



**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DIPLOMA IN ENVIRONMENTAL HEALTH**  
**FINAL EXAMINATION PAPER 2010**

**TITLE OF PAPER** : MEAT PATHOLOGY

**COURSE CODE** : EHS 209

**DURATION** : 2 HOURS

**MARKS** : 100

**INSTRUCTIONS** :

- : ANSWER **ONLY FOUR** QUESTIONS
- : QUESTION ONE IS **COMPULSORY**
- : EACH QUESTION CARRIES 25 MARKS.
- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY

: 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. In cattle foul smelling faeces that contains bubbles of gas is indicative of;
  - A. Johne's disease
  - B. Bovine tuberculosis
  - C. Enteritis
  - D. Cattle plaque
  - E. A and B
  
2. Cattle exhibiting foul smelling faeces which may contain lumps of blood, is an indication of;
  - A. Johne's disease
  - B. Bovine tuberculosis
  - C. Enteritis
  - D. Cattle plaque
  - E. A and B
  
3. During ante- mortem examination of cattle, you observe the following symptoms; low moist cough and discharge of a yellow mucus during the coughing. What would the likely cause?
  - A. Johne's disease
  - B. Gangrenous pneumonia
  - C. Bovine tuberculosis
  - D. Pneumonia
  - E. B and C
  
4. De-coloration of skin in pigs would be indicative of;
  - A. Swine fever
  - B. Swine erysipelas
  - C. Pig paratyphoid
  - D. African swine fever
  - E. A, B and C
  
5. In pigs, swollen joints(chronic arthritis) is indicative of;
  - A. Swine fever
  - B. Swine erysipelas
  - C. Pig paratyphoid
  - D. African swine fever
  - E. A, B and C
  
6. Foul breath in cattle would be an indication of;
  - A. Pneumonia
  - B. Gangrenous pneumonia
  - C. Bovine tuberculosis
  - D. Salmonellosis
  - E. A and B

7. The causative agent for bacillary white diarrhoea in poultry is;
  - A. Salmonella pullorum
  - B. Salmonella gallinarum
  - C. Heterakis gallinarum
  - D. Avian mycoplasmae
  - E. Yersinia pseudotuberculosis rodentium
  
8. Fowl cholera is caused by;
  - A. Salmonella pullorum
  - B. Salmonella gallinarum
  - C. Heterakis gallinarum
  - D. Avian mycoplasmae
  - E. Yersinia pseudotuberculosis rodentium
  
9. A broiler chicken is;
  - A. Castrated or neutered male fowl
  - B. Young bird of either sex, up to te (10) weeks of age
  - C. Young chicken of about six (6) weeks old
  - D. A chicken that is over two (2) years
  - E. A chicken that is three (3) months old
  
10. Acapon is a;
  - A. Catrated or neutered male fowl
  - B. Young bird of either sex, up to ten (10) weeks of age
  - C. Young chicken of about six(6) weeks old
  - D. A chicken that is over two(2) years
  - E. A chicken that is three(3) months old
  
11. Tuberculosis in poultry is caused by;
  - A. Mycobacterium bovine
  - B. Mycobacterium tuberculosis
  - C. Mycobacterium microtes
  - D. Mycobacterium avium
  - E. A and B
  
12. Human tuberculosis may be caused by;
  - A. Mycobacterium bovine
  - B. Mycobacterium tuberculosis
  - C. Mycobacterium microtes
  - D. Mycobacterium avium
  - E. A and B
  
13. Pigs tuberculosis is due to;
  - A. Mycobacterium bovine
  - B. Mycobacterium tuberculosis
  - C. Mycobacterium microtes
  - D. Mycobacterium avium
  - E. A, B and D

14. Pelagic (middle and surface layers) have about 20% fat in their muscle.  
Which one of these fish fall under this group
- A. herring
  - B. mackerel
  - C. haddock
  - D. halibut
  - E. A and B
15. Demersal(found at or near the bottom of the sea) and have less than 5% fat in their muscles.  
Which fish species fall under this group?
- A. herring
  - B. mackerel
  - C. halibut
  - D. sardine
  - E. A and B
16. Univalves mollusks include;
- A. oyster
  - B. cockles
  - C. mussels
  - D. whelks
  - E. scallops
17. During cattle meat inspection, you observe the following ante-mortem signs; the animal chews and swallows slowly; there is any increase flow of saliva, which is thick, and bubbly, from the corners of the mouth: Which of the following diseases would you suspect?
- A. Vesicular stomatitis
  - B. Rinderpest disease
  - C. Rabies disease
  - D. Foot and Mouth disease
  - E. None of the above statements are true
18. In pigs, African swine fever, is evident by showing the following ante-mortem signs.
- A. paralysis of the hindquarters, and the pig moves about on its forequarters only; there is a muco-purulent discharge, both ocular and nasal.
  - B. there is a blotchy erythema which appears on the skin often showing as a diffuse purple discoloration on the abdomen.
  - C. there a discharge of a sticky and tenacious muco-purulent material from eyes and sometimes the nose.
  - D. on the tongue, there are thick walled vesicles, giving the tongue an uneven appearance; elsewhere the vesicles are transparent and contain a clear fluid which later becomes turbid and then grey white.
  - E. All of the above statements are true

19. Rabies may be controlled by;
- A. the prevention of exposure of humans, farm animals, and dogs to infection with the virus ( which include strict control of dogs, wild or feral carnivores, and bats)
  - B. the muzzling and restriction of movement of domestic dogs, the shooting of stray dogs and the destruction of wildlife which is likely to be a source of infection.
  - C. the complete prohibition of animals and animals products as well hay, straw, vegetables and similar material which may carry the infection
  - D. either the prohibition of movement or minimal movement vehicles together with disinfection of tyres, footwear, etc.should be enforced.
  - E. A and B
20. Which of the statements are correct in relation to Brucellosis?
- A. Vaginal discharges, colostrums and faeces from infected animals are likely to contain *Brucella* and may contaminate the environment including pasture and water supply.
  - B. *Brucella abortus* has a predilection for breeding cows and heifers, bulls may become infected but are less susceptible than female cattle, while humans are highly susceptible.
  - C. Brucellosis is transmitted by blood sucking insects particularly ticks, but there is no doubt that forage infected from an aborted foetus or membranes is the major source of spread.
  - D. Infected cattle may excrete *Brucella* in the milk intermittently for years, and even though they do not continue to abort.
  - E. All of the above are correct
21. Which of the statements best differentiate Actinobacillosis from Actinomycosis diseases in cattle?
- A. In Actinobacillosis, lymph nodes draining the infected parts are enlarged and oedematous, and may erupt with characteristic pus.
  - B. In Actinomycosis, associated lymph nodes are not involved
  - C. Actinobacillosis, the pus is brownish white, odourless, thick and viscid and contains the characteristics granules.
  - D. In Actinomycosis, the jaw is enlarged and porous, the cavities being filled with the granular pus
  - E. All of the above except C
22. Anthrax in cattle is evident by;
- A. sudden death and black tarry exudates from the natural orifices
  - B. muscle tremor, high fever and blood congestion
  - C. characteristics crepitation on the swelled region of the thigh or shoulder
  - D. high fever, depression, anorexia and often marked lameness.
  - E. All of the above except D

23. Blackleg in cattle is characterized by:
- sudden death and black tarry exudates from all natural orifices
  - muscle tremor, high fever and blood congestion
  - characteristic crepitation on the swelled region of the thigh and shoulder
  - high fever, depression, anorexia and often marked lameness.
  - All of the above except D
24. Catarrhal rhinitis is the inflammation;
- of the mucous membrane of the mouth, characterized by the presence of a free, fluid discharge
  - of the mucous membrane of the nose characterized by the presence of a free, fluid discharge
  - a mass of structureless material which is cheese-like in consistency and which may follow tissue necrosis
  - a healing process which leaves a scar
  - inflammation of the diaphragm
25. Emphysema is;
- inflammation of the brain membranes
  - a crackling sound which is heard (e.g. in some lung diseases) when the ear is placed close to the thorax
  - difficult or laboured breathing
  - the presence of air in the alveolar tissue of the lungs.
  - Blood congestion in the lungs

[25 Marks]

### Question 2

- How would you differentiate the ante-mortem signs in Swine fever and African swine fever in pigs? [10]
- Discuss both the ante- and post-mortem signs in Swine flue, in pigs. [10]
- How would you ensure that African swine fever does not spread to health pigs? [5]

[25 Marks]

### Question 3

- Show the ante-mortem signs associated with Newcastle in poultry. [6]
- How would control the spread of Newcastle disease? [10]
- During an inspection of poultry, what ante-mortem signs would lead you to suspect Marek's disease? [2]
- Discuss the Avian tuberculosis in poultry, particularly on the transmission and the disease signs. [7]

**Question 4**

During meat inspection, you observe that the carcass is affected with Bovine tuberculosis. If a carcass shows signs of bovine tuberculosis, you condemn the affected organs. You can only reject the whole carcass in the case of tuberculosis with emaciation or generalized tuberculosis. When is Bovine tuberculosis generalized?

**[25 Marks]**

**Question 5**

Meat inspection in Swaziland is done haphazardly such that a high number of butcheries are able to sell un-inspected meat to the public.

Where is the problem and what measures may be taken to address this problem.

**[25 Marks]**