricle
 - E. the aortic semilunar valve is supported by two ossa cordis.
21. Topside meat refers to;
- A. psoas muscle, which lie under the lumbar vertebrae and form the tenderloin
 - B. posterior part of the thigh covered by biceps femoris on the outer end of the ischium to the back of the tibia
 - C. flesh in the inner side of the thigh and composed of mass of muscle, stating from below the ischium and pubis and joining the inner surfaces of the femur
 - D. flesh which form part of scapula, supra spinatus, infra spinatus, trapezius rhomboid, deltoid, triceps
 - E. flesh of the pubis and trochanters and half of the head of the femur, includes the upper ends of the gluteus muscles, biceps femoris and quadriceps
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22. Fillet meat refer to;
- A. psoas muscle, which lie under the lumbar vertebrae and form the tenderloin
 - B. posterior part of the thigh covered by biceps femoris on the outer end of the ischium to the back of the tibia
 - C. flesh in the inner side of the thigh and composed of mass of muscle, stating from below the ischium and pubis and joining the inner surfaces of the femur
 - D. flesh which form part of scapula, supra spinatus, infra spinatus, trapezius rhomboid, deltoid, triceps
 - E. flesh of the pubis and trochanters and half of the head of the femur, includes the upper ends of the gluteus muscles, biceps femoris and quadriceps
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. Which **one** of these statements is **not correct** about the pelvic girdle?
- A. In female, the front of the pubis is sharp and linear
 - 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, rectum and bladder
 - E. The ilium, ischium and pubis are fused at birth
25. 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. has no important function in the red muscles
 - E. carries nutrients to the red muscles

[25 Marks]

Question 2

- a. Discuss the importance of the lymphatic system and lymph nodes in meat inspection. [6]
- b. List all the lymph nodes located on the following organs in cattle:
♦ Head
♦ Intestines
♦ Lungs
♦ Liver
♦ Thigh
♦ Neck [10]
- c. Discuss the importance of “fasting and resting” during pre-slaughter care of food animals. [5]
- d. Sheep and goats have natural white fats, but, if undernourished or starved, the fats turns yellower. Explain the statement. [4]
- [25 Marks]

Question 3

- a. You are given a table full of kidneys and livers of cattle, sheep and pigs. Explain how you would differentiate these organs in relation to sheep, pig and cattle. [17]
- b. Why are prospective meat inspectors required to have a good knowledge on comparative anatomy of food animals? [4]
- c. White muscle meat and heart (cardiac) meat are tasteless and therefore require strong flavored herbs. Why is that, explain [4]
- [25 Marks]

Question 4

- a. Describe the process of digestion of carbohydrates and food absorption in the small intestines of cattle. [8]
- b. Explain why starving cattle would accumulate fat in the liver? [4]
- c. Discuss the hormonal digestion of food in cattle. [6]
- d. What causes asthma in food animals? [3]
- e. How would you estimate the age of cattle by using the appearance of the necking of the incisor teeth? [4]
- [25 Marks]

Question 5

- a. Explain the factors that would lead you to suspect a carcass meat was from a sick animal? [6]
- b. The pre-slaughter care conditions require that antibiotics are withdrawn before food animals are slaughtered. Why is that, explain. [4]
- c. What do you understand by marbling in meat? [3]
- d. Explain measures that are necessary to ensure that, meat spoilage after slaughter is under control. [12]

[25 Marks]