

ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2025
EXAMINATION CATEGORY: TECHNICAL

PAPER III: SUBJECT SPECIALISATION PAPER FOR ANIMAL SCIENCE

Date	:	October 11, 2025
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 being provided to check the number of pages of the 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 **THREE SECTIONS**, namely SECTION A, SECTION B & SECTION C:
 - **SECTION A : Part I:** 30 Multiple Choice Questions
Part II: 6 Short Answer Questions. Choose only **FIVE**.
 - **SECTION B: 4 LONG ANSWER QUESTIONS.** Choose only **TWO** 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 on 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 **7 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. Which of the following animals has cotyledonary placenta?
 - a) Horse
 - b) Cattle
 - c) Dog
 - d) Cat

2. The testis in mammals descend into the scrotal sac due to:
 - a) Presence of urinary bladder
 - b) Presence of rectum
 - c) Long vas deferens
 - d) Requirement of low temperature for spermatogenesis

3. A period of sexual activity during the estrus cycle when the female will allow mating is called:
 - a) Proestrus
 - b) Estrus
 - c) Diestrus
 - d) Anestrus

4. A female progeny born from a cross between a Mithun bull and a Siri cow is called:
 - a) Thrabam
 - b) Yangkum
 - c) Jatsham
 - d) Doebum

5. Normal cow milk obtained from a clean udder contains:
 - a) Fat
 - b) Minerals
 - c) Proteins
 - d) All of the above

6. The scientific name for Yak is:
 - a) Bos indicus
 - b) Bos grunniens
 - c) Bos frontalis
 - d) Bos taurus

7. Which of the following organ has honeycomb like structure?
- a) Rumen
 - b) Reticulum
 - c) Omasum
 - d) Abomasum
8. The optimum pH for very good silage preservation is in the range of:
- a) 3.5 - 4.2
 - b) 4.2 - 4.5
 - c) 4.5 - 4.8
 - d) 4.8 - 5.2
9. Which is the most developed special sense in the birds?
- a) Vision
 - b) Hearing
 - c) Smell
 - d) Taste
10. The primary end product of protein metabolism in poultry is:
- a) Urea
 - b) Uric acid
 - c) Ammonia
 - d) Urates
11. The maximum permissible level of ammonia in poultry houses is:
- a) 55 ppm
 - b) 25 ppm
 - c) 35 ppm
 - d) 45 ppm
12. The brown colour of eggshell is due to which of the following pigment:
- a) Carotenoid
 - b) Protoporphyrin
 - c) Biliverdin
 - d) Melanin
13. The enlargement of the sciatic nerve is seen in:
- a) Newcastle disease
 - b) Marek's disease
 - c) Avian Influenza
 - d) Infectious Coryza

14. The average gestation period for a pig is:
- a) 4 months, 3 weeks, and 3 days
 - b) 3 months, 3 weeks, and 3 days
 - c) 2 months, 2 weeks, and 2 days
 - d) 1 month, 1 week, and 1 day
15. A highly palatable, nutrient-rich and easily digestible diet that is frequently offered to piglets while they are still nursing is called:
- a) Creep feed
 - b) Grower ration
 - c) Finisher ration
 - d) None of the above
16. "Thumps" is a condition common among piglets of 2-3 weeks and is caused due to:
- a) Ascorbic acid deficiency
 - b) Calcium deficiency
 - c) Iron deficiency
 - d) Vitamin D deficiency
17. A young female pig that has not yet produced a litter or been bred is called:
- a) Gilt
 - b) Grower
 - c) Sow
 - d) Finisher
18. The term "Measly Pork" refers to the presence of the following in the muscle tissue of pigs:
- a) Cysticerci of *Taenia solium*
 - b) Metacestodes of *Taenia saginata*
 - c) Cysts of *Toxoplasma gondii*
 - d) Hydatid cysts of *Echinococcus granulosus*
19. The typical caviar harvest age for female Siberian Sturgeon (*Acipenser baerii*) ranges from:
- a) 12 months to 18 months
 - b) 3 years to 5 years
 - c) 5 years to 7 years
 - d) 7 years to 12 years
20. The migration pattern exhibited by Golden Mahseer is called:
- a) Anadromous
 - b) Catadromous
 - c) Potamodromous
 - d) Oceanodromous

21. The most common site of occurrence of haematoma in dog is:
- a) Abdomen
 - b) Pinna or Ear flap
 - c) Eyelid
 - d) Tail
22. The primary route of transmission for canine parvovirus is:
- a) Respiratory droplets
 - b) Direct contact with saliva
 - c) Fecal-oral route
 - d) Vector-borne
23. *Taenia multiceps* is tape worm of dog and its larval stage present in sheep/cattle is:
- a) *Coenurus serialis*
 - b) Hydatid
 - c) *Coenurus cerebralis*
 - d) None
24. The most common serotype of Foot and Mouth Disease virus found in Bhutan is:
- a) Serotype O
 - b) Serotype A
 - c) Serotype Asia 1
 - d) Serotype C
25. All the following diseases are considered to be zoonotic diseases except:
- a) Brucellosis
 - b) Leptospirosis
 - c) Listeriosis
 - d) Black Quarter
26. The drug of choice for Fascioliosis is:
- a) Triclabendazole
 - b) Oxytoclozanide
 - c) Amprolium hydrochloride
 - d) Albendazole
27. The drug of choice for a canine transmissible venereal tumor is:
- a) Vincristine sulfate
 - b) Ceftriazone
 - c) Amatidine
 - d) Aspirin

28. Feline panleukopenia is also known as:
- a) Feline peritonitis
 - b) Feline parvoviral enteritis
 - c) Feline rhinotracheitis
 - d) Feline Pneumonia
29. The most appropriate sample for laboratory confirmation of rabies is:
- a) Saliva
 - b) Serum
 - c) Brain tissue in 10% formaldehyde
 - d) Brain tissue in 50% glycerol saline
30. The vaccine against rabies was first developed by:
- a) Edward Jenner
 - b) Louis Pasteur
 - c) Robert Koch
 - d) Robert Hook

PART II: Short Answer Questions [30 marks]

This part has 6 Short Answer Questions. Select any five questions from the list below and provide your answers. Each question carries 6 marks.

1. What is TMR? What is the main goal of TMR feeding? List the five key components/ingredients required to formulate a balanced ration in TMR. **(6 marks)**
2. What is conditioning of fish before stocking/transfer and or transportation? What are the five major reasons for conditioning of fish before stocking/ transfer and or transportation? **(6 marks)**
3. What is the "five freedoms" framework of animal welfare? List the five freedoms of animal welfare. **(6 marks)**
4. What is marketing mix or “4 Ps” of marketing framework? Briefly explain each of the “4 Ps” of marketing. **(6 marks)**
5. Define ovariohysterectomy. List three immediate/short-term and two long-term possible post-operative complications of ovariohysterectomy. **(6 marks)**
6. Define bovine estrous cycle and name its four main phases. **(6 marks)**

SECTION B: LONG ANSWER QUESTIONS [40 marks]

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

1. Discuss the multifactorial nature of mastitis in dairy cows. Explain the key roles of environmental and infectious factors in its occurrence. Propose a comprehensive mastitis control program for a commercial dairy farm, detailing the management practices for both milking and dry periods. **(20 marks)**
2. Discuss the principles of biosecurity in modern livestock farming. Explain how a well-designed biosecurity program can mitigate the risk of disease outbreaks, improve herd health, and enhance overall farm productivity. Provide specific examples of internal and external biosecurity measures. **(20 marks)**
3. Discuss the principles and applications of estrus synchronization as a cornerstone of modern livestock breeding programs. Explain the hormonal mechanisms involved in any one of the synchronization protocols. Furthermore, evaluate the economic benefits and potential challenges of implementing an estrus synchronization program on a commercial farm, considering both time-based and cost-based factors. **(20 marks)**
4. Analyze the key factors to consider when developing a farm business plan for a new livestock enterprise. Discuss the importance of market analysis, financial projections, and risk management in ensuring the long-term sustainability and profitability of the operation. **(20 marks)**

TASHI DELEK