



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

**DEGREE IN ENVIRONMENTAL HEALTH**  
**FINAL EXAMINATION PAPER 2016**

**TITLE OF PAPER** : MEAT PARASITOLOGY

**COURSE CODE** : EHM 403

**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. Which one of these parasitic worms does not reside in human intestines?
  - A. *Taenia saginata*
  - B. *Taenia solium*
  - C. *Diphyllobotrium latum*
  - D. *Ascaris lumbricoides*
  - E. *Echinococcus granulosus*
  
2. Which parasitic worm causes residual lesions or necrosis or fibrosis in the liver (milk spots) of cattle?
  - A. *Fasciola hepatica*
  - B. *Ascaris lumbricoides*
  - C. *Stilesia hepatica*
  - D. *Dicrocoelium dendriticum*
  - E. *Onchocerca gutturosa*
  
3. A sheep liver which has chronic fascioliasis is;
  - A. Haemorrhagic and covered with fibrin
  - B. Distorted and bile ducts are enlarged, thickened and bluish
  - C. Cirrhotic and bile ducts are thickened, dilated and may calcify
  - D. Swollen and congested
  - E. Capsule of the liver is haemorrhagic and covered with fibrin
  
4. The liver in chronic fascioliasis in cattle is;
  - A. Haemorrhagic and covered with fibrin
  - B. Distorted and bile ducts are enlarged, thickened and bluish
  - C. Cirrhotic and bile ducts are thickened, dilated and may calcify
  - D. Swollen and congested (hepatitis)
  - E. Capsule of the liver is haemorrhagic and covered with fibrin
  
5. Human fascioliasis is due to;
  - A. Eating a liver infested with liver flukes
  - B. Eating uncooked green leafy salads or grass infested with liver flukes.
  - C. Eating uncooked green leafy salads infested with liver fluke cercaria or larvae.
  - D. Eating uncooked green leafy salads infested with liver fluke eggs
  - E. Eating a liver infested with cercariae or larvae.
  
6. Which larval stage in *Diphyllobotrium latum* is infective in humans;
  - A. Coracidium larvae
  - B. Miracidium larvae
  - C. Cercaria larvae
  - D. Proceroid larvae
  - E. Plerocercoid larvae

7. Which one of these statements is not correct in relation to Heart water disease;
- A. Affected goats exhibit a rapid rise in temperature followed by laboured respiration and muscular tremor
  - B. Affected sheep show a continual movement of the limbs, head, ears,, tongue and jaw
  - C. Heart water disease is caused by an intracellular parasite, *Cowdria ruminantium*
  - D. The parasite *Cowdria ruminantium* parasitize the red blood cells and set free haemoglobin content resulting in red urine
  - E. Young calves up 4 weeks and lambs up to one week are highly resistant.
8. Which one of these statements is true about argasidae ticks;
- A. Take small blood meal repeatedly
  - B. Large numbers of eggs are laid all at one time after which the female dies
  - C. Ticks stay feeding on the host for long periods
  - D. Mainly attack cattle
  - E. Mouth parts project forward and are visible from above.
9. Inco-ordination of movement in sheep is indicative of;
- A. pregnancy toxemia
  - B. Foot and mouth disease
  - C. mineral deficiency
  - D. T.b meningitis
  - E. Tetanus (lock- jaw)
10. Blowflies include the following flies;
- A. Calliphora species, sometimes known as blue bottle flies
  - B. Lucilia species, sometimes known as green bottle flies
  - C. Sarcophaga species, also known as meat flies
  - D. Chrysomyia species, also known as old-screw fly
  - E. All of the above
11. Which one of these statements is **not correct** about Anaplasmosis in cattle?
- A. It is mainly a disease of cattle but may also attack sheep and goats.
  - B. The main lesion is the distension of the gall bladder
  - C. The vector of importance is Boophilus species
  - D. It is sometimes known as the Black lung disease
  - E. The protozoa will parasitize red blood cells but does not destroy, so there is no haemoglobinuria

12. Which one of these statements is **not correct** about Warble flies?
- A. Large, two winged insects with hairy body
  - B. The larvae feed by penetrating the skin of animals and suck blood.
  - C. The larvae may be found on the wall of the oesophagus and subcutaneous tissue of the back
  - D. The larvae penetrate the mouth down the pharynx and then pass to the stomach
  - E. During feeding, the larvae enlarge the wound and also develop a foul-smelling necrotic area.
13. Which statement is **no correct** in relation to *Oestrus ovis*?
- A. The larvae will only develop to an adult in sheep and goats nostrils.
  - B. Affected animals display sneezing and loss of condition.
  - C. *Oestrus ovis* may sometimes deposit live larvae in the nostrils of dogs, cats or human.
  - D. The larvae migrate to the diaphragm, pharynx and then back to the nostrils.
  - E. When the larvae is matured, it falls on the ground to pupate.
14. Toxoplasmosis in humans is transmitted by;
- A. food contaminated by pigs excrement
  - B. food contaminated by domestic cats excrement
  - C. eating pork or mutton with tissue cysts of the protozoa
  - D. blood sucking ticks
  - E. B and C
15. Which statement is **not correct** in relation to Toxoplasmosis?
- A. Transplacental infection is common
  - B. Children are particularly at risk of infection
  - C. Milk of infected animals may contain the protozoa
  - D. Lesions are seen on the liver surface as irregular shaped whitish spots
  - E. In sheep, there is metritis, placentitis, and necrotic lesions in many organs of the fetus
16. Which statement is **not correct** in relation to Trichinellosis?
- A. Trichinellosis is transmitted to human by eating raw or undercooked beef infected with the larvae of *Trichinella spiralis*
  - B. The worm, after mating in the small intestines, the female worm deposits eggs in the lymph space.
  - C. Immature worms, travel through the arteries, and are transported to muscles where they grow and coil up in a cyst.
  - D. If you eat raw or undercooked meats, particularly pork, bear, wild feline, fox, wolf, seal, etc, you are at risk of infection
  - E. Presence of the larvae in the cysts, cause degeneration of adjacent muscle tissue.

17. In sheep, a swollen lower jaw indicates
- A. Actinomycosis
  - B. Lumpy jaw
  - C. Chronic arthritis
  - D. Swine erysipelas
  - E. Intestinal worms
18. In pigs, a swollen joints indicate
- A. Actinomycosis
  - B. Liver flukes
  - C. Chronic arthritis
  - D. Swine erysipelas
  - E. Intestinal worms
19. In pigs, nasal discharge may indicate
- A. Swine fever
  - B. Parasitic bronchitis
  - C. Bot-fly breeding in the nostrils
  - D. Pig paratyphoid
  - E. Swine erysipelas
20. Nodular intestinal worm disease in sheep, is caused by;
- A. *Oesophagostomum venulosum*
  - B. *Oesophagostomum radiatum*
  - C. *Oesophagostomum dentatum*
  - D. *Oesophagostomum columbianum*
  - E. *Oesophagostomum ovis*
21. Which one of the statements is **not correct** in relation to *Fasciola hepatica*
- A. Adult fluke is hermaphrodite
  - B. Miracidium develops whilst the egg is lying on the ground
  - C. The cercariae may either float on water surface or attach on grass blade
  - D. Humans acquire the infection through the consumption of undercooked fish
  - E. The occurrence of liver fluke disease is connected with the life history of snails such *Limnaea truncatula*
22. *Haemonchus contortus* in cattle resides in the;
- A. rumen
  - B. reticulum
  - C. omasum
  - D. abomasum
  - E. both A and B

23. Coccidiosis post-mortem signs in the liver of rabbits are;
- A. irregular shaped whitish nodules of different sizes scattered unevenly on the surface of the liver
  - B. different sized nodules which appear in clusters or clumps and often calcareous
  - C. irregular shaped, uniform sized whitish nodules which are scattered evenly on the surface of the liver
  - D. regular shaped, uniform sized nodules which are scattered unevenly on the surface of the liver
  - E. different sized nodules which appear individual and often caseated
24. The condition myiasis refers to;
- A. flies deposition of eggs or larvae on wounds of animals
  - B. flies deposition of eggs or larvae in the nostrils of sheep
  - C. flies deposition of eggs or larvae on the skin of food animals
  - D. when a wound on sheep skin is infected through secondary infection
  - E. large numbers of conical flukes in the stomach of ruminants
25. Which statement does not describe ixodidae ticks family?
- A. ticks stay feeding on host for long periods
  - B. more tolerant to dry conditions
  - C. sexes are easily distinguished in adults
  - D. large numbers of eggs are laid all at one time, after which the female dies.
  - E. Both A and D

[25 Marks]

**Question 2**

- a) Explain the measures you would adopt in the control of Trichinellosis. [5]
- b) During inspection of cattle carcass you observe "white spots" on the surface of the liver. Explain what would have caused them and give reasons of your judgment. [5]
- c) While performing meat inspection, you find a small hydatid cyst in the lung, what will be your judgment and why? [4]
- d) Give five good reasons why post-mortem meat inspection has to be carried out before human consumption. [5]
- e) What do you understand by conditionally passing, in meat inspection? [3]
- f) During meat inspection, which muscles are you likely to find Trichinella cysts. [3]

[25 Marks]

**Question 3**

- a) During meat inspection, you find *Taenia saginata* cysts in the carcass of a heifer. What will be your judgment? [6]
  - b) Why is ante-mortem meat examination important? [4]
  - c) How would you control the spread of hydatidosis disease in human? [5]
  - d) Meat inspection has failed to eliminate zoonotic diseases in Swaziland. Why is that so? [10]
- [25 Marks]**

**Question 4**

- a) Describe the possible lesions you would encounter when inspecting a cattle carcass suffering from Toxoplasmosis. [5]
  - b) Meat inspection is a mandatory requirement for all animals that are slaughtered and used as food for man. This requirement is to ensure that meat is safe for human consumption. Explain the steps that should be followed in routine post-mortem cattle meat inspection in Swaziland. [20]
- [25 Marks]**

**Question 5**

Tick-borne infestation has become an unstoppable menace in Swaziland and is threatening to wipe out the cattle herds and this problem hugely affects the meat industry. The present strategy of tick-borne infestation reduction is offering very little as a control. In your own assessment why is the current method failing and what other options can be suggested to reduce the infestation. [25 Marks]