

ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2012
EXAMINATION CATEGORY: TECHNICAL

PAPER III: SUBJECT SPECIALIZATION PAPER for ANIMAL SCIENCE

Date	: 14 October 2012
Total Marks	: 100
Examination Time	: 150 minutes (2.5 hours)
Reading Time	: 15 Minutes (prior to examination time)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

1. Write your Roll Number clearly on the Answer Booklet in the space provided.
2. The first 15 minutes is being provided to check the number of pages, printing errors, clarify doubts and to read the instructions. You are NOT PERMITTED TO WRITE during this time.
3. Use either Blue or Black ink pen or ball point pen for the written part and Pencils for the sketches and drawings.
4. All answers should be written on the Answer Booklet provided. Candidates are not allowed to write anything on the question paper or any other materials.
5. This paper is divided into two Parts-namely Part A and Part B.
6. PART A consists of two Sections: Section I and Section II.

Section I consists of 30 Multiple-Choice Questions carrying one (1) mark each and is compulsory. The answer of your choice should be clearly written in whole along with the question and option number on your answer booklet. Eg. 31(c).

Section II consists of four (4) short answer questions of five (5) marks each and all questions are compulsory.

7. PART B consists of two Case Studies. Choose only ONE case study and answer the questions under your choice. Each case study carries fifty (50) marks in total.
8. This Paper consists of NINE (9) pages including this Instruction page.

Part A

Section I: Multiple Choice Questions (30 marks)

Choose the correct answer and write down the letter of the correct answer chosen in the Answer Sheet against the question number. E.g. 31 (c). Each question carries ONE mark.

1. The technology that the Department of Livestock is currently promoting to optimize the use of livestock waste, minimize green house gas emission and generate energy is:
 - a. Solar power
 - b. Biogas
 - c. Wind mill
 - d. Biomass

2. In July 2012, the Ministry of Agriculture and Forests has issued an executive order prohibiting battery cage poultry rearing in Bhutan because:
 - a. It is an unknown technology in Bhutan
 - b. It is not acceptable in terms of animal welfare
 - c. It is difficult to implement bio-security measures
 - d. It reduces egg and chicken production

3. The principle exotic dairy cattle breeds promoted in Bhutan are:
 - a. Mithun and Jaba
 - b. Holstein Friesian and Tarentaise
 - c. Jersey and Brown Swiss
 - d. Sahiwal and Red Sindhi

4. One of following breed of horse was imported to Bhutan for coronation ceremony in 2008:
 - a. Spiti
 - b. Hequ
 - c. Thoroughbred
 - d. Haflinger

5. The current brown egg layer poultry breed in Bhutan is:
 - a. White leghorn
 - b. Hyline
 - c. Australop
 - d. Plymouth Rock

6. Which of the following specific poultry was recently introduced to Bhutan from Thailand:
- Duck
 - Rhode Island Red
 - White Leghorn
 - Turkey
7. Swine flu (H1N1) is spread through:
- Eating of un-cooked pork
 - Respiratory air droplets
 - Blood transmission
 - Biting of fleas
8. An exotic bee species reared for honey production by the Bee Keepers Association of Bhutan based in Bumthang is:
- Apis cerena*
 - Apis mellifera*
 - Apis dorsata*
 - Apis laboriosa*
9. The improved pasture seed mixture for temperate regions of Bhutan consists of:
- Italian rye, Tall fescue, Cocks foot and White clover
 - Ruzi, Paspalum, Molasses and Stylo
 - Hybrid Napier, Gautemala, Lucerne, Kikyu
 - Green leaf desmodium, Silver leaf desmodium and Fodder peanut
10. Under which of the following systems is the Department of Livestock planning to introduce payment for environmental services (PES) in Bhutan:
- High altitude rangelands systems
 - Integrated crop-livestock systems
 - Fodder in integrated systems
 - Agro-forestry systems

11. A popular fodder tree grown by the Bhutanese farmers near their houses, along the fences and border of crop land in the subtropical belts of Bhutan is:

- a. Willow tree
- b. *Leucaena leucocephala*
- c. *Ficus roxburghi*
- d. Oak tree

12. A typical symptom of bracken fern poisoning in cattle is:

- a. Chronic haematuria
- b. Bloody diarrhoea
- c. Tympany
- d. Continuous salivation

13. Average length of estrus cycle in cow is:

- a. 15 days
- b. 21 days
- c. 26 days
- d. 30 days

14. One of the main ingredients in the universal antidote is:

- a. Activated charcoal
- b. Calcium hydroxide
- c. Magnesium sulfate
- d. Sodium bicarbonate

15. An average gestation period and lactation length of a cow is:

- a. 200 days and 300 days
- b. 285 days and 305 days
- c. 350 days and 280 days
- d. 400 days and 500 days

16. An incubation period of chicken is:

- a. 18 days
- b. 21 days
- c. 25 days
- d. 28 days

17. One of the following fish species is not reared in the National Centre for Aquaculture, Gelephu:

- a. Common carp
- b. Grass carp
- c. Brown trout
- d. Rohu

18. The exotic pig breeds currently used for pig production in Bhutan are:

- a. Tamworth, Pietrain and Hereford
- b. Large black, Saddle back and Duroc
- c. Hampshire, Meishan and Landrace
- d. Berkshire, Cantonese and Chester White

19. The main justification for conservation of indigenous domestic animal genetic resources in Bhutan is:

- a. They are high producers
- b. They are adapted to local climate and requires low input
- c. They are highly preferred by farmers
- d. They are expensive

20. An intermediate host of *Fasciola hepatica* causing Fascioliasis in cattle is:

- a. House fly
- b. Water snail
- c. Mosquito
- d. Tick

21. Milk Fat (%) in yak and buffalo is:

- a. Lower than Jersey and Brown Swiss
- b. Higher than Jersey and Brown Swiss
- c. Same as Jersey and Brown Swiss
- d. None of the above

22. One of the following bovine species is typically a shy-breeder:

- a. Buffalo
- b. Mithun
- c. Jersey
- d. Yak

23. Chickens are vaccinated against Marek's disease at:

- a. 3 days of age
- b. 0 day of age in the hatchery
- c. 7 days of age
- d. 14 days of age

24. The main ingredients for energy and protein sources in the cattle and poultry concentrate feed are:

- a. Barley and Kidney beans
- b. Maize and Soyabean
- c. Paddy and Green pea
- d. Buckwheat and Lentils

25. One of the following cattle breed has the largest milk production. Few cows of this breed are already being introduced to Bhutan by semi-commercial dairy farmers:

- a. Guernsey
- b. Holstein Friesian
- c. Hereford
- d. Milking Shorthorn

26. The Livestock Department is careful in encouraging large scale goat farming under free grazing system as:

- a. Goat farming is not economically viable
- b. Goat are browsers and impacts plant regeneration
- c. Goat is very expensive
- d. Goat has long gestation period

27. Hybridization of yak and cattle to produce Zo and Zom is predominantly practiced by:

- a. Herders of Merak and Sakteng in Tashigang
- b. Herders of Dagala in Thimphu
- c. Herders of Soey-Yaktsa and Nubri in Paro
- d. Herders of Haatoe, Haa

28. The Livestock legislation in Bhutan comprises of:

- a. Draft Pasture Policy 1985 and Draft Breeding Policy 1995
- b. Livestock Act of Bhutan 2001 and Livestock Rules & Regulation 2008
- c. Forest and Nature Conservation Act 1995
- d. Cooperatives Act 2001

29. The most important indigenous cattle in Bhutan is:

- a. Mithun hybrids
- b. Nublang
- c. Jaba
- d. Goleng

30. One of the following disease prevalent in Bhutan is also a globally significant Trans-boundary Animal Disease:

- a. Black quarter
- b. Foot and Mouth Disease
- c. Brucellosis
- d. Tuberculosis

Section II: Short Questions (Answer all 4 questions)

20 marks

1. Livestock has multiple functions under the mixed crop-livestock farming systems. However the development focus so far in Bhutan has been for the direct livestock products such as dairy, egg, meat etc.; while the non-food functions has not received priority attention.
 - a. Elaborate on the non-food functions of livestock in Bhutan. (2.5 marks)
 - b. Suggest strategies to mainstream and promote development of non-food functions of livestock in Bhutan. (2.5 marks)

2. Poultry sector in Bhutan saw significant progress over the last four years (2009 to 2011).
 - a. What were the main drivers for the success of poultry enterprise in recent years? (2.5 marks)
 - b. What are key challenges for up-scaling further poultry production and suggest measures to address these challenges? (2.5 marks)

3. One of the core policy objectives of the Department of Livestock is to promote Public Private Partnership (PPP) in the livestock sector development in Bhutan.
 - a. Elaborate possible areas for engaging or inviting private sector in the livestock development. (2.5 marks)
 - b. What immediate strategies are required to promote PPP in livestock sector? (2.5 marks)

4. Bhutanese livestock farming is characterized by subsistence crop-livestock-forestry integrated systems.
 - a. Elaborate some of the advantages and disadvantages of subsistence mixed crop-livestock systems. (2.5 marks)
 - b. What could be some of the negative implications of promoting large scale livestock industrialization in Bhutan? (2.5 marks)

Part B

Answer only One question

50 marks

1. Inadequate feed and fodder is one of the biggest constraints in increasing livestock productivity in Bhutan. The Department of Livestock has been instructed to achieve self-sufficiency in feed and fodder during the 11th fyp. As a senior livestock officer responsible for the overall livestock development programme; provide your analysis of the current situation and responses in the following areas:
 - a. What are current practices advocated for feed and fodder development in Bhutan? (10 marks)
 - b. What are the major limitations to feed and fodder development in Bhutan? (10 marks)
 - c. What major policy and institutional reforms are required for up- scaling feed and fodder development in Bhutan? (10 marks)
 - d. What new technical options and innovations would you recommend to achieve feed and fodder self-sufficiency in the next five years? (20 marks)

Or

2. We have shouldered various official responsibilities under the Department of Livestock for the last 10 to 15 years. We have seen through the planning process, implementation and gained substantial experiences during the 9th and 10th fyp programmes. The 11th fyp for the livestock sector has just been drafted. All of us have participated actively in the planning process. As most of you will be the major actors in the implementation of the 11th fyp livestock plan, provide your answers to the following questions.
 - a. What difference have you observed in the preparation of livestock plans between the 10th fyp and the 11th fyp? (10 marks)
 - b. What are the core areas for livestock development in the 11th fyp? (10 marks)
 - c. Describe institutional arrangements under the Department of Livestock for 11th fyp implementation. (10 marks)
 - d. What is your vision for livestock development over the next 10 years and what should be the priority livestock policy objectives to achieve the vision. (20 marks)