

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2021
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALISATION PAPER FOR VETERINARY SCIENCE

Date	: October 31, 2021
Total Marks	: 100
Writing Time	: 150 minutes (2.5 hours)
Reading Time	: 15 Minutes (prior to examination time)

GENERAL INSTRUCTIONS:

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 - 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 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.

GOOD LUCK

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. Largest bone in a cow's body is
 - a) Femur
 - b) Humerus
 - c) Radius
 - d) Tibia

2. Baculum is a term that refers to
 - a) Os cordis
 - b) Os penis
 - c) Os phreni
 - d) Os rostri

3. The hormone usually given at the time of artificial insemination or natural service to increase conception rate through induction of ovulation is
 - a) Estrogen
 - b) Oxytocin
 - c) Prostaglandin (PGF 2α)
 - d) Buserelin acetate (Receptal)

4. In animal reproduction, a strategy that is commonly applied to bring group of cows in heat and induce pregnancy together so that calving occurs at same time. This strategy is usually practised for the convenience of management. What is that strategy?
 - a) Oestrus synchronization
 - b) Use of sorted semen
 - c) Progeny testing
 - d) Cloning

5. The chemical formula CH $_4$ stands for
 - a) Formaldehyde
 - b) Benzene
 - c) Hexane
 - d) Methane

6. Chemical formula of ethanol is
 - a) COOH
 - b) CH $_3$ OH
 - c) C $_2$ H $_5$ OH
 - d) CH $_3$ COOH

7. Which of the following is a Gram-negative organism?
 - a) Staphylococcus aureus
 - b) Escherichia coli
 - c) Bacillus anthracis
 - d) Streptococcus

8. Which of the following animal is known to get infected by SARS-CoV2 (COVID-19)?
 - a) Pig
 - b) Cow
 - c) Mink
 - d) Horse

9. Rabies is caused by which of the following virus of genus?
 - a) Lyssavirus
 - b) Morbillivirus
 - c) Orbivirus
 - d) Aphthovirus

10. What is the expanded form of ADPM and RCP?
 - a) Annual Dog Population Management and Rabies Control Program
 - b) Activated Dog Population Management and Rabies Control Program
 - c) Advanced Dog Population Management and Rabies Control Program
 - d) Accelerated Dog Population Management and Rabies Control Program

11. Pan-hysterectomy is the term for
 - a) Surgical removal of ovary
 - b) Surgical removal of uterus
 - c) Surgical removal of ovary and uterus
 - d) Surgical removal of vulva

12. Where was African swine fever first detected in Bhutan?
 - a) India-Bhutan border in Samtse
 - b) India-Bhutan border in Phuentsholing
 - c) India-Bhutan border in Sarpang
 - d) India-Bhutan border in Samdrup Jongkhar

13. Gid in yak is caused by larval stage of
 - a) Echinococcus granulosus
 - b) Taenia multiceps
 - c) Taenia saginata
 - d) Taenia hydatigera

14. A high producing cow with the history of recent calving is reported to be in recumbent position and head resting on flank. What is the probable condition?
 - a) Tetanus
 - b) Mastitis
 - c) Bloat
 - d) Milk fever

15. Average gestation period of a cow is
- 250 days
 - 283 days
 - 300 days
 - 310 days
16. What is the total percentage of Jersey blood in a progeny born out of a cow with 75% Jersey and a bull with 87.5% Jersey?
- 62.5%
 - 75%
 - 81.25%
 - 87.5%
17. Histopathological samples are preserved in
- 5% formalin
 - 10% formalin
 - 15% formalin
 - 20% formalin
18. World rabies day is on
- July 28
 - August 28
 - September 28
 - October 28
19. A young and healthy calf died suddenly with swelling on thigh muscle. On palpation there is crepitating sound. What is the suspected disease?
- Blackleg/Black quarter
 - Enterotoxaemia
 - Pasteurellosis
 - Tetanus
20. The causative agent for Glanders in horse is
- Burkholderia mallei
 - Fusobacterium necrophorum
 - Pasteurella caballi
 - Streptococcus equi
21. The disease caused by Ehrlichia ruminantium in cattle is
- Pasteurellosis
 - Heartwater
 - Ephemeral fever
 - Ascitis
22. What is the drug of choice for treatment of Haemorrhagic Septicaemia (Pasteurellosis) in cattle?
- Streptopenicillin
 - Gentamycin
 - Erythromycin
 - 33.3% Sulphadimidine

23. Gold standard test for diagnosis of rabies is
- Rapid detection test (RDT).
 - Complement fixation test (CFT).
 - Fluorescence antibody test (FAT).
 - Enzyme linked immunosorbent assay (ELISA).
24. Choice of drug for the treatment of Demodex mange in dog
- Ivermectin
 - Deltamethrin
 - Calamine lotion
 - Benzoic acid
25. In livestock legislation, animal disease that are legally required to be reported to concerned government authority is
- Endemic disease
 - Exotic disease
 - Emerging disease
 - Notifiable disease
26. The disease affecting a large population in wide geographical areas is known as
- Sporadic disease
 - Panzootic disease
 - Enzootic disease
 - Epizootic disease
27. Which of the following drug acts on both mature and immature liver flukes?
- Albendazole
 - Closantel
 - Nitroxynil
 - Triclabendazole
28. The field diagnostic test for mastitis that is based on the detection of leucocytosis in milk is termed as:
- AGID
 - CMT
 - Milk ring test
 - Udder test
29. Paracetamol toxicity is mostly seen in which one of the following species?
- Cats
 - Cattle
 - Pigs
 - Dogs

30. Which of the following is the most effective treatment for early-stage canine transmissible venereal tumour (TVT)?
- Streptomycin sulfate
 - Sucralfate
 - Benzyl penicillin
 - Vincristine sulfate

PART II – Short Answer Questions [20 marks]

This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks. Mark for each sub-question is indicated in the brackets.

Question 1

A poultry farmer calls you for your service in investigating chicken mortality at his farm. The farmer reported that his 6 weeks old layer chicken died in large numbers with brief illness. You visited the farm, investigated and found the following:

- The sick birds showed droopiness, ruffled feathers, whitish diarrhoea (soiled vents) and off-feed
 - On post-mortem examination you found haemorrhages on skeletal muscle (breast and thigh), swollen (oedematous) and haemorrhagic bursa of fabricious
 - White coloured kidney parenchyma – urea diathesis
- What is your tentative diagnosis? (1 mark)
 - What are your advices to farmer to prevent the spread of disease and mortality? (2 marks)
 - Write vaccination schedule for this disease. (2 marks)

Question 2

You are a practising veterinarian at National Veterinary Hospital, Thimphu. Thimphu Thromde reported on number of stray dogs being sick and some dead in the town area. You visited few locations in the town and found the following:

- Sick dogs were off-feed, had muco-purulent and oculo-nasal discharges.
 - On closer examination, some young dogs had pustules on the inner parts of the abdomen.
 - Some dogs had hardened foot pad.
 - Some dogs showed signs of fits and twitching of muscles.
- What is your tentative diagnosis of this disease in question? Outline the line of treatment for such cases including the drug(s) and their dosage? (1+2 marks)
 - How would you ensure that the disease do not spread to other dogs (including the pets) in the town area? (1 mark)
 - Name vaccine usually given to pet dogs to prevent this disease. (1 mark)

Question 3

You are a Veterinary Officer at Dzongkhag Veterinary Hospital, Haa. Military Commandant, Damthang reported that military horses in Damthang are suffering from unusual sickness and requested a visit to help in investigating and treating sick horses. You visited the farm and found:

- The horses were holding their head low and feverish.
 - Some horses had mucopurulent discharges from their noses.
 - The stable floor had some masticated grasses mixed with saliva.
 - The submandibular lymph nodes were swollen.
- a) What is your diagnosis? (1 mark)
- b) Name the causative agent? (1 mark)
- c) What are your advices to the military commandant to prevent the spread of this disease? (1 mark)
- d) What is your line of treatment? (2 mark)

Question 4

The animal health authority from Sarpang informed National Centre for Animal Health (NCAH), Serbithang about an unusual disease outbreak in cattle. The field veterinarian reported the case as below:

- Affected animal had numerous nodules on skin predominantly on neck and shoulder region
 - Some nodules broke open and presented ulcerative wound
 - Some cows had nodular lesions in udder
- a) What is your diagnosis? (1 mark)
- b) What is the causative agent? (1 mark)
- c) What are the control measures to prevent further spread? (1 mark)
- d) What is the confirmatory test available at NCAH, Serbithang? (1 mark)
- e) Is vaccine available for this disease in Bhutan as a part of national vaccination program?
(1 mark)

SECTION B: Case Study [50 marks]

Choose either Case I OR Case II from this Section. Each case carries 50 marks. Mark for each sub-question is indicated in the brackets.

CASE I

Sterilization of dog is the scientifically and socially accepted method to control growing dog population. In similar line, the currently applied protocol to control dog population in Bhutan is called catch, neuter, vaccinate and release (CNVR) protocol. You as a veterinary surgeon, have responsibility to play active role in sterilization campaign to numerically bring down the numbers and control dog population. With this background, answer the following questions in the context of sterilizing stray dogs.

1. Enlist the general considerations in setting up field clinic? (5 marks)
2. Enlist and describe all the methods of catching dog practised in Bhutan. (10 marks)
3. Enlist and describe the process before the dog is prepared for surgery. (5 marks)
4. Describe the process of administering anaesthesia. (5 marks)
5. Describe process of performing surgery (ovariohysterectomy) in female dog including post-operative care. (15 marks)
6. Enlist and describe the process of ear notching. (5 marks)
7. Enlist and describe the cleaning and disinfection process after surgery. (5 marks)

CASE II

There are large numbers of Bhutanese keeping dog as pet. Some are responsible and ensure animal welfare. But some are irresponsible, letting their pet roam freely, allowing to breed indiscriminately and do not comply with the provisions prescribed in the livestock legislation. Such free-roaming pet dog is one of the sources for the growth of stray dog population in Bhutan. As per the livestock legislation, all pet owner must register, identify and vaccinate their dog against disease such as rabies and others with potential risk to humans. The Department of Livestock has initiated registration and digital identification of pet dog through the use of microchip. With the above background, answer the following questions.

1. What is a microchip? What are the benefits of microchipping a pet dog? (5 marks)
2. After the pet dog is microchipped, what are the records that the pet owner is required to update with relevant authority? (5 marks)
3. Describe the process of pet dog registration with different types of details you would collect about pet and pet owner. (15 marks)
4. Describe the process of implanting microchip or microchipping a dog. (15 marks)
5. What are the precautions that you need to consider after microchipping a pet dog? (5 marks)
6. Which are the provisions in Livestock Act 2001 and Livestock Rules and Regulations 2017 that require pet owners to register, identify and vaccinate pets. (3 marks)
7. What is the penalty for failing to produce pet registration card on demand by relevant authority? (2 marks)

TASHI DELEK