

ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2013
EXAMINATION CATEGORY: TECHNICAL

PAPER III: SUBJECT SPECIALIZATION PAPER for *VETERINARY SCIENCE*

Date	: 14 October 2013
Total Marks	: 100
Examination Time	: 150 minutes (2.5 hours)
Reading Time	: 15 Minutes (prior to examination time)

GENERAL INSTRUCTIONS:

1. Write your Roll Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is being provided 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 and SECTION B:
 - **SECTION A** has two parts: Part I - 30 Multiple-Choice Questions
Part II - 4 Short Answer Questions
All questions under SECTION A are COMPULSORY.
 - **SECTION B** consists of two Case Studies. Choose only ONE case study and answer the questions under your choice.
4. 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 any or correct Section, Part and Question Number will NOT be evaluated and no marks would be awarded.
5. Begin each Section and Part in a fresh page of the Answer Booklet.
6. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
7. Use of any other paper including paper for rough work is not permitted.
8. You are required to hand over the Answer Booklet to the Invigilator before leaving the examination hall.
9. This paper has **09** printed pages in all, including this instruction page.

GOOD LUCK!

SECTION A

PART I - Multiple Choice Questions (30 Marks)

Choose the correct answer and write down the letter of the correct answer chosen in the Answer Booklet against the question number. E.g. 31 (c). 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 is not a serotype of Foot and Mouth Disease virus?
 - A. Type "A"
 - B. Type "B"
 - C. Type "C"
 - D. Type "O"

2. Which of the following is the most likely intermediate host for *Dipylidium caninum* in dogs and cats?
 - A. Fleas
 - B. Flies
 - C. Lice
 - D. Rodents

3. Which of the following diseases of sheep is caused by *Corynebacterium pseudotuberculosis*?
 - A. Tuberculosis
 - B. Caseous lymphadenitis
 - C. Ulcerative dermatosis
 - D. Bluetongue

4. Which of these is the most appropriate sample for laboratory confirmation of rabies?
 - A. Saliva in viral transport medium
 - B. Culture swab in transport media
 - C. Tissue in 10% formaldehyde
 - D. Brain tissue in 50% glycerol saline

5. Which of the following is normally present in samples of plasma but not in serum from a healthy domestic animal?
 - A. Albumin
 - B. Creatinine
 - C. Fibrinogen
 - D. Sodium

6. Which of the following inflammatory cells is most predominant in purulent inflammation?
 - A. Neutrophil
 - B. Eosinophil
 - C. Monocyte
 - D. Lymphocyte

7. At which of the following times are heifers most likely to ovulate?
 - A. Approximately 12 hours after the end of estrus
 - B. At the beginning of estrus
 - C. During the middle of metestrus
 - D. During the middle of estrus

8. Which of the following animal diseases is notifiable in Bhutan?
 - A. Crimean-Congo hemorrhagic fever
 - B. Foot and Mouth disease
 - C. Marburg hemorrhagic fever
 - D. Eastern equine encephalitis

9. In which of the following parasites is a hydatid cyst found in the peritoneal cavity of the intermediate host?
 - A. *Echinococcus granulosus*
 - B. *Monezia expansa*
 - C. *Taenia solium*
 - D. *Taenia taeniaeformis*

10. Which of the following is the most appropriate preservative for Avian Influenza samples for reverse transcriptase polymerase chain reaction diagnosis?
 - A. 10% Formaldehyde
 - B. 20% Citrate-phosphate-dextrose
 - C. Viral transport medium containing antibiotics
 - D. 50% saline buffer

11. The majority of red blood cells in peripheral blood are nucleated in which of the following species?
 - A. Cow
 - B. Dog
 - C. Chicken
 - D. Llama

12. What would be the most appropriate treatment for organophosphorus toxicity in a calf?
- A. Copper sulfate
 - B. Aluminum sulfate
 - C. Atropine sulfate
 - D. Vitamin D
13. Which of the following bird flu strains emerged recently killing over 40 people in China?
- A. H5N1
 - B. H5N9
 - C. H7N1
 - D. H7N9
14. Variant Creutzfeldt-Jakob disease in humans has been associated with which of the following diseases in animals?
- A. Eastern equine encephalomyelitis
 - B. Rabies encephalitis
 - C. Bovine spongiform encephalopathy
 - D. West Nile viral encephalitis
15. A mature dog has loss of innervation to the right limb after being hit by a car. Which of the following changes is most likely to occur in the muscle mass of this limb?
- A. Atrophy
 - B. Dysplasia
 - C. Hypoplasia
 - D. Aplasia
16. When is the most appropriate time for insemination of a Holstein Frisian cow?
- A. 24- 36 hours after onset of estrus
 - B. 12- 24 hours after onset of estrus
 - C. 36- 48 hours after onset of estrus
 - D. Within 12 hours after onset of estrus
17. A cat develops a large palpable mass at the site of a subcutaneous vaccine injection administered one year ago. Which of the following is the most likely diagnosis??
- A. Melanoma
 - B. Lymphoma
 - C. Fibrosarcoma
 - D. Hemangiopericytoma

18. About a fourth of a herd of 500 cattle have an ocular discharge and are bellowing as if they are in pain. Physical examination of one of the affected animals shows inflammation of the conjunctivae and an opaque ocular discharge. Blepharospasm occurs during examination. Bacterial culture indicates a short, gram-negative organism. Which is the most likely causal organism?
- A. *Pasteurella multocida*
 - B. *Escherichia coli*
 - C. *Klebsiella pneumoniae*
 - D. *Moraxella bovis*
19. Which of the following is a fodder species?
- A. *Pinus roxburghii*
 - B. *Tall fescue*
 - C. *Quercus dilatata*
 - D. *Lantana pastazensis*
20. Which of the following terms most appropriately describes the effects of saprophytic bacteria on necrotic tissue?
- A. Abscesses
 - B. Gangrene
 - C. Infarcts
 - D. Fibrosis
21. The causative agent for strangles in horses is?
- A. *Pasteurella caballi*
 - B. *Streptococcus equi*
 - C. *Burkholderia mallei*
 - D. *Fusobacterium necroforum*
22. Which of the following is an adsorbent commonly given orally as an antidote in the treatment of a wide variety of poisonings in animals?
- A. Copper sulfate
 - B. Poloxalene
 - C. Activated charcoal
 - D. Zinc oxide
23. Metabolic acidosis results from the excessive ingestion of:
- A. Starch-rich grains
 - B. Fruits
 - C. Root crops
 - D. All of the above

24. A radiographic film appears brownish yellow. Which of the following procedures was not performed properly?
- A. Developing
 - B. Drying
 - C. Fixing
 - D. Washing
25. Hematemesis refers to:
- A. Black “tarry” faeces
 - B. Pale mucous membranes
 - C. Muscle wasting
 - D. Vomiting of blood
26. In cattle, pericarditis may be caused by a sharp object penetrating the diaphragm. The object is most commonly located in which of the following organs?
- A. Rumen
 - B. Reticulum
 - C. Omasum
 - D. Abomasum
27. Drug such as vincristine sulfate is commonly used in dogs to treat:
- A. Lameness
 - B. Tumours
 - C. Seizures
 - D. Skin disease
28. Which of the following features characterizes the kidneys of an adult cow?
- A. The left kidney is attached to the liver
 - B. They have smooth surfaces
 - C. The right kidney can be palpated rectally
 - D. The left kidney is more caudally located than the right kidney
29. A drug of choice for treatment of demodectic mange in dog is:
- A. Betadine ointment
 - B. Ivermectin
 - C. Penicillin-G
 - D. Sodium salicylate

30. *Orientia tsutsugamushi* is a Gram-negative intracellular parasite of family Rickettsiaceae that causes:
- A. Heart water
 - B. Marburg hemorrhagic fever
 - C. Scrub typhus
 - D. Sinus bradycardia

PART – II : Short Answer Questions (20 marks)

Answer ALL the questions. Each question carries 5 marks. Mark for each sub-question is indicated in the brackets.

Question 1. You receive a call from a farmer who owns a herd of 15 dairy cows and 10 male and female calves. On arrival, you find one of the adult cows had died. On closer examination, you find the carcass is bloated and there is oozing of blood from the natural orifices. You ask the history of the onset of the disease and the farmer tells you that the cow died suddenly. You examine the remaining herd for clues and you do not find any clinical symptoms.

- a) What is your tentative diagnosis at this stage? (1 mark)
- b) Would you recommend post-mortem examination and why? (1 mark)
- c) What is your recommendation on disposal of carcass? (1 mark)
- d) What would be your recommendation to protect the exposed animals in the herd?
(1 mark)
- e) What would be your recommendation to protect animals in the neighboring herd?
(1 mark)

Question 2. A two months old Apsoo puppy is presented to you with a history of inappetance, vomiting and diarrhea. On physical examination, you notice that the pup has blood stained perineum and foul smell. The pup appears very weak and dehydrated. The owner also has two other pups that have shown no sign of illness yet:

- a) What is your tentative diagnosis at this stage? (1 mark)
- b) What sample would you refer to laboratory to confirm your diagnosis? (1 mark)

- c) Describe your treatment regime for this sick Pup? (1 mark)
- d) How would you advise the owner on caring for the sick pup as well as the other two healthy pups? (1 mark)
- e) How would you prevent such incidences in young puppies? (1 mark)

Question 3. A case of retention of placenta in a first lactation cow has been presented to you. On inquiring the history of the animal, you are informed that the cow has delivered two days before. You notice the placenta is rotten and smells awful.

- a) What is your first line of action in an attempt to cure the animal? (2 marks)
- b) What would be the consequence of not treating this animal? (1 mark)
- c) How would you prevent retention of placenta in dairy cattle? (1 mark)
- d) Mention at least one traditional method of removing retained placenta practiced by Bhutanese farmers? (1 mark)

Question 4. A care taker presents you with a sick dog which has drooling saliva, tucked tail and shows abnormal behavior. A rapid test conducted using immunochromatographic test card on saliva gives positive result for rabies.

- a) How will you deal with the sick animal? (1 mark)
- b) What will you advise to the care taker of the sick animal? (1 mark)
- c) What sample will you refer to laboratory for confirmation when the animal dies? (1 mark)
- d) What is the vaccination schedule for rabies in dogs? (2 marks)

SECTION B

Case Study

Choose either Case 1 or Case 2 from this Section. Each Case carries 50 marks. Mark for each sub-question is indicated in the brackets.

CASE 1

About 90% of the Bhutanese population own livestock which is the primary source of livelihood. According to the most recent livestock census, Bhutan's livestock population is composed of cattle (34, 2927 heads), sheep (12,202 heads), swine (19191 heads) and goats (48019 heads). FMD is endemic in Bhutan and known to cause economic losses in terms of decreased milk production, loss in draught power and calf and piglet mortalities. Records indicate that from 1997 – 2007, an average of 13-14 outbreaks have occurred every year.

- (i) List all the sero-types of FMD viruses and list the sero-types common in Bhutan? (10 marks)
- (ii) What are the common modes of transmission of FMD viruses relevant for Bhutan? (10 marks)
- (iii) Describe the most appropriate vaccination schedule and vaccine dosage for different species of animals for control of FMD? (10 marks)
- (iv) What control measures would you institute in a farm that had an outbreak of FMD? (10 marks)
- (v) Describe the laboratory procedure to confirm clinical case of FMD including sample collection and transportation? (10 marks)

CASE 2

A farmer approached you regarding a case of delivery in a pregnant jersey heifer. On examination, you find that the calf's legs are out but the heifer is unable to deliver. The owner informs you that the cow had been in prolonged labor for over 18 hours. Given the situation above, please answer the following questions:

- (i) What are the causes of dystocia in a cow? (10 marks)
- (ii) List all possible non-surgical and surgical procedures to deal with the case? (5 marks)
- (iii) Describe indications and detail procedures for fetotomy in a cow? (10 marks)
- (iv) Describe the actual surgical procedure for a caesarean section in a cow including the names of the muscle layers between the skin and the peritoneum and suture pattern as well as the type and size of suture material that you will use? (15 marks)
- (v) What post-operative treatment will you give the cow and what advice will you give to the farmer? (10 marks)