

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. Hormone responsible for the growth of mammary tissue, and stimulates milk production in postpartum mammals.
 - a. Estrogen
 - b. Progesterone
 - c. Oxytocin
 - d. Prolactin

2. Which of the following species is a seasonal breeder?
 - a. Cow
 - b. Yak
 - c. Pig
 - d. Goat

3. The standard pasture seed mixture for the temperate regions of Bhutan consists of:
 - a. Italian rye, Tall fescue and Ruzi
 - b. Italian rye, Tall fescue and Lucern
 - c. Italian rye, Tall fescue, Cocks foot and White clover
 - d. Italian rye, Cocks foot and Green leaf desmodium

4. The first livestock Act of Kingdom of Bhutan was enacted in the year:
 - a. 1980
 - b. 1981
 - c. 1982
 - d. 1983

5. The first outbreak of Avian Influenza (H5N1) in Bhutan occurred in the year:
 - a. 2005
 - b. 2006
 - c. 2008
 - d. 2010

6. The 37th Session of APHCA was recently held in Thimphu. What is the full form of APHCA?
 - a. Asia Pacific Health Commission for Animal
 - b. Animal Production and Health Commission for Asia and the Pacific

- c. Animal Production and Health Centre for Asia
 - d. Asia Pacific Humane Commission for Animal
7. The popular winter fodder adopted by the dairy farmers in Bhutan is:
- a. Barley
 - b. Wheat
 - c. Oat
 - d. Buckwheat
8. An important development strategy adopted by the Department of Livestock for promotion of livestock enterprise in Bhutan is:
- a. Foreign Direct Investment
 - b. Formation of farmers groups and co-operatives
 - c. Contract farming
 - d. Leasing of government land
9. What is the gas produced in the biogas technology:
- a. Ethane
 - b. Methane
 - c. Propane
 - d. Butane
10. As per Livestock Statistics 2010, which of the following Dzongkhags do not have yaks:
- a. Trongsa
 - b. Wangdue
 - c. Lhuentse
 - d. Dagana
11. Which of the following is not a notifiable disease in Bhutan?
- a. Anthrax
 - b. Foot & Mouth Disease
 - c. Canine Distemper
 - d. Rabies
12. The current brown egg layer poultry breed in Bhutan is:
- a. Rhode Island Red
 - b. Plymouth Rock
 - c. Hyline
 - d. New Brown Red

13. A disease of goat introduced in Bhutan in 2010 through Tsethar practice is:
- PPR (Peste des petits ruminants)
 - Blue tongue
 - Goat pox
 - Contagious Caprine Pleuropneumonia (CCPP)
14. The Ministry of Agriculture and Forests issued executive order banning battery cage poultry rearing in Bhutan in which year?
- 2010
 - 2011
 - 2012
 - 2013
15. The procedure used for stray dog population management and rabies control project funded jointly by RGOB and HSI (Humane Society International) in Bhutan is:
- Oral poisoning of dogs
 - Catch, Neuter, vaccinate and Release
 - Impounding of dogs
 - Shooting of dogs
16. The body weight of a horse is 300 kg and the dose of Fenbendazole is 5 mg per Kg body weight. Fenbendazole is available as 25% w/w powder. How much Fenbedazole powder would you give to above horse?
- 1.5 gm
 - 4.5 gm
 - 6 gm
 - 7.5 gm
17. Which of the following animal cannot breed?
- Yangku
 - Stallion
 - Jatsha
 - Nublang
18. The horse breed imported to Bhutan to substitute Haflinger is:
- Hequ
 - Thoroughbred
 - Spiti
 - Arabian

19. If a cow is “anoestrus”, what does this mean?
- She cycles every 21 days
 - She cycles only once a year
 - She cycles during specific season
 - She is not cycling at all
20. Gid in yaks is caused by:
- Fasciola hepatica
 - Hypoderma bovis
 - Taenia multiceps multiceps
 - Echinococcus granulosus
21. The primary vaccination for FMD in calves is:
- Between 4-5 months of age
 - Between 6-12 months of age
 - Between 1-3 months of age
 - Above one year of age
22. Two exotic dairy cattle breeds promoted by the Department of Livestock in Bhutan are:
- Holstein Freisian and Brown Swiss
 - Jersey and Holstein Freisian
 - Jersey and Brown Swiss
 - Jersey and Guernsey
23. The main ingredient for energy in the cattle and poultry feed is:
- Barley
 - Maize
 - Paddy
 - Buckwheat
24. Weaning age of piglets in Pig Breeding farms is:
- 21-28 days
 - 28-35 days
 - 35-42 days
 - 42-49 days
25. Milk fever is caused due to deficiency of which salt in the blood stream:
- Magnesium
 - Phosphorus
 - Manganese
 - Calcium

26. The exotic pig breeds used in pig breeding farms in Bhutan are:
- Large black, Saddle back, and Landrace
 - Large black, Saddle back and Hampshire
 - Large Black, Saddle back and Duroc
 - Large Black, Duroc and Landrace
27. Average lactation length of a jersey cow is:
- 285 days
 - 305 days
 - 300 days
 - 365 days
28. Bhutan at present is just about self sufficient in which of the following livestock products:
- Milk
 - Eggs
 - Butter
 - Cheese
29. Which one of the following fish species is not reared in the National Centre for Aquaculture, Gelephu:
- Common Carp
 - Grass Carp
 - Silver Carp
 - Brown trout
30. The average time a bovine female in standing heat is:
- 2-6 hours
 - 12-18 hours
 - 2-3 days
 - 21 days

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.

One of the policies of the Department of Livestock is to promote cross breeding in cattle. On the other hand, the government also has emphasis in conservation of indigenous breeds of animals in the country. In relation to the above statement, answer the following questions?

- a) Do you support this cross breeding policy and why? (2 marks)
- b) What would be the consequence of not having breeding policy in the country? (1 marks)
- c) In your opinion, what are the possible ways to conserve indigenous livestock breed? (2 marks)

Question 2.

A farmer in Gelephu is interested to set up a dairy farm consisting of 15 jersey cows. The farmer does not have previous knowledge in dairy farming. He has adequate land, budget to set up the farm infrastructure, buy animals and basic dairy equipments. He approaches you for the advice in the following issues.

- a) Housing: What type of housing would you recommend to this farmer & why? (2 mark)
- b) Feeding: How much land should he allocate to pasture development? (1 mark)
- c) Health care: What are the vaccination and deworming schedule the farmer should follow for his dairy cows? (2 mark)

Question 3.

A case of chronic fasciolosis in cow is presented to you. The cow is emaciated, weak and weighs about 200 kg. This has been confirmed by a laboratory through fecal examination which showed 500 epg of fasciola eggs.

- a) What are the drugs available for treating this cow? (1 mark)
- b) What is the drug of choice to treat this animal? (2 mark)
- c) What is the dose of drug of choice that you recommend to this cow? (1 mark)
- d) When should the farmer submit the fecal sample to the laboratory after your treatment? (1 mark)

Question 4.

Bhutan has advocated Artificial Insemination (AI) in cattle since long time. There are more of advantages of AI such as disease control; farmers need not maintain breeding bull and accessibility of good quality semen to interested farmers.

- a) In relation to the above statement, what are the major disadvantages of AI? (2.5 mark)
- b) List the basic requirements to initiate AI in established RNR centre? (2.5 mark)

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

Cattle migration has been a traditional practice for livestock farmers in Bhutan since time immemorial. There are disadvantages as well as advantages in cattle migration. In relation to the above statement, answer the following questions:

- (i) Give your opinion as to why the farmers still practice cattle migration? (10 marks)
- (ii) What are the benefits of cattle migration? (10 marks)
- (iii) What are the benefits to the Department of Livestock if the cattle migration practice is stopped? (10 marks)
- (iv) Given the authority to you, what strategies would you adopt to discourage this practice? (10 marks)
- (v) What are the implications that you foresee for nomadic communities if you stopped cattle migration? (10 marks)

CASE 2

The poultry sector in Bhutan saw rapid progress over the years partially fulfilling eggs and meat requirement in the country. At the same time as the demand of dairy products is increasing, the dairy sector in the country is not able to fulfill dairy product requirement, resulting in import substitution of dairy products. As the trend in consumption of dairy products is increasing in the country, the future scope for dairy industry stands bright.

- (i) What strategies would you recommend to increase the availability of dairy products in the country? (15 marks)
- (ii) What challenges would you foresee in implementing the strategies? (15 marks)
- (iii) Describe the possible impact of your strategies for general livestock farmers in the country? (10 marks)
- (iv) How would you deal with excess production that may result from implementing your strategies? (10 marks)