

**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**  
**DIPLOMA IN ENVIRONMENTAL HEALTH**  
**FINAL EXAMINATION PAPER 2014**

**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.
- : WRITE NEATLY
- : 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 question:**

**Choose the most appropriate answer;**

1. In pigs, de-coloration of the skin may be due to:
  - A. Swine fever or Swine erysipelas
  - B. Swine fever or Gangrenous pneumonia
  - C. Swine erysipelas or salmonellosis
  - D. Pig paratyphoid or Necrotic enteritis
  - E. Swine vesicular disease or Swine tuberculosis
  
2. Which lymph node is located on the outside of the embedded in fat, about a handsbreadth in front of the shoulder joints. It drains cervical nodes, the shoulder, and upper foreleg.
  - A. retropharyngeal
  - B. parotid
  - C. prescapular
  - D. suprasternal
  - E. precrural
  
3. Which lymph node is located in the cod fat at the neck of the scrotum:
  - A. popliteal
  - B. deep inguinal
  - C. superficial inguinal
  - D. supramammary
  - E. ischiatic
  
5. Silverside meat in beef refers to the meat surrounding which bone;
  - A. Tibia
  - B. Fibula
  - C. Femur
  - D. Sternum bones
  - E. Pelvic bones
  
6. Aitch and rump in beef refers to meat surrounding which bone;
  - A. Tibia
  - B. Fibula
  - C. Femur
  - D. Sternum bones
  - E. Pelvic bones
  
7. Brisket meat in beef refers to meat surrounding which bone;
  - A. Tibia bone
  - B. Fibula bone
  - C. Femur bone
  - D. Sternum bones
  - E. Pelvic bones

8. 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
9. Which one of the statements is **not true**?
- A. Fats prevent loss of heat from the body
  - B. Saturated fats are commonly solid at room temperature
  - C. Unsaturated fats are commonly liquid at room temperature
  - D. Double bonds in fatty acids increases the melting point in fats
  - E. Double bonds in fatty acids decreases the melting point in fats
10. In pig swollen joints are indicative of;
- A. Swine erysipelas
  - B. Swine fever
  - C. Pig paratyphoid
  - D. None of the above
  - E. All of the above
11. The positional term, dorsal refers to;
- A. nearer the head
  - B. nearer the back
  - C. nearer the tail
  - D. nearer the front
  - E. nearer the central line
12. 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. all of the above
  - E. none of the above
13. What is a virgin female in cattle known as?
- A. Ewe
  - B. Gimmer
  - C. Heifer
  - D. Sow
  - E. Steer

14. Meat from a freshly killed ox carcass usually has a pH of 6.5 to 6.8 but after 48 hours it is expected to be;
- A. 7.5
  - B. 6.5
  - C. 6.0
  - D. 5.5
  - B. 5.0
15. 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
16. 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
17. During meat inspection in the abattoir, you find that the serous membrane that surrounds the lung has attached on the lung tissue.
- A. peritoneum
  - B. peritonitis
  - C. pleura
  - D. pleurisy
  - E. pleuritis
18. If then, the serous membrane has attached on the liver, such condition is known as;
- A. peritoneum
  - B. peritonitis
  - C. pleura
  - D. pleurisy
  - E. pleuritis
19. The liver, pancreas, and duodenum are drained by the;
- A. mediastinal lymph nodes
  - B. bronchials
  - C. hepatic or portal
  - D. renal
  - E. mesenteric

20. The heart, thoracic wall, lungs, diaphragm, peritoneum, surface of liver and spleen, muscles of the shoulder and forelimbs are drained by the;
- A. mediastinal lymph nodes
  - B. bronchials
  - C. hepatic or portal
  - D. renal
  - E. Mesenteric
21. A deflowered female pig is known as;
- A. Gilt
  - B. Heifer
  - C. Ewe
  - D. Sow
  - E. Cow
22. A deflowered female sheep is known as;
- A. Gilt
  - B. Heifer
  - C. Ewe
  - D. Sow
  - E. Cow
23. 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
24. 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
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25. **Chuck meat** refers to the;
- A. inner side of the thigh, part of the quadriceps
  - B. patella, quadriceps femoris. Knee fold of panniculus, rectus and transverse abdominis and tendinous sheets of oblique abdominals
  - C. sacrum and wing of ilium. Psoas and gluteus muscles
  - D. pubis and the trochanters and half of the head of the femur. The upper ends of the gluteus muscle, biceps femoris, quadriceps.
  - E. part of the scapula, supra spinatus, infra spinatus, trapezius rhomboid, deltoid, triceps

[ 25 Marks]

### Question 2

- a. Meat inspection involves the examination of the carcass lymph nodes. Why is this so? [5]
- b. In food animal's species, the fats consistency, color and texture are different, for example the fats in sheep are white and hard, yet in cattle they are either white or yellowish and semi-hard and in pigs are very soft and greyish white. Explain why these fats are different in color and texture. [6]
- c. Why is ante-mortem examination important in meat inspection? [6]
- d. Describe the features in cattle that would assist you to differentiate whether the carcass is female or male. [5]
- e. Some food animals may develop a condition known as asthma. What is asthma? [3]

[25 Marks]

### Question 3

- a. Describe the enzymatic digestion of food in cattle from the mouth up to assimilation and absorption. [14]
- b. Glucose in the blood of cattle should be maintained at a rate of one percent. How is that achieved? [5]
- c. During meat inspection, you find that the liver has high fat deposits yet the carcass meat or muscles are devoid of fats. Why is that so? [3]
- d. Explain the objectives of stunning food animals. [3]

[25 Marks]

**Question 4**

- a. The location, construction and operation of a slaughter house or an abattoir should ensure that the meat produced in such facility is healthy and free from contamination. Explain the measures that are important in ensuring that the meat is healthy and free from contamination. [14]
- b. After you have slaughtered cattle in the abattoir, there are changes that take place in the meat. Explain these post-mortem changes in meat. [6]
- c. Cattle in the lairage should be given adequate wholesome water during the resting period. If the animals are to be slaughtered within 20hrs of arrival, there should be no feeding and this period of fasting is very important. Explain why these factors are important in meat quality. [5]

**[25 Marks]**

**Question 5**

Swaziland Meat industries (SMI) export red meat to European Union (EU). The meat exported to (EU) should be of high quality and safe for human consumption. Explain how you are going to achieve these.

**[25 Marks]**