

**Answer ALL questions (Compulsory)**

**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 are more than one choice circled, No score will be awarded.

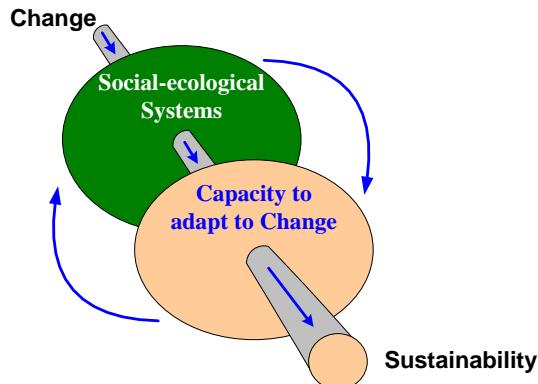
**Question 1.**

a) “Tractors run on diesel, irrigation system need electricity to pump water, fertilizers and pesticides are produced using energy, and green house gas is required to stay warm.”  
The above statement best describes about

[1]

- A energy for growing.
- B energy for processing.
- C energy for packaging.
- D energy for transporting.

b) The figure below shows the adaptive capacity for sustainability.



Write any **THREE** observations with reference to the above system.

[3]



c) Land degradation is an issue across the country impacting crop productivity and national food and nutrition security. How does land degradation become a threat to national food and nutrition security? Give **SIX** reasons.

[6]

## Question 2.

a) The energy transmission through a heated iron rod at one end is an example of

- A convection.
- B conduction.
- C conviction.
- D confection.

[1]

b) Do you think wind energy is important for the growth of crops? Justify your answer with **THREE** reasons.

[3]

c) "Agrometeorology plays an important role in agriculture work which determines the success and failure of crop production." With reference to this statement, explain **SIX** relevant uses of Agrometeorology.

[6]

**Question 3.**

a) Animal breeding is defined as [1]

- A looking for animal resistant to diseases.
- B the art and science of changing the traits.
- C the application of the principles of genetics.
- D the level of genetic variations in the animals.

b) Why are Bhutanese farmers encouraged to use improved varieties of crops developed by the research centers? Give **THREE** reasons to support your answer. [3]


c) Breeding is needed to address our food and nutritional requirements. Justify the statement with **SIX** reasons.

[6]

**Question 4.**

a) Brown Swiss cattle was originally bred in [1]

- A Friesland of Netherlands.
- B British Isle of Jersey.
- C Northern Germany.
- D Switzerland.

b) Look at the picture given below and answer the question.



Identify the breed and mention **TWO** prominent characteristics of the cow.

[3]



c) “With adequate commitment to dairy farming, one can never go hungry”. Elaborate **SIX** justifications for the statement. [6]

### Question 5.

a) Which of the following best illustrates vegetative propagation? [1]

- A self pollination.
- B asexual method.
- C sexual method.
- D pollination.

b i) Name the agricultural research centre established in 1982 and write down **ONE** function of the centre. [2]

ii) Sangay from Wangdi Phodrang exported her potatoes to India at Nu 5 per kg. Later, these potatoes were processed into chips and sold back to Bhutan at Nu 15 per packet. Give **ONE** impact of this on the Bhutanese economy. [1]



c) Quality seed production is a determining factor for a high yield and agriculture development. Support your views with **SIX** reasons.

[6]


**Question 6.**

a) The production system that sustains the health of the agro-ecosystem and people is known as [1]

- A organic farming.
- B traditional farming.
- C subsistence farming.
- D commercial farming.

b) Bhutan Agriculture and Food Regulatory Authority (BAFRA) temporarily banned cauliflower and beans in May 2016. Following this, green chilies were also temporarily banned due to high pesticide content. Write **THREE** benefits to the Bhutanese farmers from this temporary ban of imported vegetables. [3]


c) As an Agriculture Officer of Talo gewog, what **SIX** suggestions would you give to Dawa to increase his yield in organic farming?

[6]


**Question 7.**

a) “With the growing interest in flowers among the Bhutanese, floral cultivation practices are steadily picking up in the country.”

[1]

The above statement describes

- A arboriculture.
- B horticulture.
- C floriculture.
- D viticulture.

b) As a planning officer how would you intend to encourage and make horticulture an attractive business for unemployed youths? Suggest **THREE** measures.

[3]



c) Identify and write **SIX** advantages of protected cultivation.

[6]

**Question 8.**

a) The main body of the fungus that digests the substrate is called [1]

- A pores.
- B spawn.
- C hyphae.
- D mycelium.

b i) "I felt like I got drunk and couldn't even recognize my friends", said Ugyen Zangmo. The above statement describes three people who were admitted in hospital after consuming poisonous mushroom. Suggest **TWO** preventive measures to overcome such problems. [2]


ii) What is ecological footprint? [1]


c) "Mushroom cultivation proves lucrative and many farmers are adopting mushroom farming". How would this help in achieving food self sufficiency in agriculture? Write **SIX** justifications. [6]

### Question 9.

a) The Department of Forestry and Park Services do not levy royalties on timber if the owner wants to sell or use within the country.  
The above statement best describes a [1]

- A normal plantation.
- B community forest.
- C private forest.
- D state forest.

b) Write **THREE** differences between Mixed Conifer Forest and Blue Pine Forest. [3]

c) The mandate to maintain a minimum of 60% forest cover for all time to come is envisioned in the Constitution of the country. Why do you think Bhutan should maintain a high percentage of forest cover? Give any **SIX** reasons.

### Question 10.

a) One of the consequences of rural - urban migration is a shortage of labour in the farming community. The Government has taken various initiatives to curb this problem. One of the major initiative is [1]

- A leasing Government land for agriculture.
- B distributing improved seeds.
- C installing farmers shop.
- D mechanizing farming.

b i) With modernization, oxen are replaced by power tillers, horses by vehicles and local cows by Jersey cows. How would this contribute to global warming?

[1]

ii) How can you use effective microorganism solution in your home? Give **TWO** uses. [2]



c) “Youth unemployment is a major challenge in our country. Many youths are reluctant to join the farming community and prefer to stay unemployed in the urban areas”. Give **SIX** reasons why youths are not interested in farming?

[6]
