SECTION A [50 MARKS]

ANSWER **ALL** QUESTION

Question 1

a) 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. **[10]**

i. Astronomers use the Big Bang Theory to describe how the universe came into being. In this theory the universe started as a single point, then grew and expanded to reach the current size.

What does the expansion of the universe mean?

A Rise in the number of stars.

B A wider gap between galaxies.

C A faster rate of planet rotation.

D The finding of new celestial objects.

ii. Dorji calls his father in Sydney, Australia at 5 a.m. from Bhutan. What time is it in Sydney, Australia (151º East)?

A 8:04 a.m.

B 9:04 a.m.

C 8:04 p.m.

D 9:04 p.m.

iii. All of the following are the reasons why Alpine Zone is hardly inhabited by humans **EXCEPT**

A people cannot do farming.

B the climate is cold throughout the year.

C the ground remains frozen most of the time.

D people can collect Balu-Sulu to earn income.

iv. The formation of the Himalayas took place due to

A diverging movement of African and Indian plates.

B diverging movement of Indian and Eurasian plates.

C converging movement of Indian and Eurasian plates.

D converging movement of African and Eurasian plates.

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v. According to Tuzo Wilson the lithospheric plates consisted of continental and oceanic plates. These plates which look like wooden blocks floating over a weak and ductile region of the earth is known as

A lithosphere.
B atmosphere.
C hydrosphere.
D asthenosphere.

vi. Which of the following is **NOT** a land feature formed due to erosional work of underground water?

A lapies
B stalactite
C sinkholes
D swallow holes

vii. The best method to overcome land fragmentation in Bhutan is by

A establishing farm cooperatives.
B practising commercial farming.
C reducing the size of family members.
D stopping the division of land among children.

viii. Which one of the following statements is incorrect according to Christaller's Central Place Theory?

A Towns of the same size will be evenly spaced.
B If one town is eliminated, the entire system must readjust.
C Larger towns are spaced farther apart than the smaller towns.
D The number of larger towns and the number of smaller towns are roughly equal.

ix. As life expectancy increases, the mortality rate usually

A increases.
B decreases.
C is not affected.
D remains constant.

x. Which one of the following is **NOT** a human-made cause for glacial lake outbursts?

A global warming
B seismic activities
C cutting down of trees
D establishment of industries

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b) Match each item under Column A with the most appropriate item in Column B. Write the correct alphabet in the space provided under the 'Answer' column. **[5]**

Answer	Column A	Column B
	i. Organic non-metallic minerals	a) Manganese
	ii. Ferrous metallic minerals	b) Copper
	iii. Energy minerals	c) Limestone
	iv. Non-ferrous metallic minerals	d) Petroleum
	v. Inorganic non-metallic minerals	e) Thorium
		f) Sapphire

c) Write TRUE or FALSE for the following statements in the space provided. **[5]**

i. The global position system is not an advanced method of determining latitude and longitude. (_____)	
ii. Ecosystem diversity is a result of species interactions and habitat variation. (_____)	
iii. Population growth enables us to estimate more accurately how demographics will develop in the future. (_____)	
iv. A higher percentage of greenhouse gases in the atmosphere traps less heat on the earth causing a fall in the global temperature. (_____)	
v. Ms. Wangmo lives in Jangsa village and has recently migrated to another village located under the same dzongkhag. Such type of migration is referred to as internal migration. (_____)	

d) Fill in the blanks with appropriate words. **[5]**

i. If you are a financial planner and digital stockbroker, you will be paid a higher salary. So, your work would be classified under _____industry.	
ii. Using electricity safely by unplugging appliances when not in use can reduce a type of disaster known as_____.	
iii. The giant cloud of dust and gas in space is called_____.	

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iv. Convergent movement exerts pressure on both sides of the plate boundary and causes the rock strata to fold and bend leading to formation of _____.	
v. Use of primitive tools and small-scale production are the key characteristics of farming practices in the past in Bhutan. Such farming practices are typically known as_____.	

e) Study the extract of the survey Map of Trashigang, No.78M/11 and answer the following questions.

i. What is the altitude of the lhakhang located near Dhezhuling? **[1]**

ii. Sangay, a CNR graduate decided to start an agriculture farming business in grid reference of 8040. Will it be profitable? Give **TWO** reasons **[2]**

iii. Most human civilizations are based along the river valleys. Beside rivers providing water for irrigation, what could be the other reasons for civilizations to flourish. Write any **TWO**. **[2]**

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iv. Thungthi Ri is the main tributary joining Gamri Chhu. Calculate the length of Thungthi Ri. **[2]**

v. Identify and compare the drainage pattern formed in south-western part and south-eastern part of the topographical map. **[2]**

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vi. Identify man-made features in the six-figure grid reference of 405502. Write **ONE** importance. **[2]**

vii. Do you think conventional signs and symbols are important for the understanding of topographical maps? Give **TWO** reasons. **[2]**

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viii. Express the representative fraction (R.F) of the given map in a simple statement scale. **[2]**

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f) In the outline map of Asia provided: **[4]**

i. Shade and name the highest plateau in Asia.

ii. Mark with (∧∧∧) and name the mountain Caucasus.

iii. Mark with thick lines and name Yangtse river.

iv. Shade and name Yellow sea.

g) In the outline map of Bhutan provided: **[6]**

i. Mark with thick line and name the river on which the first hydropower project was developed.

ii. Mark with **][** and name the La (Pass) located between Sha and Mangde.

iii. Mark with (∧∧∧) and name Masa Gang.

iv. Mark 'DZ' over the dzong where the First King of Bhutan was enthroned.

v. Mark "OP" over the place where Bhutan's oldest protected area is located.

vi. Mark with (∧∧∧) and name Tsenda Gang.

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SECTION B [50 MARKS]

ATTEMPT **ANY FIVE** QUESTIONS

Question 2

a) Although the mining sector contributes significantly to the nation's income through revenue generation, it also negatively impacts the environment. List down **FOUR** negative impacts. **[2]**

b) Technology plays an important role in the growth and development of industries. Assess any **FOUR** positive influences of technology on industries. **[2]**

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c) Bhutan lies in a seismically active zone. Suggest **ONE** strategy to protect yourself before and during an earthquake. **[2]**

d) Red shift is used as evidence in the 'Big Bang' theory to explain the beginning of the Universe. Explain what does the term “Red-Shift” mean? What does it explain? **[2]**

e) The Himalayan Mountain System was once under the sea. Justify the statement with **TWO** evidences. **[2]**

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Question 3

a) Calculate the longitude of place A where the local time is 5 a.m. when the time is 8 p.m. at New Delhi on longitude 70º E. **[2]**

b) *Climate of a place impacts plants and animals*. Explain with **TWO** reasons. **[2]**

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[2]

c) The image above shows one of the farming practices in Bhutan. Mention any **TWO** drawbacks of such farming practices.

d) To reduce Gungtong trend in Bhutan, the government has carried out numerous developmental activities: improving service facilities like roads, schools, hospitals, communications and increasing wage rate in rural areas. However, the issue of Gungtong still continues. What **TWO** strategies would you recommend to the government to minimise Gungtong besides improving service facilities and increasing the wage rate? **[2]**

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e) Explain how biodiversity plays a significant role in mitigating the impact of climate change? Mention **TWO** points. **[2]**

Question 4

a) With many Bhutanese going abroad, there is a shortage of workforce in the country. To solve this problem Bhutan should allow international immigrants? Do you agree? Justify your answer with **TWO** reasons. **[2]**

b) Mention any **TWO** criticisms of Central Place Theory. **[2]**

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c) Is it profitable for Bhutan to establish many mining industries? Justify your answer with **TWO** reasons. **[2]**

d) Flash floods and landslides are common disasters in the southern foothills. Why? Give **TWO** reasons. **[2]**

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e) Developed countries in the world have started to explore new planets and some even launched missions to planets like Mars. Do you think Bhutan should also launch such missions? Justify your answer with **TWO** reasons. **[2]**

Question 5

a) Geological time scale describes events in the Earth's history. In line with this statement, mention **FOUR** events that took place during the Cenozoic era. **[2]**

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b) Place X is situated at 20º West while place Y is situated at 50° West. Which place will experience the sunrise first? Find the difference in the time of sunrise between the two places. **[2]**

Study the images given below. **[2]**

Figure A

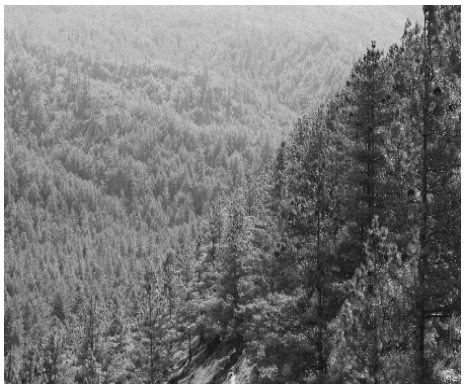

Figure B

c) The figure given above shows the types of vegetation found in Bhutan. Write **TWO** differences between figure A and figure B.

Figure A	Figure B

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d) The existences of the great Himalayan Mountain ranges affect the climate of Bhutan. Do you agree? Justify your answer with **TWO** reasons. **[2]**

e) According to Alfred Wegener the present continents were formed from the drifting supercontinent known as Pangea some 200 million years ago. What would happen if all the seven continents were joined again? Mention **TWO** consequences. **[2]**

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Question 6

a) Study figure 1 given below and answer questions i) and ii).

Figure 1

i) Name the landform. **[1]**

ii) Briefly explain how it is formed? **[1]**

b) The action of the wind is most noticeable in arid areas. Discuss **TWO** features formed due to the action of the wind. **[2]**

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c) The Bill to re-promote Bhutan as an exclusive tourist destination includes a proposal to increase the sustainable development fee from US dollar 65 to 200 per day. How is this policy relatable to the conservation of biodiversity of Bhutan? Justify with **TWO** points. **[2]**

d) Though agricultural production has increased in the country over the past few years, Bhutan is still not self-sufficient in most food items like rice, edible oils and vegetables. In your view, what could be some of the challenges? Mention any **TWO** challenges and suggest ways to address them. **[3]**

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e) One of the threats to the biodiversity of Bhutan is the increasing number of vehicles in the country. If you are the Director of the National Environment Commission of Bhutan, what **TWO** measures would you suggest to the government to address this problem? **[1]**

Question 7

a) In 2027, the population of Thimphu Thromde is projected to increase to 150,595 (which is 31.5% percentage increase from 2017), with 75,021 females and 75,574 males. The number of migrants is projected to increase by 19,998 in 2027 from 2017. (*Source: CBS*) If such a trend continues what **TWO** possible consequences would Thimphu Thromde face? **[2]**

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b) Education in an emergency is an important post-disaster activity that every school should carry out. Do you agree? Support your answer with **THREE** reasons. **[3]**

c) Bank of Bhutan Premier League was played between Friends United FC and Taxi United FC at Changlimathang at 6 p.m. on 19th August 2022. At what time can the viewers in London watch the live broadcast? **[2]**

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d) Some of the regions in Bhutan are extremely cold and the temperature remains low throughout the year. Describe the design of a house that you would build to suit such weather conditions. **[2]**

e) Explain Karst topography in your own words. **[1]**

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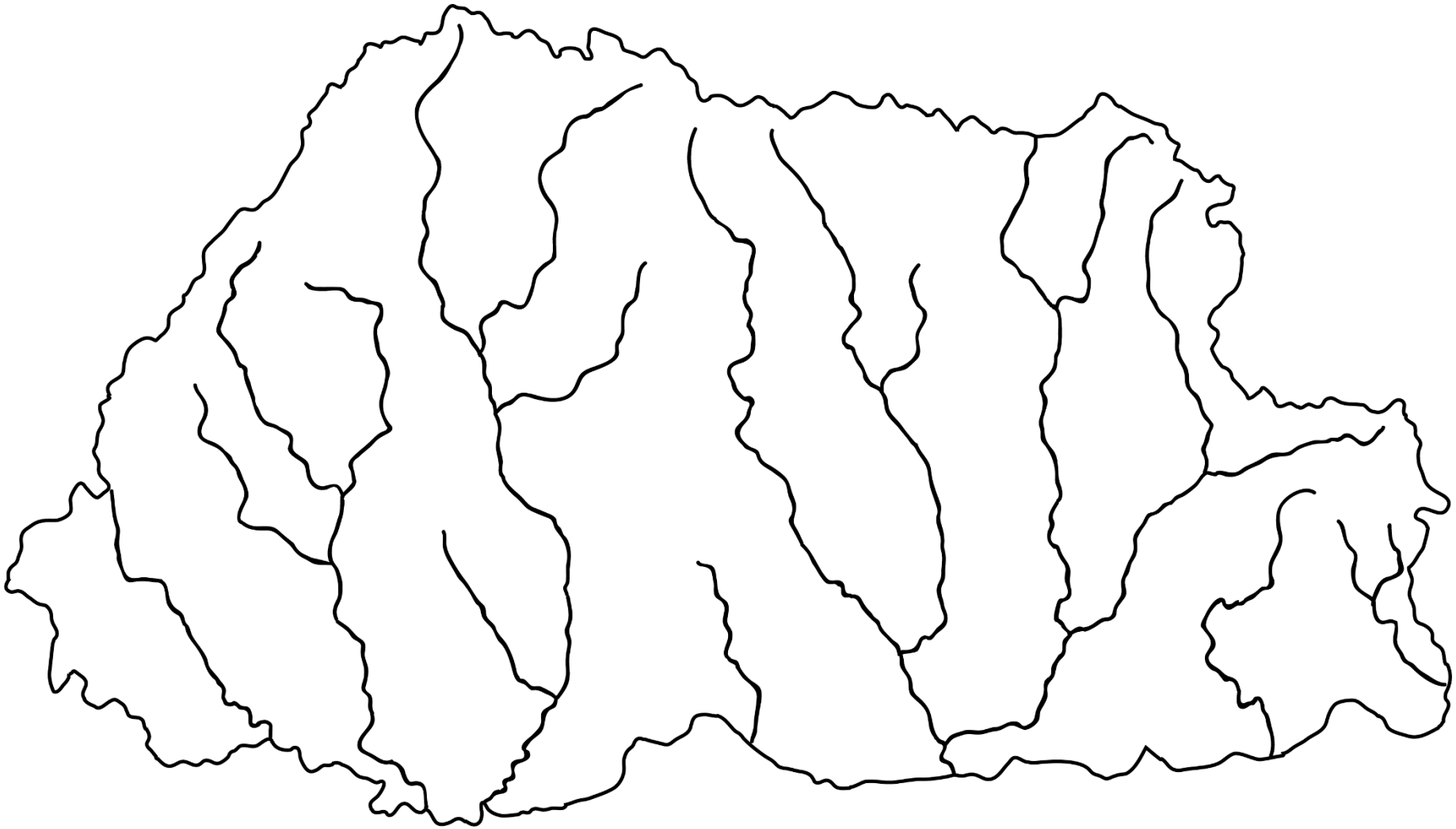
Map of Bhutan

This map is to be used for Question 1 (g).



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Map of Asia

This map is to be used for Question 1 (f).

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