

ANSWER ALL QUESTIONS

Question 1

Direction: For multiple choice questions, there are four alternatives: A, B, C, and D. Choose the correct alternative and circle it. Do not circle more than ONE alternative. If there is more than one choice circled, No score will be awarded.

- a) Strategies for upscaling adaptations are actions to increase the size and improve the quality of produces. Therefore, the development of superior breed of crops is practised under [1]

- A integrated farming.
- B autonomous.
- C anticipatory.
- D reactive.

- b) Explain sustainable development. [1]

- c) Write down any **TWO** land adaptation strategies practised in Bhutan to ensure sustainable land management. [2]

Question 2

- a) Protected cultivation is one of the integral technologies adopted in achieving sustainable agriculture by [1]
- A producing more and good quality crops.
- B protecting native crop varieties.
- C diversifying the crop varieties.
- D shortening of growing season.
- b) State and explain any **TWO** terms with reference to when fertilizers should be applied taking into consideration the right timing and the different stages of plant growth. [2]

c) Define species hybridization. [1]

d) Why is horticulture important? Explain with **SIX** reasons. [6]

Question 3

- a) Organic farming can be defined as [1]
- A indigenous and traditional farming.
 - B agro-chemical farming.
 - C conventional farming.
 - D agro-forestry farming.
- b) “When a farm has a good ecological balance, soils and the crops are healthy, and the prey and predator numbers enable a natural control of pests and diseases”.
In the light of the above statement, identify and explain any **THREE** important practices of organic farming. [3]

c) Explain **SIX** advantages of having a kitchen garden.

[6]

Question 4

- a) Identify the most suitable characteristics of pure line breeding.

[1]

A Parents produce offsprings that carry similar phenotypic characteristics.

B Combines desirable genes found in two or more different species.

C Superior plants are selected from genetically viable population.

D Poorer progenies are destroyed.
- b) Mention **TWO** purposes of producing clean dairy milk.

[2]

c) What is dairy farming? [1]

d) With the COVID-19 pandemic, the import of food items from neighbouring countries has decreased. The Agriculture Research and Development Centers (ARDCs) are introducing and releasing new crop varieties. What outcomes do you envisage with this initiative? Mention **SIX** outcomes. [6]

Question 5

- a) Which of the following top cattle breeds produce most milk?

[1]

A Holstein-Friesian

B Local purebred

C Brown Swiss

D Jersey
- b) Explain **THREE** advantages of animal grading-up.

[3]

c) As a class XII graduate living in Dungsam Dechencholing, you plan to establish a dairy farm. Write a business proposal to Loden Foundation, keeping in mind the geographical landscape and climatic condition of your village. Your proposal should include:

[6]

- i. Total acres of land you own
- ii. Kind of breed you want to rear
- iii. Number of skilled labour you want to recruit
- iv. Good feeding practices
- v. Market for your produce

Question 6

a) Which one of the following is **NOT** a characteristic of indigenous seeds? [1]

- A susceptible to pests and diseases
- B high genetic yield potential
- C takes a longer time to grow
- D lodging problem

b) Informal seeds are very important for farmers in Bhutan. Do you agree? Give **THREE** justifications. [3]

c) Explain **SIX** importance of production and supply of quality seeds to farmers. [6]

Question 7

- a) Shitake mushroom is well known as oak mushroom because it grows on **[1]**
- A Chamaecyparis species.
 - B Quercus species.
 - C Pinus species.
 - D Acer species.
- b) Write down any **TWO** conditions that favor the colonization of Trichoderma in log mushroom. **[2]**

c) What is foundation seed? Explain.

[1]

d) Bhutanese mushroom cultivators are not able to meet the growing demand even though it was introduced one and half decades ago. Why? Explain with **SIX** reasons.

[6]

Question 8

- a) Farm mechanization refers to the use of [1]
- A skilled labourers to replace farm machineries.
 - B farm machineries to replace labourers.
 - C conventional tools in farming.
 - D traditional tools in farming.

- b) Why is farm mechanization not feasible in Bhutan? Give **THREE** reasons. [3]

- c) Drudgery, physical exertion and small scale production are some of the typical attributes of Bhutanese agriculture which discourage potential youths and communities to take it up as a livelihood.
If you were the agriculture minister, how would you promote farming as an appealing means of making a living? Mention **SIX** measures.

[6]

Question 9

a) The movement of water on the earth's surface and through the atmosphere is known as [1]

- A hydrological cycle.
- B condensation.
- C precipitation.
- D evaporation.

b) Explain how remote sensing helps in the following areas:

i. Monitoring seasonal agriculture operations. [1]

ii. Crop identification. [1]

iii. Crop yield estimation. [1]

- c) Cold or warm clouds can be seeded to make rain. In this context, write **THREE** differences between ‘dry ice seeding’ and ‘silver iodide seeding’. [6]

Dry ice seeding	Iodide seeding	

Question 10

- a) The export of food commodities is less than its import in Bhutan because of the [1]
- A growing population.
 - B decreasing population.
 - C improvement in crop varieties.
 - D increasing number of industries.
- b) Write down the **SIX** steps involved in grafting. [3]

c) What are the **FOUR** basic requirements for dairy farm management? **[2]**

d) State any **FOUR** importance of agro meteorology.

[2]

e) List down **TWO** applications of Effective Microorganism (EM) Technology.

[2]
