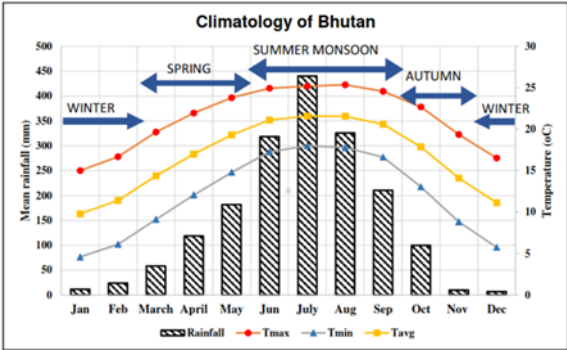


SECTION A [50 MARKS] ANSWER ALL QUESTION		Topic/Page no.	CBQ	Strands	Competencies	Learning objectives	Blooms level																																																	
Question 1	[10]																																																							
a) For each question there are FOUR responses: A, B, C and D. Choose the corresponding letter of your response and CIRCLE it neatly. NO score will be awarded, if you circle more than ONE letter.																																																								
i. Topographic map in Bhutan uses India and adjacent countries series (IAC). What is the map number of the figure given below? <table border="1"> <tr> <td></td> <td>1</td> <td>5</td> <td>9</td> <td>13</td> <td></td> <td></td> </tr> <tr> <td>A</td> <td>2</td> <td>6</td> <td>10</td> <td>14</td> <td>I</td> <td>M</td> </tr> <tr> <td></td> <td>3</td> <td>7</td> <td>11</td> <td>15</td> <td></td> <td></td> </tr> <tr> <td></td> <td>4</td> <td>8</td> <td>12</td> <td>16</td> <td></td> <td></td> </tr> <tr> <td>B</td> <td>F</td> <td>J</td> <td></td> <td></td> <td>N</td> <td></td> </tr> <tr> <td>C</td> <td>G</td> <td>K</td> <td></td> <td></td> <td>O</td> <td></td> </tr> <tr> <td>D</td> <td>H</td> <td>L</td> <td></td> <td></td> <td>P</td> <td></td> </tr> </table>		1	5	9	13			A	2	6	10	14	I	M		3	7	11	15				4	8	12	16			B	F	J			N		C	G	K			O		D	H	L			P			Interpretation of Topographic map		Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Discuss the basic techniques of layout and numbering of topographical maps.	Understanding
	1	5	9	13																																																				
A	2	6	10	14	I	M																																																		
	3	7	11	15																																																				
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D	H	L			P																																																			
A 78E/10 B 78E/11 C 78E/12 D 78E/15																																																								
ii. The graph shows the change in rainfall over a				Time and	Apply appropriate	Interpret																																																		

<p>place over a year. The rainfall increases from January to May because of</p> 			Space	geospatial technology to design maps and interpret geographical concepts.	diagrams, graphs, illustrations and maps to draw logical conclusions.	Analysing
<p>A Direction of mountain ranges B Summer monsoon C Altitude of a place D Latitude of a place</p>						
<p>iii. The Big Bang theory was put forward by</p>	Big Bang Theory		Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Discuss the origin of the Earth with reference to the Big Bang and Solar Nebula Theory.	Remembering
<p>A Wegner B Schmidt C Edwin Hubble</p>						

	D George Lemaitre						
iv.	You are living in Bhutan and the time is 9 am. What would be the time in London?	Latitude and Longitude	CBQ	Time and Space	Examine the significance of geographical coordinates with reference to location and time.	Determine longitude and time.	Applying
	A 2 A.M B 2 P.M C 3 A.M D 3 P.M						
v.	Gasa experiences cool summer and cold dry winter. Which of the following factors primarily determines the climate of the place?	Factors Affecting Climate	CBQ	Physical Environment	Explore the function of places and regions in determining the cultural identity that unifies the society	Examine the factors affecting the climate of a place.	Analysing
	A Orientation of the mountain ranges B Distance from the equator C Type of vegetation present D The altitude of the place						
vi.	Geologically, the Himalayas are relatively young, having formed around 50 to 70 million years ago.	The Himalayas	CBQ	Physical Environment	Analyse the geomorphic processes to	Explain the formation of Himalayan	Understanding

What geological process primarily led to the formation of Himalayas?					understand the significance of land features.	Mountain system with reference to Continental drift theory and Plate Tectonics theory.	
<p>A Volcanic activity</p> <p>B Erosion and sedimentation</p> <p>C Collision of tectonic plates</p> <p>D The deposition of river sediments</p>							
vii. Bhutan is recognised globally for its remarkable biodiversity, which is recognized for its diverse range of habitat. Which component of biodiversity does it refer to?		Biodiversity	CBQ	People and Environment	Analyse the effects of interactions amongst the spheres to understand biodiversity.	Explain the components of biodiversity	Understanding
<p>A Genetic diversity</p> <p>B Species diversity</p> <p>C Ecosystem diversity</p> <p>D Functional diversity</p>							

viii. Which industry includes activities like research and development, and information technology?		Industries		People and Environment	Assess the significance of natural resources to understand resource conservation and sustainable use.	Classify different sectors and types of industries	Remembering
<p>A Primary Industries</p> <p>B Secondary Industries</p> <p>C Tertiary industries</p> <p>D Quaternary industries</p>							
ix. The overall life expectancy of Bhutan in 2017 was 70.2 years, which is an increase of 39 years from 66.3 years in 2005. What are the factors which led to rise in life expectancy of Bhutan?		Population Growth	CBQ	People and Environment	Examine the role of human activities to understand the distribution of population and settlement.	Discuss the causes of population growth.	Analysing
<p>i. Enhanced health care services.</p> <p>ii. Increased education levels among the population.</p> <p>iii. Improved living standards, housing, and access to clean water and sanitation facilities.</p> <p>iv. Implementation of policies focused on</p>							

	elderly care.						
	<p>A i, ii and iii</p> <p>B ii, iii and iv</p> <p>C i, iii and iv</p> <p>D i, ii and iv</p>						
x.	What natural disaster caused significant damage in Punakha in 1994?	Common Disasters			Use indigenous and scientific knowledge to explain ways of managing disasters.	Describe common disasters in Bhutan.	Remembering
	<p>A Earthquake</p> <p>B Flood</p> <p>C Landslide</p> <p>D Glacial Lake Outburst Flood (GLOF)</p>						
b)	Write TRUE or FALSE for the following statements in the space provided.	[5]					
i.	The numbering system for topographic maps is always consistent globally. FALSE	Interpretation of Topographical Map		Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Discuss the basic techniques of layout and numbering of topographical maps.	Remembering

ii.	Solar energy is the most reliable alternative energy source in Bhutan due to its geographic location. FALSE			People and Environment	Assess the significance of natural resources to understand resource conservation and sustainable use.	Discuss alternative sources of energy in Bhutan.	Understanding
iii.	The Big Bang Theory suggests that planets are formed from the gradual accumulation of dust and gas particles. FALSE	Big Bang Theory					Understanding
iv.	Mountain ranges affect the formation of precipitation in a certain region. TRUE	Climate and Vegetation		Physical Environment	Explore the function of places and regions in determining the cultural identity that unifies the society	Examine the factors affecting the climate of a place.	Understanding
v.	Biodiversity hotspots are regions with large number of unique species that are endangered. TRUE	Biodiversity		People and Environment	Analyse the effects of interactions amongst the spheres to understand biodiversity	Explain the components of biodiversity	Understanding

c) 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. c	i. Larger particles that are too heavy to be lifted by the wind are pushed and rolled along the ground.	a. Deposition		Gradation		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss wind as an agent of gradation.	Remembering
ii. a	ii. Happens when the wind speed drops.	b. Suspension		Gradation		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss wind as an agent of gradation.	Remembering

iii. e	iii. Rock particles bounces along the ground upto 1.5 metres high.	c. Saltation		Gradation		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss wind as an agent of gradation.	Remembering
iv. f	iv. Soil particles carried in the wind strikes the rock surface.	d. Saltation		Gradation		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss wind as an agent of gradation.	Remembering
v. b	v. Fine soil particles are lifted and held in the atmosphere.	e. Surface creep		Gradation		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss wind as an agent of gradation.	Remembering
		f. Deflation							
		g. Erosion							
d) Fill in the blanks with appropriate words			5						

i.	Planetesimals collided and merged to form larger bodies called protoplanets. The process is called ACCRETION, planet formation,	Solar Nebula Hypothesis		Time and Space	Examine the origin of the universe to understand the astronomical geography	Discuss the origin of the Earth with reference to the Big Bang and Solar Nebula Theory.	Remembering
ii.	Regions located at high altitude generally experience LOW temperature compared to those at lower altitude. Lower, minimum, less, decrease, cold,	Factors affecting Climate		Physical Environment	Explore the function of places and regions in determining the cultural identity that unifies the society	Examine the factors affecting the climate of a place.	Understanding
iii.	Wide range in climatic conditions have resulted in different climatic zones. The altitude ranging from 200-2000 meters above sea level comes under SUBTROPICAL zone.	Climate Zones		Physical Environment	Explore the function of places and regions in determining the cultural identity that unifies the society	Discuss the impact of the climatic zone on its inhabitants.	Understanding
iv.	According to the continental drift theory, all the continents were once joined together in a supercontinent called PANGEA	The continental drift theory		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Explain the formation of Himalayan Mountain system with reference to Continental drift theory	Remembering

						and Plate Tectonics theory.		
v.	Glaciers are receding at a faster rate due to global warming. The disaster caused due to retreating glacier is GLOF. Glacial Flooding,		Disasters		People and Environment	Use indigenous and scientific knowledge to explain ways of managing disasters.	Describe common disasters in Bhutan.	Understanding
e)	Study the extract of the survey Map of Trashigang, No.78M/11 and answer the following questions.	15						
i.	What is the index contour interval of the given map? 200 Meters	[1]	Interpretation of Topographical Map		Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Interpret the topographical map	Remembering
ii.	Give the six-grid reference for the following spot heights: a. 1950 (203406) 204407/202405 b. 590 (505606)504605/506607	[1]	Interpretation of Topographical Map		Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Interpret the topographical map	Applying

<p>iii. How is topographical map useful in planning outdoor activities such as hiking or camping? Provide TWO reasons.</p> <ul style="list-style-type: none"> ✓ Terrain Understanding: helps in assessing the difficulty of the terrain and planning routes. ✓ Navigation: It makes it easier to navigate and avoid getting lost. ✓ Water Sources: Identifying the locations of streams, rivers, and lakes is crucial for planning water supplies during hiking or camping trips. ✓ Elevation Profiles: Understanding the elevation changes along a route ensures participants are physically ready for the challenges ahead. ✓ Campsite Selection: They help in finding suitable camping spots. ✓ Safety Planning: Identifying escape routes and safe zones in case of emergencies. ✓ Landmark Identification: Recognizing landmarks such as peaks, valleys, and other significant landforms. ✓ Trail Information: They often show established 	<p>[2] Interpretation of Topographical Map</p>	<p>CBQ</p>	<p>Time and Space</p>	<p>Apply appropriate geospatial technology to design maps and interpret geographical concepts.</p>	<p>Interpret the topographical map</p>	<p>Understanding</p>
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<p>trails and paths, which can be useful for planning routes that are safe and well-traveled.</p> <p>✓ Any relevant answers</p>												
<p align="center">Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Correct point</td> <td>1</td> </tr> <tr> <td>Two Correct points</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One Correct point	1	Two Correct points	2						
Criteria	Marks											
One Correct point	1											
Two Correct points	2											
<p>iv. Tourism plays a very important role in generating employment opportunities and income in Bhutan. How can you boost tourism industry in the given map? Justify with TWO reasons.</p>	[2]	Interpretation of Topographical Map	CBQ	Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Interpret the topographical map Creating						
<p>✓ Improve Transportation</p> <p>✓ Accommodation: Develop eco-friendly and culturally immersive accommodations like boutique hotels, homestays, and campsites.</p> <p>✓ Digital Infrastructure: Ensure reliable internet and mobile.</p> <p>✓ Cultural Tours: Offer guided tours of local monasteries, festivals, and traditional crafts,</p>												

<p>showcasing Bhutan's rich cultural heritage.</p> <ul style="list-style-type: none"> ✓ Nature and Adventure Tourism: Develop hiking, trekking ✓ Local Festivals and Events: Promote local festivals and cultural events. ✓ ANY relevant answers 													
<p>Marking Scheme</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Criteria</th> <th style="text-align: center;">Marks</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">One Correct answer</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">Two Correct answers</td> <td style="text-align: center;">2</td> </tr> </tbody> </table>	Criteria	Marks	One Correct answer	1	Two Correct answers	2							
Criteria	Marks												
One Correct answer	1												
Two Correct answers	2												
<p>v. The R.F of the given map 78M/3 is 1: 50,000. However, if the R.F of the map is 1: 600,000, what would be the statement scale of the map?</p>	<p>[2]</p>	<p>Interpretation of Topographical Map</p>		<p>Time and Space</p>	<p>Apply appropriate geospatial technology to design maps and interpret geographical concepts.</p>	<p>Interpret the topographical map</p>	<p>Applying</p>						

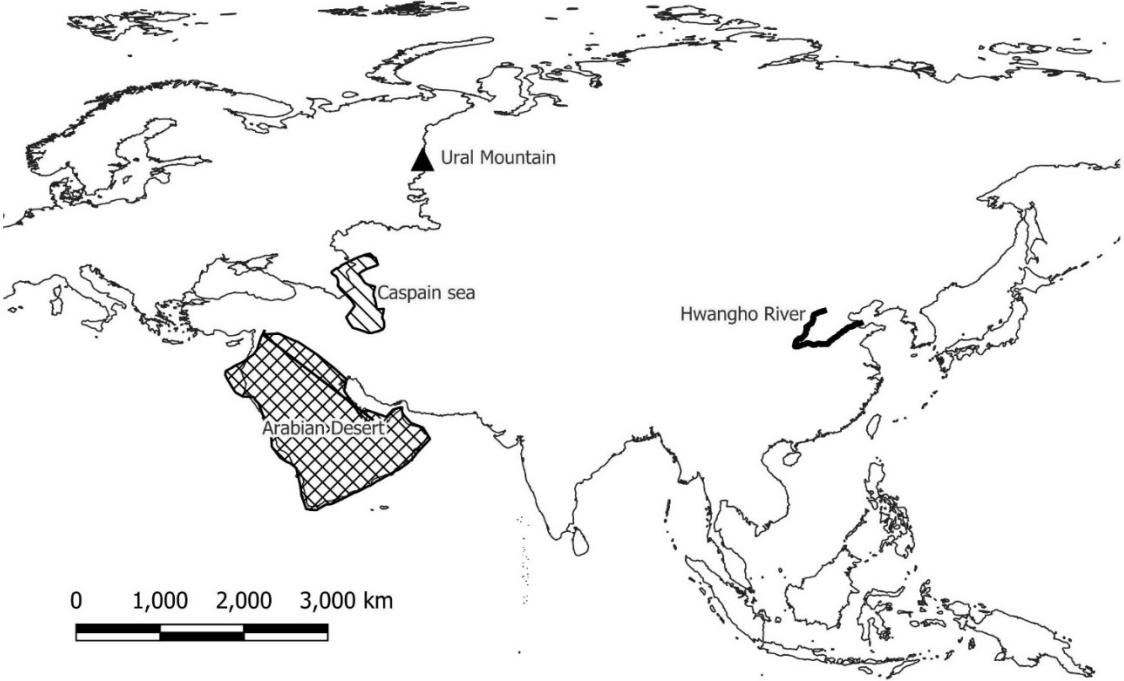
<p>Answer</p> <p>R.F = 1: 100,000</p> <p>i.e 1cm = 100,000 cm</p> <p>1 km = 100, 000 cm</p> <p>Therefore, 600000/100,000 = 6 km</p> <p>The scale is</p> <p>1cm = 6 Km</p>													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Conversion of cm to km</td> <td>1</td> </tr> <tr> <td>Correct answer</td> <td>1</td> </tr> </tbody> </table>	Criteria	Marks	Conversion of cm to km	1	Correct answer	1							
Criteria	Marks												
Conversion of cm to km	1												
Correct answer	1												
<p>vi. If you are a Dzongkhag agricultural officer and wants to promote advanced agricultural practices, which area in the topographical map do you think would be suitable for this purpose? Explain with TWO reasons.</p>	<p>[2]</p>	<p>Interpretation of Topographical Map</p>	<p>CBQ</p>	<p>Time and Space</p>	<p>Apply appropriate geospatial technology to design maps and interpret geographical concepts.</p>	<p>Interpret the topographical map</p>	<p>Analysing</p>						
<p>Answers</p> <p>North Eastern, North Western, South Western part of the map because of:</p>													

<ul style="list-style-type: none"> ✓ Flat land ✓ Water Proximity ✓ Soil Fertility ✓ Moderate Elevation ✓ Road Access 													
Marking Scheme													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct answer</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Two correct answers</td> <td style="text-align: center;">2</td> </tr> </tbody> </table>								Criteria	Marks	One correct answer	1	Two correct answers	2
Criteria	Marks												
One correct answer	1												
Two correct answers	2												
vii. How is the drainage pattern in grid square 2030 different from 2060?	[2]	Interpretation of Topographical Map		Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.	Interpret the topographical map	Analysing						

<p>Answer</p> <table border="1"> <thead> <tr> <th>2030</th> <th>2060</th> </tr> </thead> <tbody> <tr> <td>The main river and its tributaries join at relatively low angles</td> <td>Tributaries join the main streams at near right angles.</td> </tr> <tr> <td>Tree-like, branching pattern.</td> <td>Rectangular, grid-like pattern with parallel main streams and perpendicular tributaries.</td> </tr> <tr> <td>Formed on homogenous, uniform rock.</td> <td>Formed in regions with alternating resistant and less resistant rock layers.</td> </tr> </tbody> </table>	2030	2060	The main river and its tributaries join at relatively low angles	Tributaries join the main streams at near right angles.	Tree-like, branching pattern.	Rectangular, grid-like pattern with parallel main streams and perpendicular tributaries.	Formed on homogenous, uniform rock.	Formed in regions with alternating resistant and less resistant rock layers.							
2030	2060														
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Criteria	Marks														
Any TWO correct differences	2														
Any ONE correct difference	1														
viii. Study the area in grid square 6060. Is the establishment of a large-scale agro-based industry	[2]	Interpretation of Topographical Map		Time and Space	Apply appropriate geospatial technology	Interpret the topographical map	Evaluating								

feasible in it? Support your answer with TWO reasons.					to design maps and interpret geographical concepts.								
YES: <ul style="list-style-type: none"> ✓ Access to Raw Materials: Proximity to agricultural raw materials. ✓ Climate and Soil Conditions: Favorable climate and soil conditions. ✓ Water Availability: Water supply available for irrigation, processing, and other industrial needs. ✓ Transportation Infrastructure: Transportation links (roads) available. ✓ Market Proximity: Proximity to markets for both inputs and outputs. 													
Marking Scheme <table border="1" style="margin: 10px auto; width: 80%;"> <thead> <tr> <th style="text-align: center;">Criteria</th> <th style="text-align: center;">Marks</th> </tr> </thead> <tbody> <tr> <td>Any TWO correct differences</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Any ONE correct difference</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	Criteria	Marks	Any TWO correct differences	2	Any ONE correct difference	1							
Criteria	Marks												
Any TWO correct differences	2												
Any ONE correct difference	1												
ix. You are living in Kurizampa and wants to visit	1	Interpretation of Topographical	CBQ	Time and Space	Apply appropriate geospatial	Interpret the topographical	Applying						

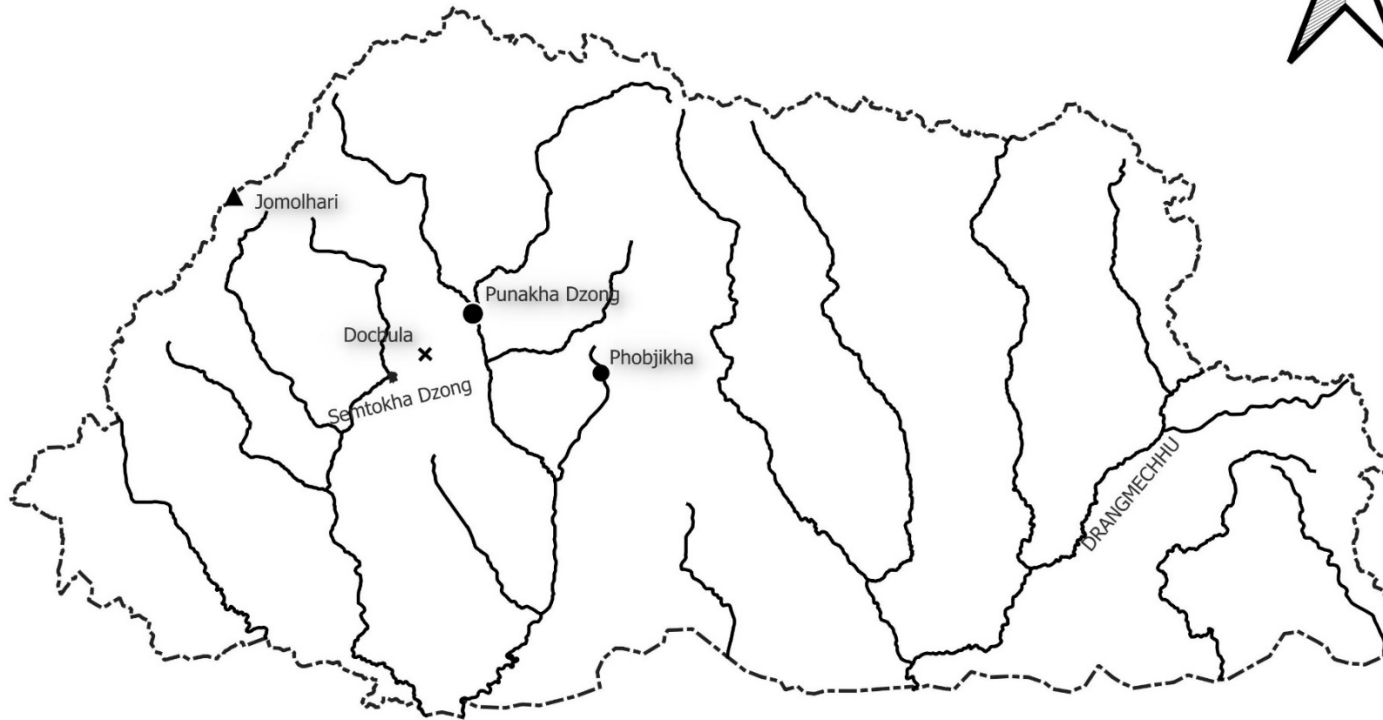
Asia Map



- Hwangho river.
- ▲ Ural Mountain.
- Europe
- ▨ Caspian sea.
- ▩ Arabian Desert.
- Asia

<p>g) In the outline map of Bhutan provided:</p> <p>i. Mark with thick line and name the river with the largest drainage basin in Bhutan.</p> <p>ii. Mark with 'X' and name the La (Pass) where 108 Druk Wangyal Chotens are found.</p> <p>iii. Mark with (▲) and name Jhomolhari.</p> <p>iv. Mark 'DZ' over the first dzong built by Zhabdrung Ngawang Namgyal.</p> <p>v. Mark with a dot (●) over the place where black necked crane festival is conducted annually.</p> <p>vi. Mark with a dot (●) and name Punakha Dzong</p>	[6]	Map Reading and interpretation	<p>i. CBQ</p> <p>ii. CBQ</p> <p>iii. ..</p> <p>iv. CBQ</p> <p>v. CBQ</p> <p>vi. ...</p>	Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts.		Applying
Answer							

BHUTAN MAP




Legends

- | | |
|------------------|-------------------|
| × Dochula. | ■ Semtokha Dzong. |
| ● Punakha Dzong. | — Major river |
| ● Phobjikha. | ⋮ Bhutan_Boundary |
| ▲ Jomolhari. | |

SECTION B (50 MARKS)							
ANSWER ANY FIVE QUESTIONS							
		Topic/Page no.	CBQ	Strands	Competencies	Learning objectives	Blooms level

Question 2

<p>a) There are several types of survey equipment needed for plane table survey. Name the equipment shown below and write its' uses.</p> 	[2]			Time and Space	<p>Apply appropriate geospatial technology to design maps and interpret geographical concepts.</p>	<p>Explain the concept of survey.</p>	Remembering						
<ul style="list-style-type: none"> ✓ Tripod/table stand/three-legged stand ✓ Support the plane table 													
Marking Scheme													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Criteria</th> <th style="width: 30%;">Marks</th> </tr> </thead> <tbody> <tr> <td>Naming</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Its' uses</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>								Criteria	Marks	Naming	1	Its' uses	1
Criteria	Marks												
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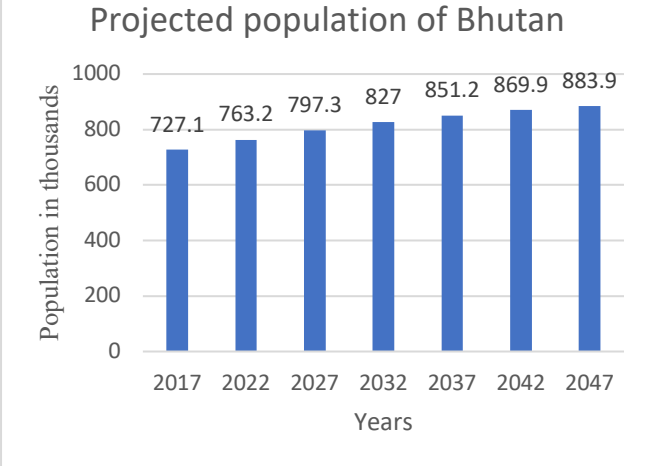
b) Population in the world is growing at the rate of around 0.91% in 2024. There is a decrease from 1.19% in 2015. Write TWO factors which have contributed to the drop in the population growth rate.	[2]		CBQ	People and Environment	Examine the role of human activities to understand the distribution of population and settlement.	Discuss the causes of population growth.	Understanding						
Answers: <ul style="list-style-type: none"> ✓ Declining Fertility Rates ✓ Increased Life Expectancy ✓ Socio-economic Factors ✓ Access to Education and Healthcare ✓ Pre perceptions and impacts of policies ✓ Political factors ✓ Any relevant answers 													
Marking Scheme <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Correct answer</td> <td>1</td> </tr> <tr> <td>Two correct answer</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One Correct answer	1	Two correct answer	2							
Criteria	Marks												
One Correct answer	1												
Two correct answer	2												
c) Alfred Wegner states that at one point of time, all of	[2]		CBQ	Physical	Analyse the	Explain the							

<p>the continents were joined together as one large mass of land, then the land spread apart and drifted into their current positions. What would have happened if the continents remained as a single land mass called Pangea. Write TWO consequences.</p>				Environment	geomorphic processes to understand the significance of land features.	formation of Himalayan Mountain system with reference to Continental drift theory and Plate Tectonics theory.	Creating/Analyzing
<p>Answers:</p> <ul style="list-style-type: none"> ✓ large desert areas due to lack of moisture ✓ Different distribution of flora and fauna ✓ Less variety of species ✓ Easier migration of species ✓ Similar culture and tradition ✓ More interaction ✓ similar climatic condition. ✓ No formation of Himalayas, ✓ One continent ✓ Political conflicts ✓ Surrounded by one ocean ✓ Any relevant answers 							

<p>d) Mining brings about huge socio-economic benefits, but at the cost of environment. Do you agree? Support your stand with TWO reasons.</p>	<p>[2]</p>			<p>People and Environment</p>	<p>Assess the significance of natural resources to understand resource conservation and sustainable use.</p>	<p>Analyse the impact of industries.</p>	<p>Evaluating</p>
<p>Answer</p> <p>Yes</p> <ul style="list-style-type: none"> ✓ Generates income ✓ Job opportunities ✓ Infrastructure development ✓ Community development ✓ Any other relevant answers <p>No</p> <ul style="list-style-type: none"> ✓ Health hazards ✓ Soil degradation ✓ Forest degradation ✓ Air pollution ✓ Effects the health of vegetation ✓ Exhaust the natural resources ✓ Mineral degradation ✓ Any other relevant answers 							

Marking Scheme																			
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Correct answer</td> <td>1</td> </tr> <tr> <td>Two correct answer</td> <td>2</td> </tr> <tr> <td>Both the stands written</td> <td>0</td> </tr> <tr> <td>No stand but only justifications</td> <td>0</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Criteria	Marks	One Correct answer	1	Two correct answer	2	Both the stands written	0	No stand but only justifications	0								
Criteria	Marks																		
One Correct answer	1																		
Two correct answer	2																		
Both the stands written	0																		
No stand but only justifications	0																		
e)	Highlanders in Bhutan make a living by collecting cordyceps, while farmers in the southern part of Bhutan depend on agriculture for their livelihoods. In line with the statement, if you are given the choice, where would you live and why? Give TWO reasons.	[2]		CBQ	Physical Environment	Explore the function of places and regions in determining the cultural identity that unifies the society	Discuss the impact of the climatic zone on its inhabitants.	Evaluating											
Answer																			
Northern part of Bhutan:																			
✓ Cool Temperatures																			

<ul style="list-style-type: none"> ✓ Varied Flora and Fauna ✓ Strong sense of community ✓ Harvest cordyceps ✓ Fresh water, air ✓ No pollution, ✓ Beautiful scenes ✓ <p>Southern part of Bhutan:</p> <ul style="list-style-type: none"> ✓ Possibility of advance Agriculture and Horticulture ✓ Better Trade and Commerce ✓ Cultural Diversity ✓ Accessibility of better infrastructures ✓ Favourable climate, ✓ Transportation services 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct justification</td> <td>1</td> </tr> <tr> <td>Two correct justifications</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One correct justification	1	Two correct justifications	2							
Criteria	Marks												
One correct justification	1												
Two correct justifications	2												
<p>Question 3</p>													

<p>a)</p>  <p>The figure shows projected population of Bhutan, 2022-2047 (in thousands). Calculate the population growth from 2022 to 2027.</p>	<p>[2]</p>		<p>People and Environment</p>	<p>Examine the role of human activities to understand the distribution of population and settlement.</p>	<p>Project the population trend.</p>	<p>Applying</p>
<p>✓ Population of 2022= 763.2 thousand ✓ Population of 2027 = 797.3 thousand Therefore, the population growth = $797.3 - 763.2 = 34.1$ thousand</p>						

Marking Scheme															
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correct mention of population of both years</td> <td>1</td> </tr> <tr> <td>Correct answer</td> <td>1</td> </tr> <tr> <td>Correct mention of one of the years</td> <td>0.5</td> </tr> </tbody> </table>		Criteria	Marks	Correct mention of population of both years	1	Correct answer	1	Correct mention of one of the years	0.5						
Criteria	Marks														
Correct mention of population of both years	1														
Correct answer	1														
Correct mention of one of the years	0.5														
b)	Punakha valley is known for its fertile land and favorable climate and is one of Bhutan's key agricultural regions. However, farmers face challenges in adopting modern farming techniques and technologies. Justify with TWO points. 3 A-C same question	[2]		CBQ	People and Environment	Assess the significance of natural resources to understand resource conservation and sustainable use.	Identify challenges associated with farming.	Evaluating							
Answers <ul style="list-style-type: none"> ✓ Mountainous Terrain: The rugged and mountainous terrain of Bhutan makes it difficult to implement large-scale modern farming techniques. ✓ Climate Variability: ✓ High Costs: Modern farming equipment and 															

<p>technology are often expensive</p> <ul style="list-style-type: none"> ✓ Limited Infrastructure: Inadequate infrastructure, such as roads and transportation networks ✓ Lack of Training: Many farmers lack the necessary training and education ✓ Limited Availability: Modern farming technologies may not be readily available in Bhutan ✓ Market Access: Farmers may struggle with limited access to markets ✓ Land fragmentation ✓ Belief system 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct justification</td> <td>1</td> </tr> <tr> <td>Two correct justifications</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One correct justification	1	Two correct justifications	2							
Criteria	Marks												
One correct justification	1												
Two correct justifications	2												
<p>c) Walter Christaller stated that people travel shorter distances to purchase basic necessities, such as salt and rice in Central Place Theory. Elaborate.</p>	[2]			People and Environment	Examine the role of human activities to understand the distribution of	Discuss spatial distribution of settlement	Analysing						

					population and settlement.	with reference to Central Place Theory.	
<p>Answer:</p> <ul style="list-style-type: none"> ✓ Basic necessities like salt and rice are in constant demand. People purchase these items frequently, so they prefer to travel shorter distances to obtain them. ✓ Low Cost and Margin: Basic necessities are usually low-cost items with low profit margins. Traveling long distances for inexpensive items is not economically justified for consumers. ✓ Availability: These items are universally demanded, so they are widely available in many small, local shops. ✓ Time and Effort: People aim to minimize the time and effort spent on routine shopping. 							

Marking Scheme													
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct reason</td> <td>1</td> </tr> <tr> <td>Two correct reasons</td> <td>2</td> </tr> </tbody> </table>		Criteria	Marks	One correct reason	1	Two correct reasons	2						
Criteria	Marks												
One correct reason	1												
Two correct reasons	2												
d)	Mitigating disasters involves a comprehensive approach that includes preparedness, response, recovery, and mitigation strategies. There have been more than 1,400 forest fire incidents in Bhutan in the last ten years. Suggest TWO methods to fight fire incidences.	[2]		CBQ	People and Environment	Use indigenous and scientific knowledge to explain ways of managing disasters.	Suggest mitigation measures to reduce impact of disaster	Evaluating					
	<p>Answer</p> <ul style="list-style-type: none"> ✓ Educate the public about the causes and consequences of forest fires. ✓ Create firebreaks by clearing vegetation ✓ Use satellite imagery to monitor large forest areas for signs of fire. ✓ Ensure the availability of water sources ✓ Use helicopters and planes to drop water ✓ Fire alarm/ detectors 												

<ul style="list-style-type: none"> ✓ Call fire fighters ✓ Any relevant answers 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct answer</td> <td>1</td> </tr> <tr> <td>Two correct answer</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One correct answer	1	Two correct answer	2							
Criteria	Marks												
One correct answer	1												
Two correct answer	2												
<p>e) When it is 5:48 P.M in Singapore it is 4 P.M in New Delhi (77°E). What is the longitude of Singapore?</p>	[2]			Time and Space	Examine the significance of geographical coordinates with reference to location and time.	Determine longitude and time.	Applying						
<p>Time difference = 5:48 - 4 = 1Hour and 48 minutes</p> <p>1 hour = 15°</p> <p>or</p> <p>4 minutes = 1°</p> <p>1hours 48 minutes = 60+48=108 Minutes</p> <p>108/4 = 27°</p> <p>The longitude difference is 27°</p>													

So, the longitude at place B is $77+27= 104^{\circ}$ E													
Marking Scheme <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correct time difference</td> <td>1</td> </tr> <tr> <td>Correct answer (longitude)</td> <td>1</td> </tr> </tbody> </table>	Criteria	Marks	Correct time difference	1	Correct answer (longitude)	1							
Criteria	Marks												
Correct time difference	1												
Correct answer (longitude)	1												
Question 4													
a) Latitudes and longitudes play a pivotal role in diverse contexts due to their usefulness. Write TWO uses of latitude.	[2]			Time and Space	Examine the significance of geographical coordinates with reference to location and time	Evaluate the significance of latitudes and longitudes.	Remembering						
Answer <ul style="list-style-type: none"> ✓ locating position on the Earth's surface ✓ locating celestial objects in the sky ✓ determining heat zones/climatic zones/vegetation and wildlife ✓ Distance north or south of equator ✓ Any relevant answers 													

Marking Scheme													
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct use of latitude</td> <td>1</td> </tr> <tr> <td>Two correct uses of latitude</td> <td>2</td> </tr> </tbody> </table>		Criteria	Marks	One correct use of latitude	1	Two correct uses of latitude	2						
Criteria	Marks												
One correct use of latitude	1												
Two correct uses of latitude	2												
b)	The population of Bhutan is unevenly distributed. If you are the Prime Minister of Bhutan, what TWO measures would you adopt to encourage people to settle in sparsely populated areas, so that there is equal distribution of population.	[2]		CBQ	People and Environment	Examine the role of human activities to understand the distribution of population and settlement.	Discuss the causes of population growth.	Analysing					
	<p>Answer</p> <ul style="list-style-type: none"> ✓ Job Creation Programs ✓ Entrepreneurship Support ✓ Improve Transport Infrastructure ✓ Ensure reliable telecommunications ✓ Build affordable housing options ✓ Establish Healthcare Facilities ✓ Build Educational Institutions ✓ Develop recreational and cultural amenities 												

<ul style="list-style-type: none"> ✓ Incentives ✓ Any other relevant answers 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct measure</td> <td>1</td> </tr> <tr> <td>Two correct measures</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One correct measure	1	Two correct measures	2							
Criteria	Marks												
One correct measure	1												
Two correct measures	2												
<p>c) Greenwich Mean Time (GMT) plays a crucial role in the history of timekeeping, but it has limitations with the evolving needs of modern society. Support with TWO reasons.</p>	[2]			Time and Space	Examine the significance of geographical coordinates with reference to location and time.	Determine longitude and time.	Analysing						
<p>Answer</p> <ul style="list-style-type: none"> ✓ less precise compared to modern atomic timekeeping standards. ✓ GMT can create confusion in a world with multiple time zones. ✓ Incompatibility with modern systems ✓ Lack of global standardization ✓ Any other relevant answers 													

Marking Scheme													
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct limitation</td> <td>1</td> </tr> <tr> <td>Two correct limitations</td> <td>2</td> </tr> </tbody> </table>		Criteria	Marks	One correct limitation	1	Two correct limitations	2						
Criteria	Marks												
One correct limitation	1												
Two correct limitations	2												
d)	New pests, such as the fall armyworm, have posed a major risk to maize cultivation since 2019 in Bhutan. Also, Giant African Land Snails, have caused large damage to vegetable crops since 2010. Suggest TWO strategies to overcome such issues.	[2]		CBQ	People and Environment	Assess the significance of natural resources to understand resource conservation and sustainable use.	Suggest measures to overcome or mitigate problems of farming.	Creating					
Answers <ul style="list-style-type: none"> ✓ Develop and use pest-resistant crop varieties through conventional breeding ✓ Educate farmers on best practices for pest management and early detection techniques ✓ Use beneficial insects like ladybugs and predatory beetles that prey on pests. ✓ Rotate crops to disrupt the life cycle of pests and reduce their populations 													

<ul style="list-style-type: none"> ✓ Use targeted and environmentally friendly pesticides to control pest populations. ✓ Any other relevant answers 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct strategy</td> <td>1</td> </tr> <tr> <td>Two correct strategies</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One correct strategy	1	Two correct strategies	2							
Criteria	Marks												
One correct strategy	1												
Two correct strategies	2												
<p>e) About 42,829 Bhutanese citizens are residing in 112 countries worldwide. Is it wise to migrate to other countries? Justify with TWO reasons.</p>	[2]		CBQ	People and Environment	Examine the role of human activities to understand the distribution of population and settlement	Explain migration and its type.	Evaluating						
<p>Answer</p> <p>Yes:</p> <ul style="list-style-type: none"> ✓ Exposure to new cultures ✓ Learning opportunities ✓ Better job prospects ✓ Professional development opportunities and experiences. ✓ Expand social and professional network globally. 													

<ul style="list-style-type: none"> ✓ Any other relevant answers <p>No</p> <ul style="list-style-type: none"> ✓ Adapting to a new culture can be challenging ✓ Impact on financial stability and lifestyle. ✓ Finding a stable job may be difficult ✓ May face different safety and security challenges. ✓ Any other relevant answers 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One correct justification</td> <td>1</td> </tr> <tr> <td>Two correct justifications</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	One correct justification	1	Two correct justifications	2							
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One correct justification	1												
Two correct justifications	2												
<p>Question 5</p>													
<p>a) The Geological Time Scale(GTS) is a system of chronological dating of geographical strata compared to time. Arrange the following era in chronological order.</p> <p>i. Precambrian ii. Mesozonic iii. Paleozoic iv. Cenozoic</p>	<p>[2]</p>			<p>Physical Environment</p>	<p>Analyse the geomorphic processes to understand the significance of land features.</p>	<p>Interpret geological time scale.</p>	<p>Remembering</p>						

<p>Answer</p> <p>✓ i. Cenozoic ii. Mesozonic iii. Paleozoic iv. Precambrian</p> <p>✓ i. Precambrian, ii. Paleozoic, iii. Mesozoic, iv. cenozoic</p>																	
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One in correct order</td> <td>0.5</td> </tr> <tr> <td>Two in correct order</td> <td>0.5</td> </tr> <tr> <td>Three in correct order</td> <td>0.5</td> </tr> <tr> <td>All four in correct order</td> <td>0.5</td> </tr> </tbody> </table>	Criteria	Marks	One in correct order	0.5	Two in correct order	0.5	Three in correct order	0.5	All four in correct order	0.5							
Criteria	Marks																
One in correct order	0.5																
Two in correct order	0.5																
Three in correct order	0.5																
All four in correct order	0.5																
<p>b) The Solar Nebula Theory explains the formation and evolution of our solar system. It is a widely accepted model, Why?</p>	[3]			Time and Space	Examine the origin of the universe to understand the astronomical geography	Discuss the origin of the Earth with reference to the Big Bang and Solar Nebula Theory. (3+3)	Analysing										
<p>Answer</p>																	

<ul style="list-style-type: none"> ✓ Protoplanetary Disks: Observations of young stars with surrounding disks of gas and dust (protoplanetary disks) support the idea that solar systems form from such disks. ✓ Meteorites: The composition and age of meteorites provide clues about the early solar system and support the timeline proposed by the Solar Nebula Theory. ✓ Evolution of the Sun: The Solar Nebula Theory also provides insights into the evolution of the Sun. ✓ Chemical Composition: The chemical composition of the Sun and planets is consistent with predictions made by the Solar Nebula Theory. 															
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct reason</td> <td>1</td> </tr> <tr> <td>Any two correct reason</td> <td>2</td> </tr> <tr> <td>Any three correct reason</td> <td>3</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct reason	1	Any two correct reason	2	Any three correct reason	3							
Criteria	Marks														
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Any three correct reason	3														

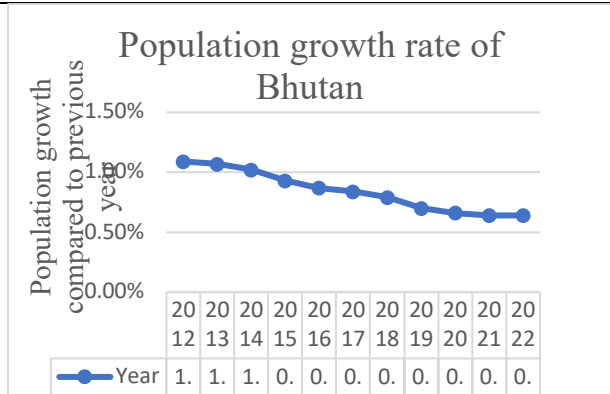
c) Google Earth is a powerful geospatial tool that offers important features and functionalities necessary for our daily life. Justify with ONE reason.	[1]			Time and Space	Apply appropriate geospatial technology to design maps and interpret geographical concepts	Design maps using geo spatial technology	Evaluating				
Answer <ul style="list-style-type: none"> ✓ Exploration and Visualization(mapping) ✓ Education and Learning ✓ Planning and Analysis ✓ Navigation and Travel ✓ Business and Marketing ✓ Disaster Response and Relief ✓ Personal Use and Entertainment ✓ Any relevant answers 											
Marking Scheme <table border="1" style="margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Criteria</th> <th style="text-align: left;">Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct justification</td> <td>1</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct justification	1							
Criteria	Marks										
Any one correct justification	1										
d) Smart Factory Concept represents advanced technologies to create highly flexible, efficient, and	[2]			People and Environm	Assess the significance of natural resources to	Analyse the impact of industries	Analysing				

<p>automated manufacturing environments. Examine how it would reduce waste and improve resource utilization. Mention TWO points</p>				ent	understand resource conservation and sustainable use.								
<p>Answer</p> <ul style="list-style-type: none"> ✓ Real-time Monitoring and Control ✓ Optimized Production Planning ✓ Energy Efficiency ✓ Quality Control and Defect Reduction ✓ Waste Reduction ✓ Green Technologies ✓ Any other relevant answers 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct reason</td> <td>1</td> </tr> <tr> <td>Any two correct reasons</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct reason	1	Any two correct reasons	2							
Criteria	Marks												
Any one correct reason	1												
Any two correct reasons	2												
<p>e) The most widely adopted climate-smart agricultural practices in Bhutan include seed saving, crop rotation, and terracing. Do you think the practice of climate smart agriculture would increase</p>	[2]		CBQ	People and Environment	Assess the significance of natural resources to understand resource conservation and	Explore the concept of smart agriculture.	Evaluating						

<p>agriculture productivity? Support your answer with TWO reasons.</p>					sustainable use.		
<p>Answer</p> <p>Yes</p> <ul style="list-style-type: none"> ✓ Using organic fertilizers, crop rotations, and integrated nutrient management ensures balanced soil fertility, promoting vigorous plant growth and productivity. ✓ Implementing rainwater harvesting techniques and efficient irrigation systems reduces water wastage ✓ Introducing crop diversification and intercropping reduces dependency on single crops and enhances resilience against climate variability, pests, and diseases. ✓ Developing and adopting climate-resilient crop varieties that are tolerant to drought, heat, pests, and diseases ensures consistent yields ✓ Planting early maturing varieties reduces exposure to extreme weather events and allows for quicker recovery from climate-related shocks, 							

maintaining productivity levels.													
Marking Scheme													
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Criteria	Marks												
Any one correct reason	1												
Any two correct reasons	2												
Question 6													
a) If you want to start an industry, what are the factors you would consider before setting up the industry?	[2]			People and Environment	Assess the significance of natural resources to understand resource conservation and sustainable use	Explain factors affecting location of industries.	Understanding						
Answer <ul style="list-style-type: none"> ✓ Proximity to Raw Materials ✓ Transportation and Infrastructure ✓ Market Access ✓ Labor Availability and Skills ✓ Risk and Resilience ✓ Long-term Growth Potential 													

<p>✓ Any other relevant answers</p>												
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct reason</td> <td>1</td> </tr> <tr> <td>Any two correct reasons</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct reason	1	Any two correct reasons	2						
Criteria	Marks											
Any one correct reason	1											
Any two correct reasons	2											
<p>b) The graph shows the population growth rate in Bhutan from 2012 to 2022. The annual population growth in Bhutan gradually declined in the last ten years. What would be the consequences if a similar trend continues?</p>	<p>[2]</p>			<p>Examine the role of human activities to understand the distribution of population and settlement.</p>	<p>Project the population trend.</p>	<p>Analysing</p>						



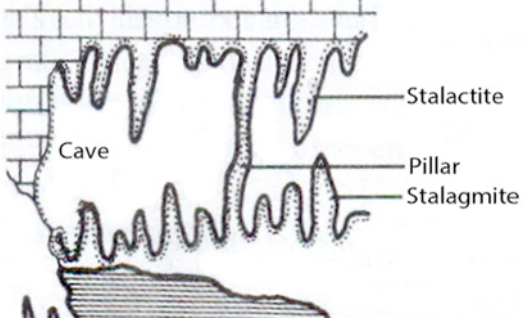
<p>Answer</p> <ul style="list-style-type: none"> ✓ Declining labor force ✓ Decline in the size of the working-age population, ✓ Aging Population ✓ Higher proportion of elderly dependents ✓ Depopulation, ✓ Decline economic output ✓ Reduce overall resource consumption and environmental pressures ✓ Gungtong ✓ Any relevant answers 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct answer</td> <td>1</td> </tr> <tr> <td>Any two correct answers</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct answer	1	Any two correct answers	2							
Criteria	Marks												
Any one correct answer	1												
Any two correct answers	2												
<p>c) Bhutan is highly vulnerable to earthquakes as it lies in active seismic zone. How would you improve the building structures to prevent from hazards? Write TWO ways to improve the structures.</p>	[2]		CBQ	People and Environment	Use indigenous and scientific knowledge to explain ways of managing disasters.	Suggest mitigation measures to reduce impact of disaster	Creating						

<p>Answer</p> <ul style="list-style-type: none"> ✓ Adopt and Enforce Building Codes: Implement strict building codes that are specifically designed for seismic resilience. ✓ Use of Flexible Materials: Incorporate materials that can absorb and dissipate energy, such as steel-reinforced concrete, which is more flexible and can better withstand seismic forces. ✓ Base Isolation Systems: Install base isolators to allow buildings to move independently of ground motion. ✓ Reinforce Foundations: Strengthen building foundations to improve their stability and load-bearing capacity during an earthquake. ✓ Retrofitting Existing Buildings: Upgrade older buildings that were not designed to withstand earthquakes. This can involve adding shear walls, bracing, and other reinforcement measures to increase their structural integrity. 							
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Marking Scheme														
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct reason</td> <td>1</td> </tr> <tr> <td>Any two correct reasons</td> <td>2</td> </tr> </tbody> </table>		Criteria	Marks	Any one correct reason	1	Any two correct reasons	2							
Criteria	Marks													
Any one correct reason	1													
Any two correct reasons	2													
d)	Compare species diversity with genetic diversity.	[2]			People and Environment	Analyse the effects of interactions amongst the spheres to understand biodiversity.	Compare ecosystem with biodiversity. (2)	Analysing						
Answer														
<table border="1"> <thead> <tr> <th>Species</th> <th>Genetic</th> </tr> </thead> <tbody> <tr> <td>Compare species diversity with genetic diversity</td> <td>Total number of genetic characteristics</td> </tr> <tr> <td>High species diversity is indicative of a healthy ecosystem</td> <td>Genetic diversity is crucial for the adaptation and evolution of species to changing</td> </tr> </tbody> </table>		Species	Genetic	Compare species diversity with genetic diversity	Total number of genetic characteristics	High species diversity is indicative of a healthy ecosystem	Genetic diversity is crucial for the adaptation and evolution of species to changing							
Species	Genetic													
Compare species diversity with genetic diversity	Total number of genetic characteristics													
High species diversity is indicative of a healthy ecosystem	Genetic diversity is crucial for the adaptation and evolution of species to changing													

	environmental conditions.													
Factors influencing species diversity include habitat, climate, geographic location.	Factors influencing genetic diversity include population size, reproductive strategies and gene flow													
Marking Scheme														
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct difference</td> <td>1</td> </tr> <tr> <td>Any two correct differences</td> <td>2</td> </tr> </tbody> </table>		Criteria	Marks	Any one correct difference	1	Any two correct differences	2							
Criteria	Marks													
Any one correct difference	1													
Any two correct differences	2													
e)	How can technology enhance the application of life saving skills in disaster? Provide TWO uses.	[2]			People and Environment	Use indigenous and scientific knowledge to explain ways of managing disasters.	Apply lifesaving skills to minimise disaster risk	Analysing						
Answer														
✓ Technology can provide early warnings for														

<p>natural disasters such as earthquakes, flood, tsunami etc.</p> <ul style="list-style-type: none"> ✓ Disaster preparedness and response apps can provide real-time information ✓ Drones can be used for search and rescue operations, delivering medical supplies, and assessing damage in areas that are difficult to reach by humans ✓ GIS technology can map disaster-prone areas, track the spread of disasters, and coordinate response efforts by providing accurate and up-to-date geographical information. ✓ Geospatial technologies ✓ Any other relevant answers 													
<p>Marking Scheme</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Criteria</th> <th style="text-align: left;">Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct difference</td> <td>1</td> </tr> <tr> <td>Any two correct differences</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct difference	1	Any two correct differences	2							
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Any one correct difference	1												
Any two correct differences	2												
<p>Question 7</p>													

<p>a) The figure shows features formed as a result of depositional work of underground water. Describe how stalagmite is formed.</p> 	[2]		Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss groundwater and Karst Topography.	Understanding
<p>Answer</p> <ul style="list-style-type: none"> ✓ Stalagmites are formations that grow upward from the floor of a cave. They are created by water that drips from the ceiling of the cave, which contains dissolved minerals like calcium carbonate. ✓ When the water droplets fall and land on the cave floor, they leave behind a tiny amount of these minerals. ✓ Over a long time, these mineral deposits build up, layer by layer, forming a stalagmite. 						

Marking Scheme													
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Describes correct process</td> <td>2</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Criteria	Marks	Describes correct process	2								
Criteria	Marks												
Describes correct process	2												
b)	Write TWO negative impacts of tourism on Karst landscapes.	[2]			Physical Environment	Analyse the geomorphic processes to understand the significance of land features.	Discuss groundwater and Karst Topography.	Understanding					
	<p>Answer</p> <ul style="list-style-type: none"> ✓ Erosion of fragile karst features ✓ Damaged of caves and other delicate formations ✓ Waste from tourism activities can contaminate the groundwater ✓ Increased vehicle traffic and construction can lead to air pollution ✓ disturb wildlife, leading to displacement and disruption of natural behaviors ✓ Destroy vegetation ✓ Any relevant answers 												

Marking Scheme													
<table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct impact</td> <td>1</td> </tr> <tr> <td>Any two correct impacts</td> <td>2</td> </tr> </tbody> </table>		Criteria	Marks	Any one correct impact	1	Any two correct impacts	2						
Criteria	Marks												
Any one correct impact	1												
Any two correct impacts	2												
c)	Forest-based industry dominates in all Dzongkhags of Bhutan, except in Samtse and Sarbang. What are the long-term negative impacts of forest-based industries on forest ecosystems?	[2]			People and Environment	Assess the significance of natural resources to understand resource conservation and sustainable use.	Classify different sectors and types of industries	Analysing					
Answer <ul style="list-style-type: none"> ✓ Biodiversity Decline: The removal of forests leads to the loss of habitats for countless species, which can result in decreased biodiversity. ✓ Endangered Species: Many species that rely on specific forest habitats may become endangered or extinct. ✓ Fragmentation: Large continuous tracts of 													

<p>forest are often broken into smaller, isolated patches, which can disrupt ecosystems and species migration.</p> <ul style="list-style-type: none"> ✓ Erosion: The removal of trees and vegetation can lead to increased soil erosion, reducing the soil's fertility and structure. ✓ Nutrient Loss: Logging and other forest-based activities can deplete essential soil nutrients, impacting plant growth and forest regeneration. ✓ Any other relevant answer 													
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<p>d) Houses in Lunana have thick walls made of stone or rammed earth. The rooftops are typically sloped and made up of wood or slate. Why? Give TWO reasons</p>	[2]		CBQ	Physical Environment	Explore the function of places and regions in determining the cultural identity that unifies the society	Discuss the impact of the climatic zone on its inhabitants.	Analysing						

<p>Answer</p> <ul style="list-style-type: none"> ✓ Houses often have thick walls for insulation. ✓ Roofs are typically sloped and made of wood or slate to allow snow to slide off. 													
<p>Marking Scheme</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Any one correct reason</td> <td>1</td> </tr> <tr> <td>Any two correct reasons</td> <td>2</td> </tr> </tbody> </table>	Criteria	Marks	Any one correct reason	1	Any two correct reasons	2							
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<p>e) Many Bhutanese communities depend on biodiversity for their livelihoods, including agriculture, forestry, and ecotourism. Develop a biodiversity protection plan in your community.</p>	[2]		CBQ	People and Environment	Analyse the effects of interactions amongst the spheres to understand biodiversity.	Analyse the significance of biodiversity.	Creating						
<p>Answer</p> <ul style="list-style-type: none"> ✓ Map Biodiversity Hotspots: Create a map highlighting critical areas for biodiversity within the community. ✓ Raise Awareness: Educate community members about the importance of biodiversity through workshops, seminars, 													

<p>and social media campaigns.</p> <ul style="list-style-type: none"> ✓ Form Partnerships: Collaborate with local schools, NGOs, businesses, and government bodies to support biodiversity initiatives. ✓ Involve Volunteers: Encourage community participation through volunteer programs for activities like tree planting, clean-up drives, and monitoring species. ✓ Restore Degraded Areas: Initiate reforestation projects, wetland restoration, and the creation of green spaces to enhance local biodiversity. ✓ Regular Monitoring: Set up a system for regular monitoring of biodiversity indicators to track progress and identify any emerging threats. ✓ Any other relevant strategies 							
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Marking Scheme

Criteria	Marks
Any one appropriate strategy/Poster with labels	2

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