

Date : October 11, 2025
Total Marks : 100
Writing Time : 150 minutes (2.5 hours)
Reading Time : 15 Minutes (prior to examination time)

1. Write your Registration Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is to check the number of pages of Question Paper, printing errors, clarify doubts and to read the instructions. You are NOT permitted to write during this time.
3. This paper consists of **TWO SECTIONS**, namely SECTION A & SECTION B:
 - **SECTION A** has two parts:

Part I - 30 Multiple Choice Questions

Part II - 6 Short Answer Questions. Select any 5.
 - **SECTION B** consists of 4 questions. Choose only 2 questions and answer the questions of your choice.
4. All answers should be written on the Answer Booklet provided to you. Candidates are not allowed to write anything on the question paper. If required, ask for additional Answer Booklet.
5. All answers should be written with correct numbering of Section, Part and Question Number in the Answer Booklet provided to you. Note that any answer written without indicating the correct Section, Part and Question Number will NOT be evaluated and no marks will be awarded.
6. Begin each Section and Part in a fresh page of the Answer Booklet.
7. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
8. Use of any other paper including paper for rough work is not permitted.
9. **You must hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. This paper has **8 printed pages**, including this instruction page.

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SECTION A

PART I: Multiple Choice Questions [30 marks]

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. Which of the following hormone is primarily responsible for the milk let-down reflex?
 - a) Vasopressin
 - b) Oestrogen
 - c) Progesterone
 - d) Oxytocin
2. What is the primary metabolic disorder that causes milk fever in cattle?
 - a) Hypokalemia
 - b) Hypomagnesemia
 - c) Hypocalcemia
 - d) Hypercalcemia
3. The trivalent FMD vaccine currently used in Bhutan consists of the following serotypes:
 - a) O, A and C
 - b) O, A and Asia 1
 - c) O, A, SAT 1
 - d) O, A and SAT 2
4. An ideal fluid therapy for treating diarrhoea is
 - a) Normal saline
 - b) Ringer lactate
 - c) 5% dextrose
 - d) 25% dextrose
5. Polyneuritis in poultry is caused by the deficiency of:
 - a) Folic acid
 - b) Zinc
 - c) Thiamine
 - d) Copper
6. Which cells are the primary target of canine parvovirus infection?
 - a) Mature red blood cells
 - b) Rapidly dividing cells of the intestinal crypts and bone marrow
 - c) Neurons in the brain
 - d) Skin epithelial cells

7. A 5-year-old male neutered Labrador is brought to the Dzongkhag Veterinary Hospital with a 3-day history of vomiting and lethargy. On physical examination, you note a painful abdomen and a palpable mass in the mid-abdomen. Radiographs reveal a foreign body obstruction in the small intestine. What is the most appropriate next step?
- a) Prescribe anti-emetics and monitor for improvement
 - b) Perform an exploratory laparotomy to remove the foreign body
 - c) Administer an enema to help pass the foreign body
 - d) Recommend a bland diet for 24 hours
8. Scooting behaviour in dog is caused by:
- a) *Diphylidium caninum*
 - b) *Diphylobothridium latum*
 - c) *Echinococcus granulosus*
 - d) None of the above
9. Leptospirosis in dog is transmitted through:
- a) Urine
 - b) Rodents
 - c) Skin penetration
 - d) All of the above
10. The test used to measure the protective antibody titre against Rabies is:
- a) RFFIT
 - b) Direct FAT
 - c) Indirect ELISA
 - d) SNT
11. The first antibiotic, Penicillin, was discovered by:
- a) Ignaz Semmelweis
 - b) Alexander Fleming
 - c) Paul Ehrlich
 - d) Gerd Binnig
12. An epidemic affecting a large geographical area or often on a global scale is called:
- a) Epidemic
 - b) Endemic
 - c) Sporadic
 - d) Pandemic
13. A symbiotic relationship in which one organism benefits while the other is unaffected is called:
- a) Saprophytism
 - b) Commensalism
 - c) Mutualism
 - d) Parasitism

14. What disease is caused by *Clostridium perfringens* type D in lambs?
- a) Pulpy kidney disease
 - b) Lamsiekte
 - c) Black leg
 - d) Tetanus
15. The routine stain used for histopathological examination is
- a) Leishman stain
 - b) Giemsa stain
 - c) Lactophenol cotton stain
 - d) Haematoxylin & Eosin stain
16. Which of the following is not the characteristic of injectable anaesthetics?
- a) Slow induction
 - b) Do not require costly and sophisticated equipment
 - c) Slow recovery
 - d) Depth or level of anaesthesia is difficult to control
17. Red Blood Cells are nucleated in:
- a) Cattle
 - b) Sheep
 - c) Poultry
 - d) Horse
18. The temperature, pressure, and time required for autoclaving of surgical instruments is:
- a) 121°C at 15 psi for 15 minutes
 - b) 350°C at 15 psi for 15 minutes
 - c) 150°C at 15 psi for 30 minutes
 - d) 121°C at 15 psi for 60 minutes
19. The primary reason for using atropine as a preanesthetic medication in an animal receiving xylazine is to:
- a) Induce muscle relaxation
 - b) Reduce salivation
 - c) Prevent bradycardia
 - d) Enhance sedation
20. The dose rate of xylazine in horse is:
- a) 1-2 mg/kg body weight
 - b) 1.1 mg/kg body weight
 - c) 2.2 mg/kg body weight
 - d) 0.1 mg/kg body weight
21. The adverse effects of Xylazine are reversed with
- a) Neostigmine
 - b) Yohimbine hydrochloride
 - c) Doxapram
 - d) Naloxone

22. Bioavailability of drug refers to:
- a) Percentage of administered dose that reaches systemic circulation in the unchanged form
 - b) Ratio of oral to parenteral dose
 - c) Ratio of orally administered drug to that excreted in the faeces
 - d) Ratio of drug excreted unchanged in urine to that excreted as metabolites
23. Chocolates are toxic to dogs due to the presence of:
- a) Aminophylline
 - b) Terbutaline
 - c) Theobromine
 - d) Pheneramine
24. Triclabendazole is the drug of choice for:
- a) Fascioliosis
 - b) Taeniasis
 - c) Schistosomiasis
 - d) Ancylostomiasis
25. The best choice of anesthesia in rumenotomy is:
- a) General anesthesia
 - b) Epidural anesthesia
 - c) Regional intravenous anesthesia
 - d) Paravertebral block
26. The causative agent of hydatidiosis is:
- a) Echinococcus granulosus
 - b) Diphylobothrium spp.
 - c) Taenia solium
 - d) Taenia saginata
27. Xylazine does not have the following effect:
- a) Analgesic
 - b) Muscle relaxant
 - c) Sedative
 - d) Antipyretic
28. Abortion storm is a characteristic sign of:
- a) Vibriosis
 - b) Trychomoniasis
 - c) Brucellosis
 - d) Leptospirosis

29. Which of the following best describes the pathogenesis of rabies virus after entry into the host?
- Rabies virus replicates immediately in the bloodstream resulting in viremia before CNS invasion
 - Rabies virus replicates in muscle cells at the bite site, then travels via peripheral nerves to the CNS
 - Rabies virus enters lymphatic vessels and spreads through lymph nodes before CNS invasion
 - Rabies virus primarily infects endothelial cells and spreads hematogenously to the brain
30. Which of the following hormones triggers the release of the oocyte from the ovarian follicle during the estrous cycle?
- Follicle-stimulating hormone (FSH)
 - Luteinizing hormone (LH)
 - Progesterone
 - Prolactin

PART II – Short Answer Questions [30 marks]

This part has six short answer questions. Select any five questions from the list below and provide your answers. Each question carries 6 marks.

- A 4-month-old, unvaccinated male kitten is presented to the Dzongkhag Veterinary Hospital with history of acute onset of severe lethargy, anorexia, profuse vomiting, and hemorrhagic diarrhea. Physical examination reveals severe dehydration and a fever of 105.8°F. Its CBC shows severe leukopenia. Based on these findings, what is the most probable diagnosis, the line of treatment, and what would you advise the cat owner? **(6 marks)**
- What is Antimicrobial Resistance (AMR)? List five key drivers of AMR in veterinary medicine? **(6 marks)**
- A pig farmer reports sudden, high mortality in his herd, with several animals exhibiting high fever, reddening of the skin on the ears and abdomen, and a lack of appetite. Some surviving pigs are lethargic and the farmer also notes that the pigs are not responding to antibiotic treatment. Based on the clinical signs and history, what is the most probable diagnosis? List down five most important actions that should be taken immediately, including biosecurity measures you would advise the farmer to control further spread of the outbreak? **(6 marks)**
- A 7-year-old Jersey cross cow from a herd grazing on a marshy pasture presents with progressive weight loss, lethargy, and a marked submandibular edema (bottle jaw). Based on the clinical signs and history, what is the most probable diagnosis, and outline a comprehensive treatment and control plan. **(6 marks)**

5. Describe the key considerations and procedures for collecting blood samples from a cattle herd. Your answer should include the selection of appropriate sampling kits, techniques to maintain sample integrity, and best practices for handling, labeling, and storing samples prior to laboratory analysis. **(6 marks)**
6. Briefly explain the pathogenesis of mastitis in dairy cattle and outline the main strategies for its prevention and control in a herd. **(6 marks)**

SECTION B: Case Study [40 marks]

There are four long answer questions for 20 marks each. Select any TWO and provide your answers.

1. Transboundary Animal Diseases (TADs) pose a significant and ever-present threat to global animal health and food security.
 - a. As a veterinarian, analyze the complex interplay of factors contributing to the rapid emergence and spread of TADs in a globalized world. **(5 marks)**
 - b. Discuss the specific roles of communities, Local veterinary services, National Authorities, and international organizations like the WOA and FAO, in prevention, control, and potential eradication of TADs. Furthermore, discuss the economic implications of a TAD outbreak on international trade and market access. **(15 marks)**
2. One Health is a collaborative, multi-sectoral, and trans-disciplinary approach to achieving optimal health outcomes, recognizing the interconnection between people, animals, plants, and their shared environment.
 - a. What pivotal role does veterinary profession play in advancing the One Health paradigm? **(5 marks)**
 - b. Take the example of Highly Pathogenic Avian Influenza (HPAI H5N1), and explain how a One Health approach would be crucial in its surveillance, prevention, and control of at a community, national, and global level. **(15 marks)**

3. Aseptic technique in veterinary surgery is essential to minimize the risk of microbial contamination, thereby preventing surgical site infections that can cause significant complications and suffering in animal patients.
- a. Explain the significance of aseptic technique in preventing surgical site infections and core principles of asepsis. **(5 marks)**
 - b. Outline the detailed steps involved in the preoperative preparation of both the patient and the surgeon. **(12 marks)**
 - c. Describe the role and importance of sterilization methods for surgical instruments. **(2 marks)**
 - d. What is the most commonly used and reliable sterilization method for surgical instruments? **(1 mark)**
4. You receive a call to examine a 5-year-old Jersey cross cow with a history of inappetence, tympany, and swelling on the left paralumbar fossa. Clinical examination suggests ruminal tympany with a possible foreign body impaction. A decision was made to perform rumenotomy.
- a. Describe the step-by-step surgical procedure of rumenotomy in cattle, highlighting preoperative preparation, surgical approach, and postoperative care. **(12 marks)**
 - b. Discuss the possible complications associated with rumenotomy and its management. **(5 marks)**
 - c. Explain the role of rumenotomy in the overall management of ruminal tympany and foreign body syndrome, including alternative treatment options. **(3 marks)**

TASHI DELEK