NEW
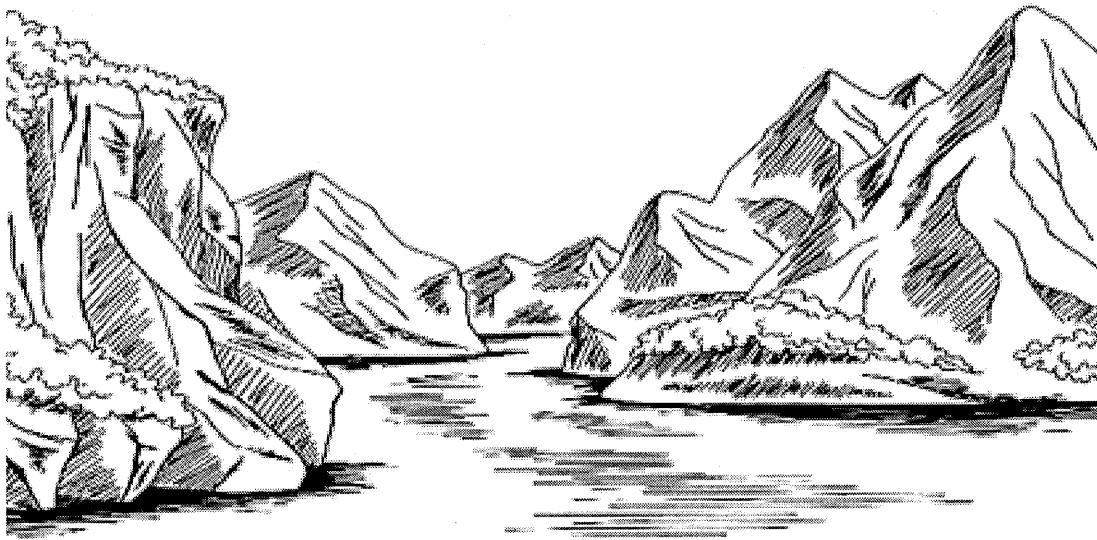
Department of Examinations - Sri Lanka

G.C.E. (A/L) Examination - 2020

22 - Geography

New Syllabus

Marking Scheme

G. C. E (Advanced Level) Examination - 2020

22 - Geography (New Syllabus)

Marking Scheme

Distribution of Marks

Paper I : Part I $= 40 \times 1 = 40$

Part II $= 30$

Part III $= 30$

Paper II : $=$ 100

$=$ $\dfrac{100 + 100}{2}$

Final Marks $=$ 100

Common Techniques of Marking Answer Scripts.

It is compulsory to adhere to the following standard method in marking answer scripts and entering marks into the mark sheets.

1. Use a red color ball point pen for marking. (Only Chief/Additional Chief Examiner may use a mauve color pen.)

2. Note down Examiner's Code Number and initials on the front page of each answer script.

3. Write off any numerals written wrong with a clear single line and authenticate the alterations with Examiner's initials.

4. Write down marks of each subsection in a $\triangle$ and write the final marks of each question as a rational number in a $\square$ with the question number. Use the column assigned for Examiners to write down marks.

Example: **Question No. 03**

    (i) ....

    .... √ $\dfrac{4}{5}$

    ....

    (ii) ....

    .... √ $\dfrac{3}{5}$

    ....

    (iii) ....

    .... √ $\dfrac{3}{5}$

    ....

(03) (i) $\dfrac{4}{5}$ (ii) + $\dfrac{3}{5}$ (iii) $\dfrac{3}{5}$ = $\dfrac{10}{15}$

MCQ answer scripts: (Template)

1. Marking templets for G.C.E.(A/L) and GIT examination will be provided by the Department of Examinations itself. Marking examiners bear the responsibility of using correctly prepared and certified templates.

2. Then, check the answer scripts carefully. If there are more than one or no answers Marked to a certain question write off the options with a line. Sometimes candidates may have erased an option marked previously and selected another option. In such occasions, if the erasure is not clear write off those options too.

3. Place the template on the answer script correctly. Mark the right answers with a 'v' and the wrong answers with a 'X' against the options column. Write down the number of correct answers inside the cage given under each column. Then, add those numbers and write the number of correct answers in the relevant cage.

Structured essay type and assay type answer scripts:

1. Cross off any pages left blank by candidates. Underline wrong or unsuitable answers. Show areas where marks can be offered with check marks.

2. Use the right margin of the overland paper to write down the marks.

3. Write down the marks given for each question against the question number in the relevant cage on the front page in two digits. Selection of questions should be in accordance with the instructions given in the question paper. Mark all answers and transfer the marks to the front page, and write off answers with lower marks if extra questions have been answered against instructions.

4. Add the total carefully and write in the relevant cage on the front page. Turn pages of answer script and add all the marks given for all answers again. Check whether that total tallies with the total marks written on the front page.

Preparation of Mark Sheets.

Except for the subjects with a single question paper, final marks of two papers will not be calculated within the evaluation board this time. Therefore, add separate mark sheets for each of the question paper. Write paper 01 marks in the paper 01 column of the mark sheet and write them in words too. Write paper II Marks in the paper II Column and wright the relevant details. For the subject 51 Art, marks for Papers 01, 02 and 03 should be entered numerically in the mark sheets.

***

නව නිර්දේශය/புதிய பாடத்திட்டம்/*New Syllabus*

NEW

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2020
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2020
General Certificate of Education (Adv. Level) Examination, 2020

භූගෝල විද්‍යාව **I**	
புவியியல் **I**	**22** **E** **I**
Geography **I**	

පැය තුනයි	අමතර කියවීම් කාලය - මිනිත්තු 10 යි
மூன்று மணித்தியாலம்	மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
Three hours	**Additional Reading Time - 10 minutes**

Use additional reading time to go through the question paper, select the questions you will answer and decide which of them you will prioritise.

Index No. : ....

Instructions:
* This paper consists of **three** parts. **Part I** consists of **40** multiple choice questions and answers should be provided **in the paper itself**.
* In **Part I** each question carries one mark.
* In **Part II** **both** questions should be answered.
* **Part III** consists of **four** questions and answers should be provided only for **two** selected questions.
* Answer script of **Parts I, II** and **III** should be attached together and handed over.

For Examiner's use only.

	Question No.	Marks
Part I	1 - 40	
Part II	1	
	2	
Part III	3	
	4	
	5	
	6	
Total		

	Signature	Code Number
1st Examiner		
2nd Examiner		
Additional Chief Examiner		
Chief Examiner		
EMF		

Part I

● Select the option that contains the correct answer for each question and write its **number on the dotted line**.

1. Which of the following themes that can be most suitably represented by a dot map?
   (1) Population distribution by districts.
   (2) Population growth in urban centres.
   (3) Ethnic composition by districts.
   (4) Migration pattern of wild elephants between sanctuaries.
   (5) Road density by provinces.   (......)

2. How many times per day, a satellite of a Global Positioning System (GPS) revolves around the earth?
   (1) Once   (2) Twice   (3) Thrice   (4) Four times   (5) Five times (......)

3. The trigonometric point selected to base the national grid system found in 1:50 000 topographic maps of Sri Lanka is,
    (1) Pidurutalagala   (2) Sangamankanda
    (3) Dondra Head   (4) Point Pedro
    (5) Govindahela (Westminster Abbey)   (......)

4. The actual length of a bridge indicated by 5 mm in a 1:50 000 topographic map is,
    (1) 25 m.   (2) 50 m.   (3) 100 m.   (4) 200 m.   (5) 250 m.   (......)

5. What is the option that shows four components of the Geographic Information System (GIS)?
    (1) methods, hardware, computer, software.
    (2) data, hardware, software, users.
    (3) hardware, software, computer, data.
    (4) data, software, digital maps, hardware.
    (5) data, digital maps, user, methods.   (......)

6. An example for quantitative data is,
    (1) Public attitudes towards elections.
    (2) opinions on genetically modified food.
    (3) Atmospheric pressure.
    (4) Behaviour of students in a classroom.
    (5) Changes in life style during the quarantine period.   (......)

7. The most suitable cartographic method for presenting rainfall distribution in Sri Lanka is,
    (1) Choropleth map.   (2) Flow map.   (3) Dot map.
    (4) Graduated symbol map.   (5) Isopleth map.   (......)

8. Which of the following options correctly shows a peripheral information included in the 1 : 50,000 topographic map of Sri Lanka?
    (1) Two types of contour lines are shown.
    (2) Spot hights are shown by a black triangle.
    (3) Scale is shown by a single method.
    (4) Three types of North are shown.
    (5) Two types of rail roads are shown.   (......)

9. A modern cartographic method used to identify the absolute location of a place is,
    (1) Geographic Information System.   (2) Database Management System.
    (3) Radar System.   (4) Global Positioning System.
    (5) Remote Sensing.   (......)

10. What is the answer that shows the correct matching of a feature with the colour and symbol depicted in a 1:50 000 topographic map of Sri Lanka?
    (1) Historical place - brown coloured circle.
    (2) Foot path   - yellow coloured dotted line.
    (3) Hotel   - black coloured triangle.
    (4) Railway halt   - red coloured dot.
    (5) Tank bund   - blue coloured line.   (......)

11. Which one of the following options correctly shows three anthropogenic hazards?
    (1) landslides, wildfire, oil spills
    (2) earthquakes, industrial hazards, landslides
    (3) industrial hazards, war, oil spills
    (4) floods, wildfire, industrial hazards
    (5) floods, landslides, chemical hazards   (......)

12. A depositional landform created by wind action in desert areas is,
    (1) Drumlin.   (2) Pot holes.   (3) Star dunes.   (4) Inselberg.   (5) Zeugen. (......)

13. What is an example for a major tectonic plate?
    (1) Arabian plate   (2) Nazca plate   (3) Caribbean plate
    (4) African plate   (5) Cocos plate   (......)

14. Which of the following options correctly shows four methods of transportation of river load?
    (1) solution, suspension, saltation, traction
    (2) saltation, abrasion, traction, corrosion
    (3) suspension, friction, traction, saltation.
    (4) suspension, solution, saltaion, friction
    (5) friction, corrosion, solution, abrasion   (......)

15. Which of the following options includes three extrusive volcanic landforms?
    (1) caldera, lava plateau, composite cones
    (2) dyke, caldera, sills
    (3) sills, lava plateau, composite cones
    (4) lacoliths, volcanic ash cones, dyke
    (5) composite cones, volcanic ash cones, sills   (......)

16. Which is the option that shows two wildlife sanctuaries in Sri Lanka?
    (1) Muthurajawela, Horton plains   (2) Rantambe, Minneriya
    (3) Chundikulam, Bundala   (4) Randenigala, Chundikulam
    (5) Victoria, Wilpattu   (......)

17. Which of the following options contains two human actions contributing to landslides?
    (1) vibration due to explosions and rock weathering
    (2) deforestation in hill slopes and heavy rainfall
    (3) heavy rainfall and obstruction of natural waterways
    (4) construction in slope areas and rock weathering
    (5) deforestation in hill slopes and vibration due to explosions   (......)

18. Which of the following options includes three types of igneous rocks?
    (1) Basalt, Granite, Gneiss   (2) Granite, Mica, Obsidian
    (3) Obsidian, Gneiss, Mica   (4) Gabbro, Andesite, Obsidian
    (5) Basalt, Dolomite, Gabbro   (......)

19. A main feature of montane forests in Sri Lanka is,
    (1) plant diversity is low.   (2) plants are thorny and with thick leaves.
    (3) dominant vegetation type is scrubs.   (4) height of trees is about 15 m-20 m.
    (5) epiphytic plants are low in number.   (......)

20. What is the soil type commonly found in both wet zone and dry zone of Sri Lanka?
    (1) Red Yellow Podzolic   (2) Red Yellow Latosols
    (3) Reddish Brown Earth   (4) Alluvial
    (5) Reddish Brown Latosols   (......)

21. The 'Conrad Discontinuity' in the earth's interior separates,
    (1) core from the mantle.
    (2) outer core from the inner core.
    (3) upper mantle from the lower mantle.
    (4) crust from the mantle.
    (5) sial strata from the sima strata.   (......)

22. A major characteristic of the Mesosphere is,
    (1) high velocity winds.
    (2) average temperature is around 1500 ℃.
    (3) ozone gas is found in this layer.
    (4) increase in temperature with altitude.
   (5) sun's ultra violet rays are absorbed by this layer.   (......)

23. Which of the following answers correctly state three locations of dry pathana grasslands in Sri Lanka?
    (1) Rakwana, Bandarawela, Welimada
    (2) Welimada, Ambewela, Rakwana
    (3) Bandarawela, Kandapola, Sinharaja
    (4) Rakwana, Sinharaja, Kandapola
    (5) Ambewela, Welimada, Seetha Eliya   (......)

24. Which one is the correct option that shows three types of Biomes marked as A, B and C respectively in the adjacent map of Australia?

    (1) tropical rain forests, savanna, deserts
    (2) savanna, mediterranean woodlands, grasslands
    (3) deserts, tropical rain forests, mediterranean woodlands
    (4) tropical rain forests, grasslands, deserts
    (5) savanna, temperate rain forests, mediterranean woodlands   (......)
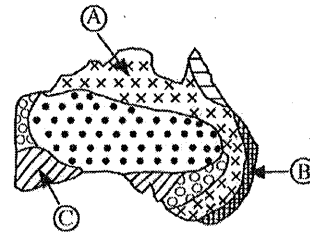
25. The major sector that emits greenhouse gases into the atmosphere is
    (1) industrial.   (2) energy.   (3) commercial.   (4) transportation. (5) agricultural.(......)

26. According to the United Nations the most urbanized region in the world by the year 2050 will be:
    (1) Europe.   (2) North America. (3) Latin America. (4) Asia.   (5) Africa.   (......)

27. Which one is the answer that correctly identifies four major concentrations of World Population?
    (1) East Asia, Middle East, Europe and Southern Africa
    (2) North Africa, Caribbean, South Asia and Europe
    (3) South Asia, South East Asia, Southern Africa and Europe
    (4) Europe, North America, South Asia and Middle East
    (5) East Asia, South Asia, South East Asia and Europe   (......)

28. The three main factors that can be used to explain the population growth of a country are,
    (1) births, deaths, distribution   (2) births, distribution, migration
    (3) births, deaths, migration   (4) distribution, migration, deaths
    (5) distribution, migration, movements   (......)

29. What is the city where the initial discussion to establish the Association of South East Asian Nations (ASEAN) was held?
    (1) Kuala Lumpur (2) Manila   (3) Bangkok   (4) Jakarta   (5) Hanoi   (......)

30. The main producer of coal in the world at present is,
    (1) Indonesia   (2) India   (3) Australia
    (4) United States of America (5) China   (......)

31. The European Union is,
    (1) a free trade organization.
    (2) an economic and political organization.
    (3) a military alliance.
    (4) international environmental organization.
    (5) an association of oil exporting countries.   (......)

32. What is the main factor determining the location of high-tech industries?
    (1) Availability of raw materials
    (2) proximity to main airports
    (3) Accessibility to major market areas
    (4) Accessibility to universities and research institutions
    (5) Availability of cheap labour   (......)

33. World agricultural monopoly is held by
    (1) Rich farmers in the United State of America.
    (2) Multi-national Corporations.
    (3) Gene technologists in developed countries.
    (4) Foreign Direct Investors.
    (5) International commercial bankers.   (......)

34. Which of the following answers correctly shows a salient feature of Mahaweli settlements?
    (1) no hierarchical order in settlements
    (2) distribution of household blocks follows a linear pattern
    (3) settlements follow a clustered pattern
    (4) homesteads and paddy blocks are of equal size
    (5) settlements follow a dispersed pattern   (......)

35. What is the correct statement relating to the graphite production in Sri Lanka?
    (1) Provides raw material for many manufacturing industries in the country
    (2) Exported mainly as a finished product
    (3) Exported mainly as raw material to industrialized countries
    (4) Mostly produced type is mica
    (5) Entirely based on the new technology   (......)

36. The main objective of the United Nations Environmental Programme (UNEP) is;
    (1) provide solutions to climate change.
    (2) maintain sustainable development.
    (3) assist in disaster management.
    (4) enforcement of environmental standards and activities.
    (5) control environmental pollution.   (......)

37. According to the Census of Population and Housing 2012, the major in-migration provinces in Sri Lanka were:
    (1) North, North Central and Eastern.
    (2) North Central, Southern and Central.
    (3) Eastern, Western and Northern.
    (4) Western, Northern and Sabaragamuwa.
    (5) Western, North Western and North Central.   (......)

38. What is the answer that correctly shows an agricultural activity in Sri Lanka depend mainly on ground water supply?
    (1) Paddy cultivation in Mahaveli Development project area
    (2) Vegetable farming in Jaffna peninsula
    (3) Intensive subsistence farming in the wet zone
    (4) Vegetable cultivation in hill country
    (5) Export agricultural crop cultivation in Sabaragamuwa province   (......)

39. A favourable impact of globalization on developing countries is
    (1) Reduction in the income gap between rich and poor people.
    (2) Encouragement of the development of traditional handicraft industries.
    (3) Strengthening of the local economy through Foreign Direct Investments.
    (4) Strengthening of national values and traditions.
    (5) Weakening of ethnic disputes and terrorist activities.   (......)

40. The main objective of the 'Post harvest Technology' practiced in Sri Lanka is to:
    (1) spray pesticides and preservatives to vegetables and fruits.
    (2) sell the harvested paddy at the threshing floor.
    (3) avoid of the intervention of the 'middleman' in the marketing process.
    (4) use proper packaging to minimize the wastage.
    (5) Burn the paddy fields soon after reaping the harvest.   (......)

✳ ✳

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
Department of Examinations – Sri Lanka
අ.පො.ස.(උ.පෙළ) විභාගය/ G.C.E. (A/L)- 2020
නව නිර්දේශය/ New Syllabus

| විෂය අංකය Subject No. | 22 | විෂය Subject | **Geography** |

ලකුණු දීමේ පටිපාටිය/Marking Scheme
I පත්‍රය/Paper I , Part I

ප්‍රශ්න අංකය Question No.	පිළිතුරු අංකය Answer No.	ප්‍රශ්න අංකය Question No.	පිළිතුරු අංකය Answer No.	ප්‍රශ්න අංකය Question No.	පිළිතුරු අංකය Answer No.	ප්‍රශ්න අංකය Question No.	පිළිතුරු අංකය Answer No.
01.	1	11.	3	21.	5	31.	2
02.	2	12.	3	22.	1	32.	4
03.	1	13.	4	23.	1	33.	2
04.	5	14.	1	24.	5	34.	3
05.	2	15.	1	25.	2	35.	3
06.	3	16.	3	26.	2	36.	4
07.	5	17.	5	27.	5	37.	5
08.	4	18.	4	28.	3	38.	2
09.	4	19.	1	29.	3	39.	3
10.	4	20.	4	30.	5	40.	4

✪විශේෂ උපදෙස්/Special Instructions:
එක් පිළිතුරකට ලකුණු 01 බැගින්/ 01 Mark for each question
මුළු ලකුණු/Total Marks   01 × 40= 40

නව නිර්දේශය/புதிய பாடத்திட்டம்/*New Syllabus*

NEW

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2020
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2020
General Certificate of Education (Adv. Level) Examination, 2020

භූගෝල විද්‍යාව	**I**
புவியியல்	**I**
Geography	**I**

22 **E** **I**

Instructions:
* In **part II** both questions should be answered.
* Part III consists of **four** questions and answers should be provided only for **two** selected questions.
* A part of 1:50,000 topographic map of Rathnapura, an outline map of the world and graph papers will be provided.

Part II

1. You are provided with a part of the 1:50,000 topographic map of Rathnapura, published by the Survey Department of Sri Lanka. The contours are shown at 20 metre interval. Answer the following questions based on the map.

> **N.B.**
>
> * You should clearly state the relevant **question number** and number of its **subsection** in the answer script.
> * **Answers should not be written on the map.**
> * Do **not** attach the provided map to your answer script.

  (i) Name a Divisional Secretariat Division shown in the map.   (01 *marks*)

  (ii) Name the **two** drainage features shown within squares **A** and **B**.   (02 *marks*)

  (iii) Name the **two** types of valleys marked by lines **C-D** and **E-F**.   (02 *marks*)

  (iv) Name the **four** landform features marked by lines **G-H**, **J-K**, **L-M** and **N-O** respectively.   (02 *marks*)

  (v) Name **six** agricultural land use types found within the quadrilateral **P**.   (03 *marks*)

  (vi) Name the salient drainage pattern found in the map area and explain with **two** facts the relationship between the drainage pattern and the relief.   (04 *marks*)

  (vii) Comparatively describe the agricultural, settlements and road network in the Eastern and Western parts of the map area.   (06 *marks*)

2. **Mark and name** the following in the world map provided using conventional symbols and colours.

  (i) Volga river

  (ii) Lake Baikal

  (iii) New York city

  (iv) Pinatubo volcano

  (v) Equator

  (vi) Pampas grassland

  (vii) Great Dividing range

  (viii) Gulf stream

  (ix) The South-East Asian country with a 100% of urban population

  (x) The Chinese city reported as the origin of COVID-19

  (10 *marks*)

48343

SCALE 1 : 50,000

Contour Interval 20 metres

AL/2020/22/STE-1(NEW)

Question No. 2

NEW

Geography I I I

General Certificate of Education (Adv. Level) Examination, 2020
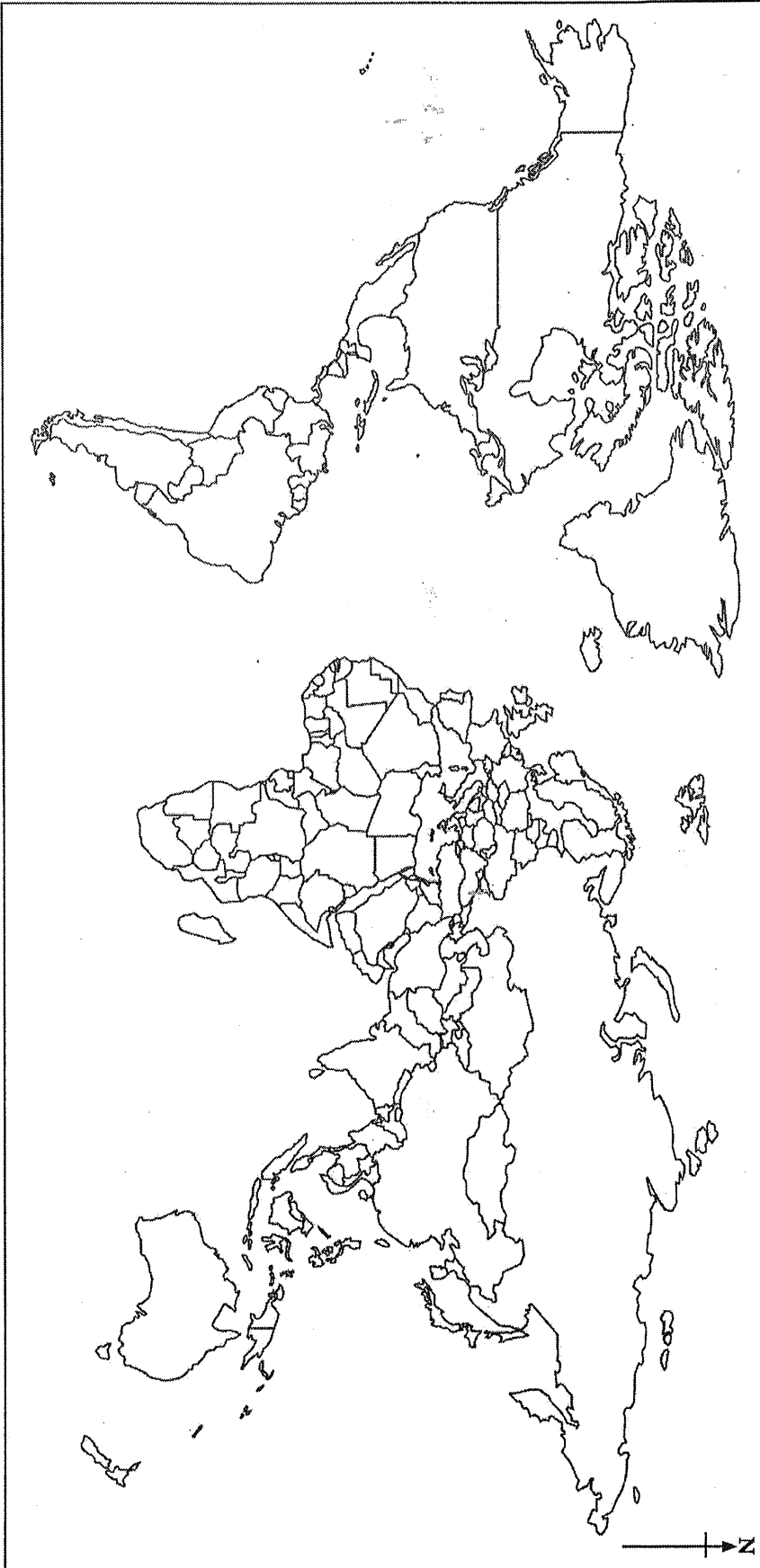
Department of Examinations, Sri Lanka

PART II

22 STE I

Index No ....

Paper I - Part II

1. You are provided with a part of the 1:50,000 topographic map of Rathnapura, published by the Survey Department of Sri Lanka. The contours are shown at 20 metre interval. Answer the following questions based on the map.

> **N.B.**
>
> ✳ You should clearly state the relevant **question number** and number of its **subsection** in the answer script.
> ✳ **Answers should not be written on the map.**
> ✳ Do **not** attach the provided map to your answer script.

   (i) Name a Divisional Secretariat Division shown in the map.   (01 *marks*)

  (ii) Name the **two** drainage features shown within squares **A** and **B**.   (02 *marks*)

 (iii) Name the **two** types of valleys marked by lines **C - D** and **E - F**.   (02 *marks*)

 (iv) Name the **four** landform features marked by lines **G - H, J - K, L - M** and **N - O** respectively.   (02 *marks*)

  (v) Name **six** agricultural land use types found within the quadrilateral **P**.   (03 *marks*)

 (vi) Name the salient drainage pattern found in the map area and explain with **two** facts the relationship between the drainage pattern and the relief.   (04 *marks*)

(vii) Comparatively describe the agricultural, settlements and road network in the Eastern and Western parts of the map area.   (06 *marks*)

    (i)   Eheliyagoda Division

                                   (01 Mark)

    (ii)   A -   Braided River

          B -   Meander

                          (1 × 2 = 02 Marks)

    (iii) C - D - Transverse Valley

          E - F - Longitudinal Valley

                          (1 × 2 = 02 Marks)

    (iv) G - H - Concave slope

          J - K - Spur

          L - M - Gentle Slope

          N - O - Saddle

                       (0.5 × 4 = 02 Marks)

    (v)   Paddy, Tea, Rubber, Coconut, Teak (other plantations), Chena, Home gardens

                        (0.5 × 6 = 03 Marks)

(vi) The dominant drainage pattern of the map area is a **Trellis Drainage Pattern**. The relationship between drainage pattern and relief could be described as follows.

1. Elongated mountain Ranges

   One of the salient landform features of the map area is elongated mountain ranges run from North to the South with a slight angle from North - West to South - East. Location of these mountain ranges has caused a landform suitable for a trellis drainage pattern of the map area.

2. Transverse Valleys

   One of the other salient landform features of the area is transverse valleys, which cut at right angles across the mountain ranges. The main river flows from the East to the West through those valleys across the mountain ranges.

3. Longitudinal Valleys

   There are several longitudinal valleys located parallel to the mountain ranges, which run from the North to the South but slightly with the angle to the North - West and South - East. The streams of the main river flow through those valleys and join the main river perpendicularly. In addition, the short straight tributaries flow through the valleys located in slopes of the mountain ranges and join the main streams approximately at right angles. This factor has also influenced on trellis drainage pattern of the map area.

Name drainage pattern	-	01 Mark
Explain two facts	- 1.5 × 2=	03 Marks
Total	-	04 Marks

(vii)

Land Use Type	Western Part	Eastern Part
Agriculture	• High diversity of crops	• Low diversity of crops
	• A dominant crop doesn't exist	• Rubber is the dominant crop
	• Home gardens and chena cultivation are evident alongside the rivers	• Paddy and Home gardens are evident alongside the rivers
Settlements	• More Settlements	• Less Settlements
	• Settlements are highly concentrated along with the roads in a linear pattern	• Settlements have spread in a dispersed pattern
	• More Public institutions such as schools, police, post office, hospital etc.	• Public institutions are very few
Road Network	• High road density	• Low road density
	• There are several main roads and minor roads	• Very few main and minor roads but more jeep or cart tracks
	• Roads lie mostly in plain areas	• Roads are running mostly through transverse and longitudinal valleys

State only three facts   -   1 × 3 = 03 Marks
Compare three facts   -   1 × 3 = 03 Marks
Total   -   = 06 Marks

2. **Mark and name** the following in the world map provided using conventional symbols and colours.

(10 Marks)

(i) Volga river

(ii) Lake Baikal

(iii) New York city

(iv) Pinatubo volcano

(v) Equator

(vi) Pampas grassland

(vii) Great Dividing range

(viii) Gulf stream

(ix) The South-East Asian country with a 100% of urban population

(x) The Chinese city reported as the origin of COVID-19

(A world map is attached)

(2)
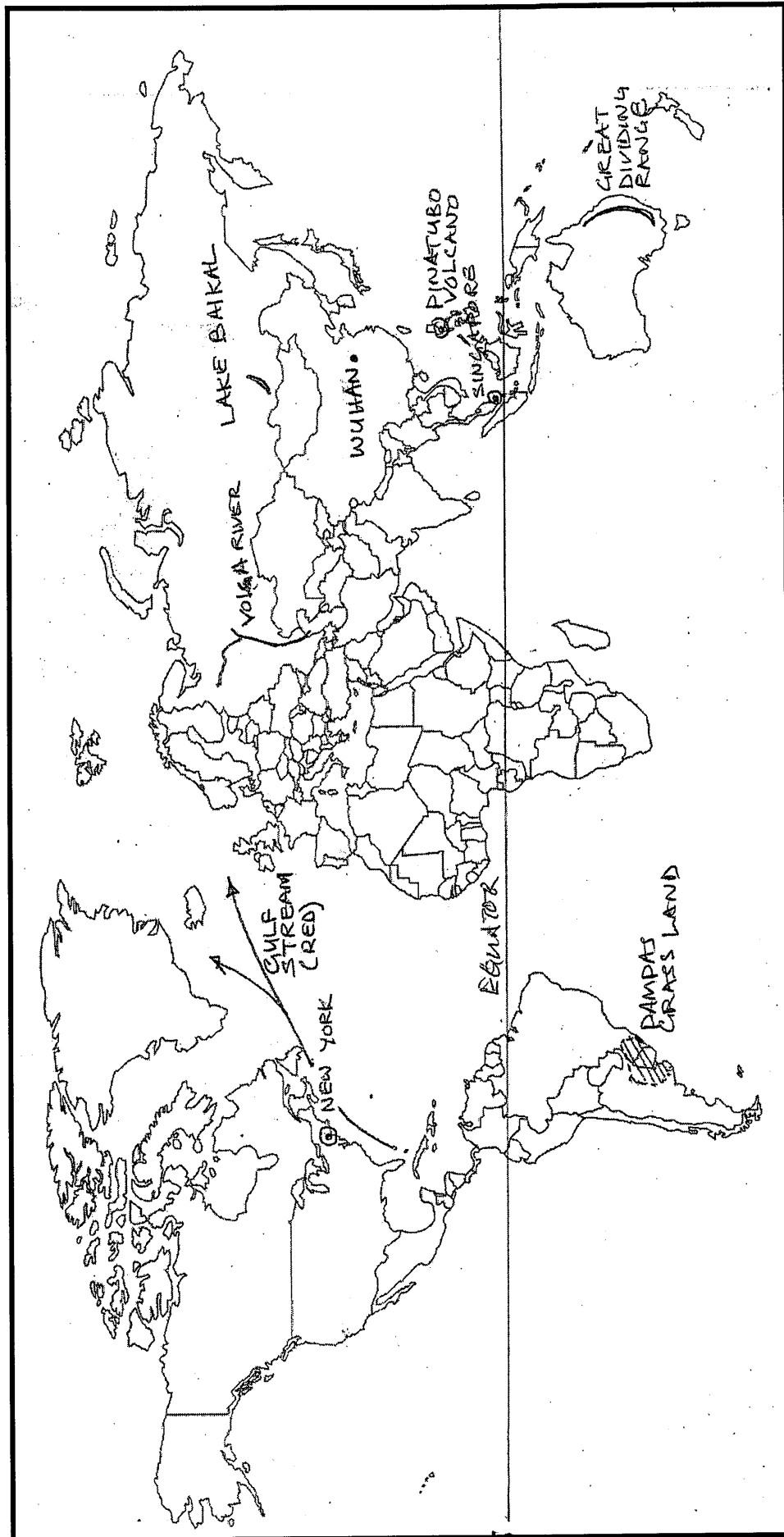
Part III

3. (i) What is meant by secondary data? *(02 marks)*

    (ii) Briefly describe **three** uses of the Internet as a source of secondary data. *(03 marks)*

    (iii) Briefly describe **two** problems encountered by a researcher when using secondary data. *(04 marks)*

    (iv) Explain **three** differences between maps and satellite images as sources of secondary data. *(06 marks)*

4. (i) What is modern cartography? *(02 marks)*

    (ii) State **three** reasons for the wide use of modern cartography. *(03 marks)*

    (iii) Describe in brief main features of **two** remote sensing platforms. *(04 marks)*

    (iv) Explain with sketches, the difference between Vector and Raster data formats used in Geographic Information System. *(06 marks)*

5. The sectoral composition of the Gross Domestic Product (GDP) in selected Asian countries in the year 2017 is shown in **Table 1**.

    Table 1: The Gross Domestic Product (GDP) in selected Asian countries by sector - 2017 (US$ million)

Country	Agriculture	Industry	Services
China	1 833 590	9 400 050	11 976 360
India	1 458 996	2 179 020	5 826 510
Japan	59 874	1 638 343	3 739 341
South Korea	4 477	799 755	1 186 405
Thailand	101 352	447 432	687 216

    Source: http://data.worldbank.org

    (i) Draw a multiple bar graph to represent the data given in **Table 1**. (Ask for a separate graph paper for this drawing.) *(08 marks)*

    (ii) Using the graph you have drawn, state **two** salient features of the Gross Domestic Product of the Asian countries selected. *(02 marks)*

    (iii) Name another graphical method suitable for representing the data given in **Table 1** and describe it with the help of sketches. *(05 marks)*

6. The district-wise distribution of dengue patients in Sri Lanka in 2019 is shown in **Table 2**.

   Table 2: Distribution of Dengue patients by district in Sri Lanka - 2019

No.	District	No. of patients
1	Colombo	20 718
2	Gampaha	16 573
3	Kalutara	8 395
4	Galle	7 378
5	Matara	4 054
6	Hambantota	2 049
7	Ratnapura	4 086
8	Kegalle	2 716
9	Kurunegala	3 218
10	Puttalam	2 257
11	Kandy	8 940
12	Matale	2 445
13	Nuwara Eliya	438
14	Badulla	1 922
15	Monaragala	333
16	Jaffna	8 261
17	Kilinochchi	396
18	Vavuniya	872
19	Mullaitivu	268
20	Mannar	271
21	Anuradhapura	1 164
22	Polonnaruwa	561
23	Trincomalee	2 969
24	Batticaloa	2 848
25	Ampara	338
	Total	**103 470**

Source: Epidemiology Unit, Ministry of Health, Sri Lanka, 2020

   (i) State **two** salient features of the district-wise distribution of dengue patients in Sri Lanka that can be observed from **Table 2**.   (*02 marks*)

   (ii) Using above data prepare a table with class intervals, tally marks, frequencies, cumulative frequencies and percentage cumulative frequencies.
   (Consider the class interval as 4200; starting point of the first class interval should be zero.)   (*05 marks*)

   (iii) Construct a percentage cumulative frequency curve using the table you have prepared in above (ii). (Ask for a graph paper for this exercise.)   (*05 marks*)

   (iv) State **two** uses of the percentage cumulative frequency curve.   (*03 marks*)

❋ ❋ ❋

Paper I - Part III

(3) (i) What is meant by secondary data?

If data, derived by an organization, institution or individual are used to validate the ideas during a study, that data is secondary data.

(02 Marks)

(ii) Briefly describe three uses of the internet as a source of secondary data.

1. There is a wide range of information.

2. Ability to retrieve data quickly.

3. Ability to retrieve the latest data.

4. Diversity of data.

5. Possible to move from one data source to another.

6. Reduce the time, cost and manpower to retrieve data.

(1×3 = 03 Marks)

(iii) Briefly describe two problems encountered by a researcher when using secondary data.

1. Secondary data may not be fully used with their research objectives; often such data and information are incompatible with the specific requirements and methods of research.

2. Problems with the reliability of secondary data, if the limitations and assumptions of data collection are not known.

3. Errors in secondary data reporting can mislead the interpretation of data in the research. Data collection for one purpose may be inappropriate for making specific decisions in another research.

4. There is a high cost involved in obtaining certain secondary data.

5. Difficulties in obtaining copyright for certain sources.

6. Presence of often less update data.

(2×2 = 04 Marks)

(iv) Explain three differences between maps and satellite images as sources of secondary data.

Maps	Satellite Images
• Ability to obtain relevant information only for specific time.	• Ability to get updated information.
• Availability of 2D data.	• Data can be obtained in 3D format.
• The map is easy to understand.	• Must have specific knowledge to understand.
• Analytical capability is available.	• Can be easily analyzed using computer and software.
• The map is easy to read with help of the legend.	• It is difficult to read without a legend.
• The cost of data retrieval is low.	• The cost of data retrieval is comparatively high.

(2×3 = 06 Marks)

(4) (i) What is modern cartography?

"Modern Cartography is the science of producing and analyzing maps using modern technology"

(02 Marks)

(ii) State three reasons for the wide use of modern cartography.

1. Easy preparation of maps

   (Collection of data, storage of data, representation of data)

2. Easy to upgrade data

   (Ability to include even a minor temporal change taking place on the landscape.)

3. Easy to quickly extract information.

4. Ability to create separate map layers related to map themes.

5. Ability to quickly create a map.

6. Ability to link maps with multimedia.

7. Ability to exchange data.

(1×3 = 03 Marks)

(iii) Describe in brief main features of two remote sensing platforms

There are three types of remote sensing platforms:

1. Ground - based platform
2. Air - borne platform
3. Space - borne platform

1. Ground - based platform

A remote sensing instrument kit fitted to a crane mounted on a moving vehicle or a tower known as a ground - based platform. Its height is about 50m.

2. Air - borne platform

The aero planes fitted with instruments such as cameras and films needed for capturing features of the land from sky as known as air - borne platform. Aero planes, helicopters, drones, balloons and blimps are used in this technology.

3. Space - Borne platform

Rockets, satellites and spacecrafts are used as space - borne platforms. They could be classified according to their flight altitude as follows;

Space shuttles   (250km - 300km)

Space stations   (300km - 400km)

Low - altitude satellites   (700km - 1500km)

High - attitude satellites   (36000km)

(2×2 = 04 marks)

(iv) Explain with sketches, the difference between Vector and Raster data formats used in Geographic Information System.

1. Vector data format

In this format, all geographic features are represented as points, lines and polygons.

Point   -   Building, a well, place, etc.

Line   -   Road, revers or canal, electricity line etc.
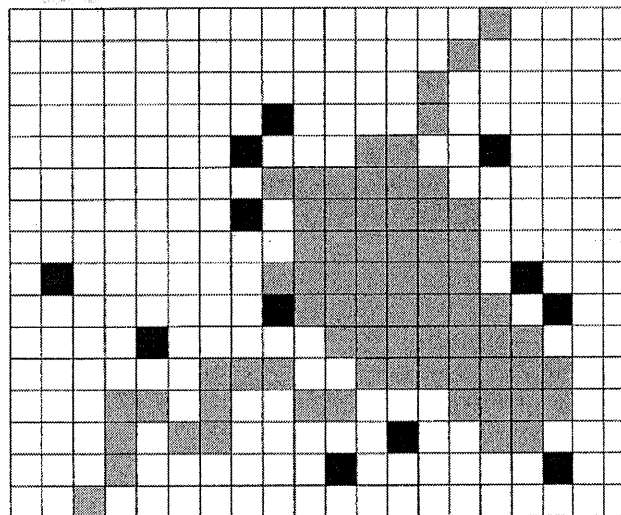
Polygon   -   Tank, paddy land, forest etc.

Vector
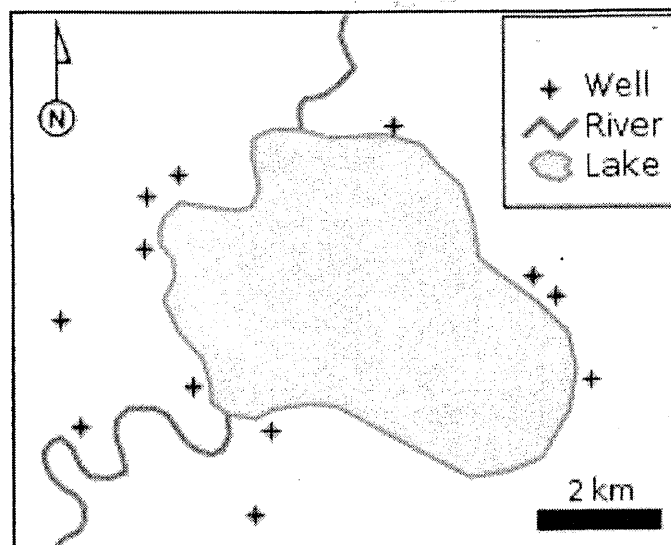
2. Raster data format

In this format, map area is transformed into columns and rows. The squares or pixels are given numerical values.

Raster

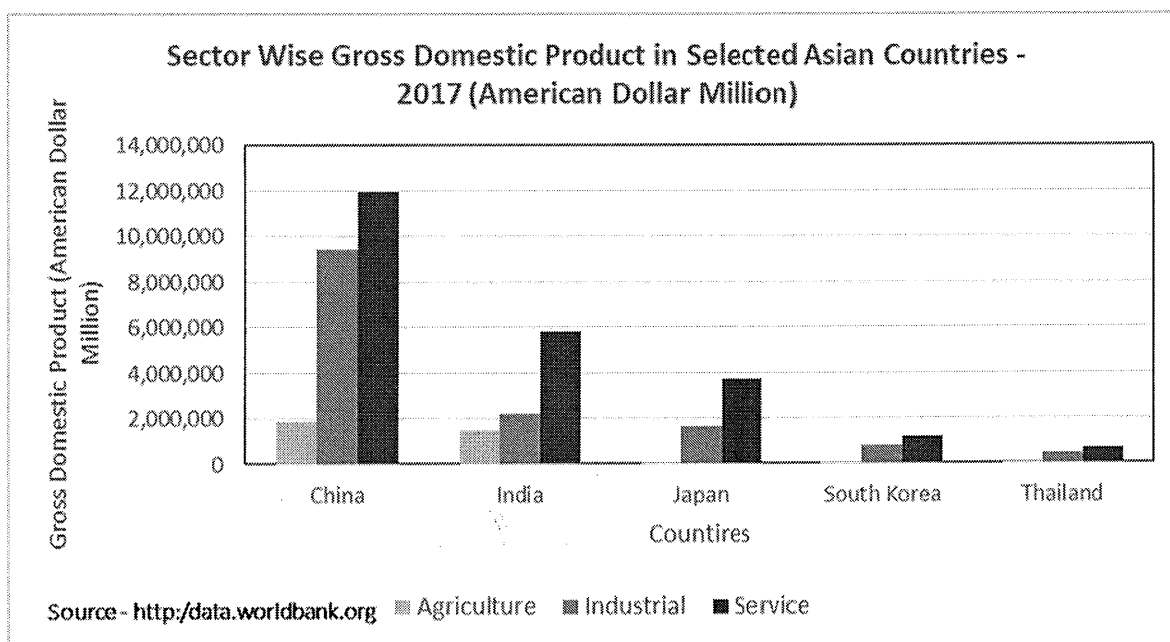|	
Sketch	- 1 ½
Description	- 1 ½
	3

(3×2= 06 Marks)

5. The sectoral composition of the Gross Domestic Product (GDP) in selected Asian countries in the year 2017 is shown in **Table 1.**
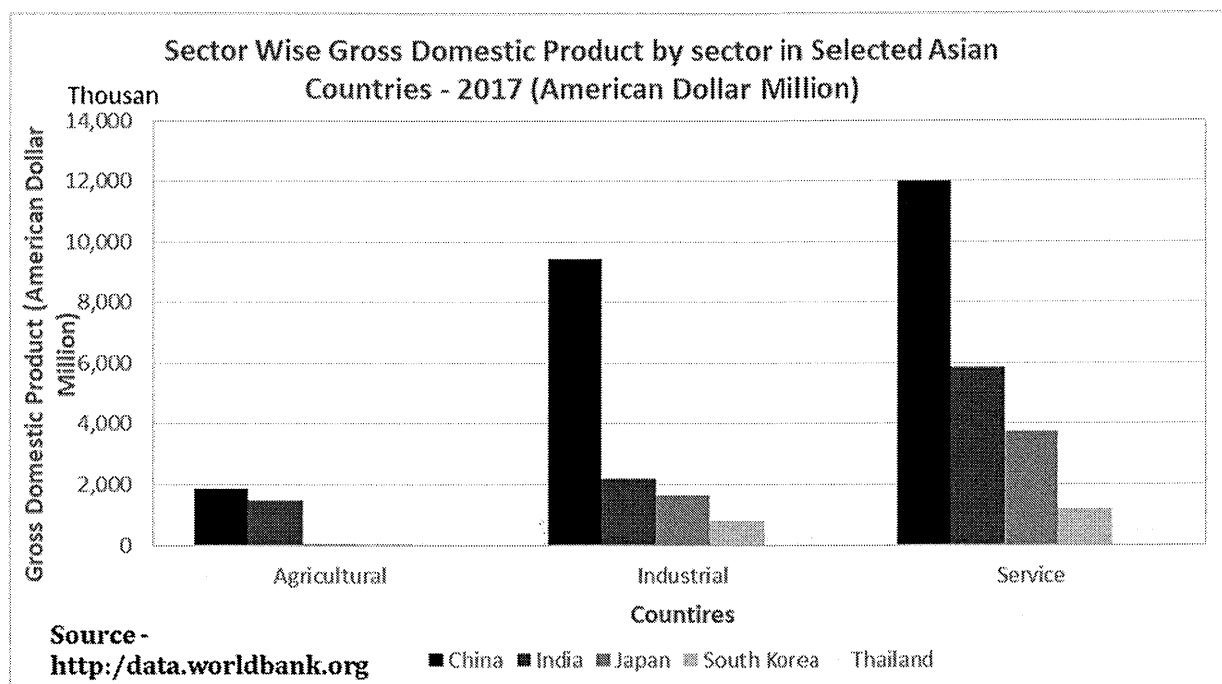
Table 1: The Gross Domestic Product (GDP) in selected Asian countries by sector - 2017 (US$ million)

Country	Agriculture	Industry	Services
China	1 833 590	9 400 050	11 976 360
India	1 458 996	2 179 020	5 826 510
Japan	59 874	1 638 343	3 739 341
South Korea	4 477	799 755	1 186 405
Thailand	101 352	447 432	687 216

Source: http://data.worldbank.org

(i) Draw a multiple bar graph to represent the data given in Table 1. (Ask for a separate graph paper for this drawing.)

Sector Wise Gross Domestic Product by sector in Selected Asian Countries - 2017 (American Dollar Million)

Source - http:/data.worldbank.org

China   India   Japan   South Korea   Thailand

Title	-	½
Source	-	½
Legend	-	1
Vertical scale	-	1
Horizontal scale	-	1
Creation	-	4
Total	-	8

(08 Marks)

(ii)   Using the graph you have drawn, state two salient features of the Gross Domestic Product of the Asian countries selected.

1. Agricultural sector contribution is lowest in all countries.

2. Service sector contribution is highest in all countries.

3. Industrial and service sectors are far ahead of the agricultural sector in China.

4. There is no huge gap between the agricultural and industrial sectors in India.

5. Similarities can be identified in all the sectors in South Korea and Thailand.

6. In every country, there is a similarity in the sector composition of the GDP.

7. Compared to other countries, the overall value of China's GDP is very high.

(1 + 1 = 02 marks)

(iii)   Name another graphical method suitable for representing the data given in Table 1 and describe it with the help of sketches.

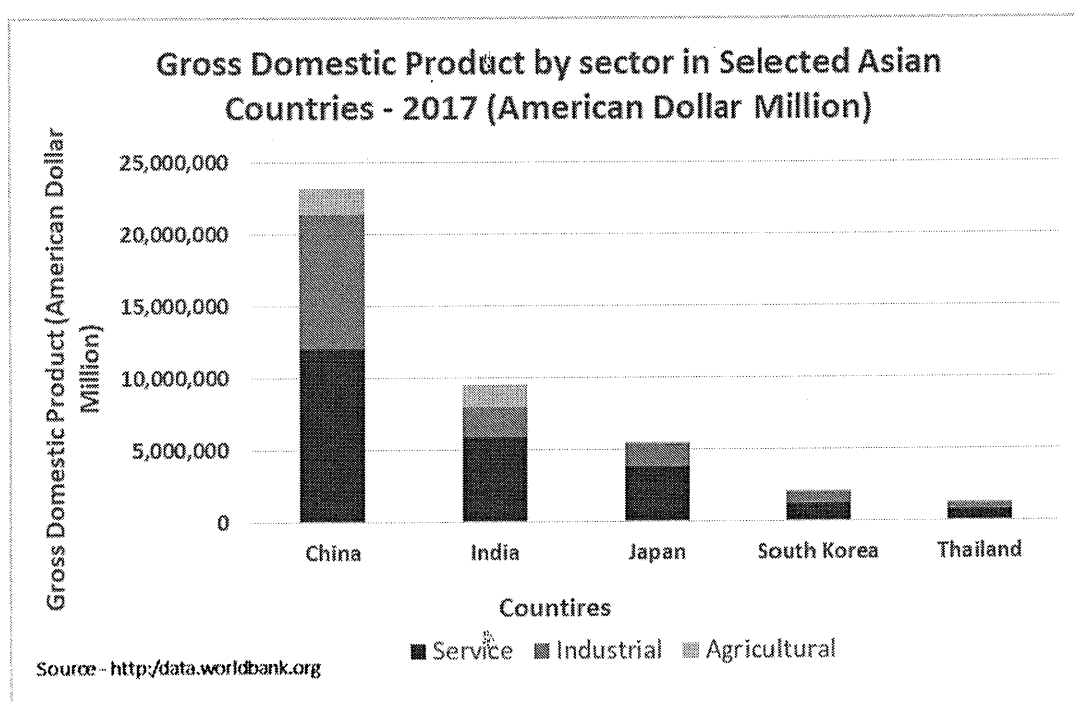<u>Name another graphical method</u>

1. Composite Bar Graph/ Composite Column Graph

2. Pie graph
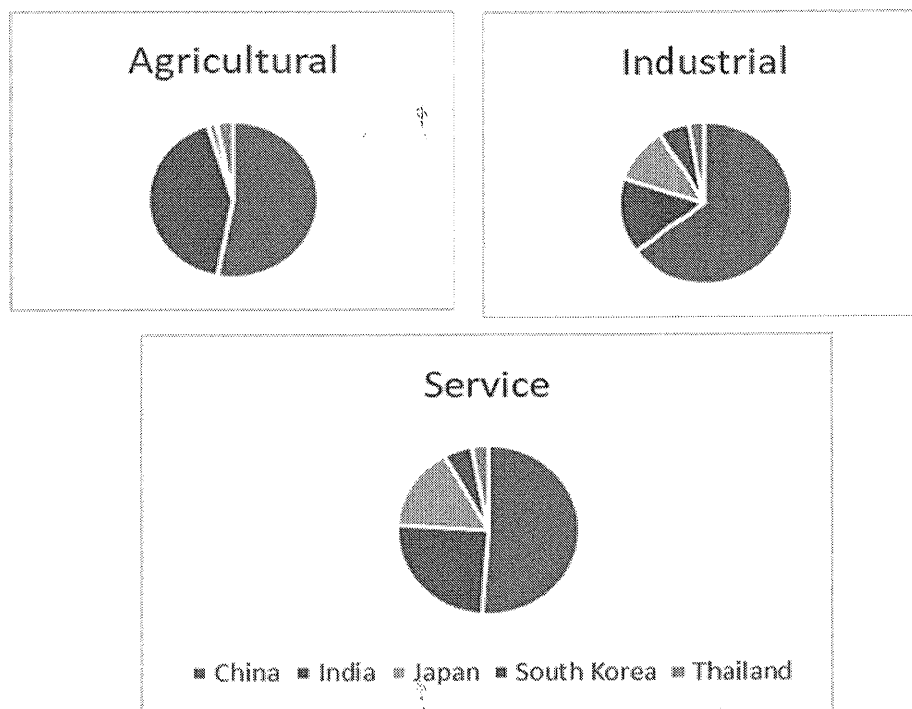
<u>Suitability</u>

1. Ability to include several countries and sectors in one graph.

2. The total value can be represented on a single bar.

3. Composition can be added to the bar in parts.

4. Easy to draw

5. Ability to understand overall value of height in a bar.

6. Ability to compare the total value by country.

<u>Sketch description</u>

1. Decide a suitable scale for vertical axis (y)

2. Create horizontal axis using a suitable method (x)

3. Decide the width of the bar and the length of the horizontal axis

4. Create Bars.

5. Represent the sub - divisions in the bar very clearly

Sector Wise Gross Domestic Product in Selected Asian Countries - 2017 (American Dollar Million)

Agricultural

Industrial

Service

▪ China ▪ India ▪ Japan ▪ South Korea ▪ Thailand

Source - http:/data.worldbank.org

Name	-	1
Suitability	-	2
Sketch description-		2
Total	-	5

(05 marks)

6. The district-wise distribution of dengue patients in Sri Lanka in 2019 is shown in **Table 2**.

Table 2: Distribution of Dengue patients by district in Sri Lanka - 2019

No.	District	No. of patients
1	Colombo	20 718
2	Gampaha	16 573
3	Kalutara	8 395
4	Galle	7 378
5	Matara	4 054
6	Hambantota	2 049
7	Ratnapura	4 086
8	Kegalle	2 716
9	Kurunegala	3 218
10	Puttalam	2 257
11	Kandy	8 940
12	Matale	2 445
13	Nuwara Eliya	438
14	Badulla	1 922
15	Monaragala	333
16	Jaffna	8 261
17	Kilinochchi	396
18	Vavuniya	872
19	Mullaitivu	268
20	Mannar	271
21	Anuradhapura	1 164
22	Polonnaruwa	561
23	Trincomalee	2 969
24	Batticaloa	2 848
25	Ampara	338
	Total	**103 470**

Source: Epidemiology Unit, Ministry of Health, Sri Lanka, 2020

(i)   State two salient features of the district-wise distribution of dengue patients in Sri Lanka that can be observed from Table 2.

1. Dengue patients can be found in all districts of Sri Lanka.

2. The highest number of dengue patients were reported in Gampaha and Colombo districts.

3. The lowest number of dengue patients was reported in Mullaitivu and Mannar districts.

4. Even though there were dengue patients reported in all districts of Sri Lanka, the majority of them found in the districts of the western province.

5. Except in Jaffna, the number of dengue patients in the dry zone districts is low.

(1×2=02 marks)

(ii)   Using above data, prepare a table with class intervals, tally marks, frequencies, cumulative frequencies and percentage cumulative frequencies.

(Consider the class interval as 4200; starting point of the first class interval should be zero)

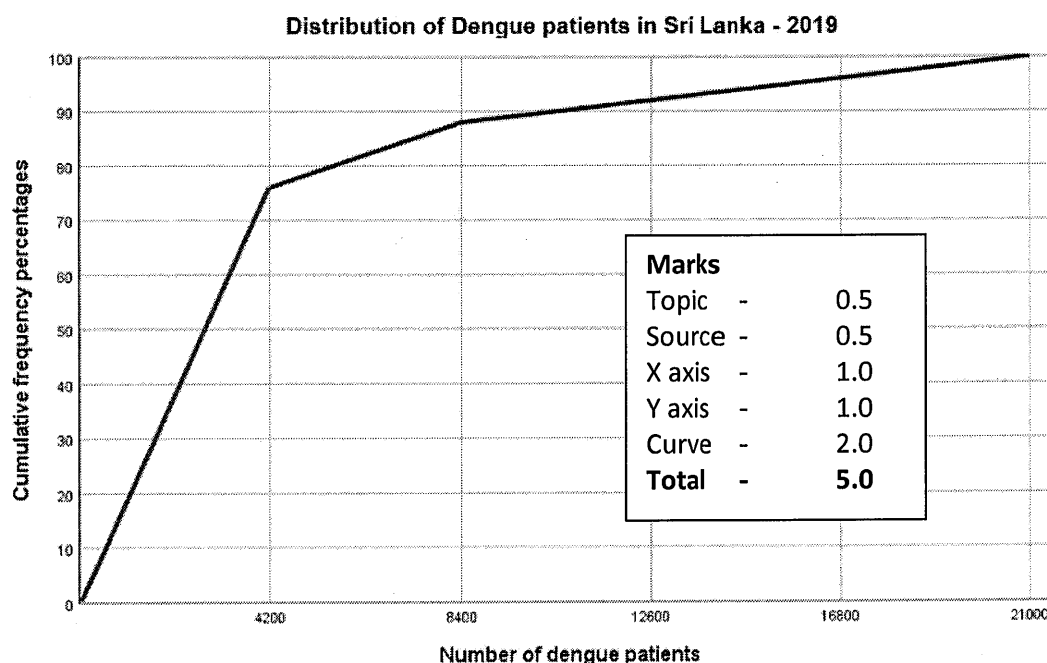### Distribution of dengue patients in Sri Lanka - 2019

Class intervals	Tally marks	Frequency	Cumulative Frequency	Percentage CF
0 - 4,200	ℕℕ ℕ ℕ ℕℕ ℕ IIII	19	19	76
4,201 - 8,400	III	03	22	88
8,401 - 12,600	I	01	23	92
12,601 - 16,800	I	01	24	96
16,801 - 21,000	I	01	25	100
Total		25		

Source: Epidemiology Unit, Ministry of Health, Sri Lanka, 2020

Class intervals	-	1
Tally marks	-	1
Frequency	-	1
Cumulative Frequency	-	1
Percentage CF	-	1
Total	-	5

(05 marks)

(iii)   Construct a percentage cumulative frequency curve using the table you have prepared in above (ii). (Ask for a graph paper for this exercise)

Distribution of Dengue patients in Sri Lanka - 2019

Marks		
Topic	-	0.5
Source	-	0.5
X axis	-	1.0
Y axis	-	1.0
Curve	-	2.0
Total	-	**5.0**

Cumulative frequency percentages (Y axis)

Number of dengue patients (X axis)

Source; Epidemiology Unit, Ministry of Health, Sri Lanka

(iv) State two uses of the percentage cumulative frequency curve.

1. Any value of the class interval and its related frequency could be graphically presented.

2. According to the graph, a vertical line drawn from X axis to the curve and a horizontal line drawn from the point of the curve to the Y axis could be identified as the different values of percentages and its relative cumulative frequency.

3. Easy to understand even a larger set of data.

4. Easy to show the difference between the class intervals than in any other type of graphs.

5. The percentages / amount from the upper or lower proportion of any value of the curve, can be identified.

$$(1 \, {}^{1}/_{2} \times 2 = 03 \text{ marks})$$

නව නිර්දේශය/புதிய பாடத்திட்டம்/*New Syllabus*

NEW ... Department of Examinations, Sri Lanka ...

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2020
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2020
General Certificate of Education (Adv. Level) Examination, 2020

භූගෝල විද්‍යාව	II
புவியியல்	II
Geography	**II**

22 E II

පැය තුනයි	අමතර කියවීම් කාලය - මිනිත්තු 10 යි
மூன்று மணித்தியாலம்	மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
Three hours	**Additional Reading Time - 10 minutes**

Use additional reading time to go through the question paper, select the questions you will answer and decide which of them you will prioritise.

Instructions:

*   *Selecting at least **two** questions from each part, answer **five** questions only.*

Part I - Physical Geography

1. (i) Name **four** major areas of the world where glaciers are found.   (02 *marks*)

  (ii) Describe in brief, **three** ways of erosion taken place in the valley glacier regions. (06 *marks*)

  (iii) Briefly explain with suitable diagrams **three** landforms created by the erosive action in the continental glacier regions.   (06 *marks*)

  (iv) Briefly explain **three** landforms with suitable diagrams created by deposition in continental glacier regions.   (06 *marks*)

2. (i) Name **four** major types of Koppen's world climatic classification with relevant letters. (02 *marks*)

  (ii) Selecting one type of the Koppen's world climatic classification you have learned describe **three** of its salient features.   (06 *marks*)

  (iii) Describe **three** main characteristics in the geographical distribution pattern of rainfall in Sri Lanka during the South-West Monsoon season.   (06 *marks*)

  (iv) Explain with **three** examples the impact of the South-West monsoon rains on the vegetation cover in the Wet zone of Sri Lanka.   (06 *marks*)

3. (i) What is meant by the terms 'Natural Hazard' and 'Disaster'?   (02 *marks*)

  (ii) Describe **three** salient features of any **one** of the following natural hazards in the world.
       (a) floods   (b) landslides   (c) earthquakes   (06 *marks*)

  (iii) Explain **three** impacts of the natural hazard you have selected above in (ii) on human environment.   (06 *marks*)

  (iv) Explain **three** steps taken by the Disaster Management Centre in Sri Lanka under the Preparedness stage of the Disaster Management Cycle.   (06 *marks*)

4. (i) Name **four** factors that would help in the identification of differences among Biomes. (02 *marks*)

  (ii) Briefly describe **three** major characteristics in the temperate zone forest biomes **or** Mediterranean woodlands biomes.   (06 *marks*)

  (iii) Briefly explain **three** environmental problems arisen due to artificial wetlands in Sri Lanka.   (06 *marks*)

  (iv) Explain **three** measures taken by the government of Sri Lanka to minimize the environmental problems associated with artificial wetlands.   (06 *marks*)

Paper II

Part I - Physical Geography

(1). (i) Name four major areas of the world where glaciers are found.

1. Mountain glaciers   - Alaska, Rocky, Alps, Himalaya, Andes, Atlas, Ural and Southern Alps of New Zealand.
2. Continental glaciers   - Greenland, Antarctica, Iceland, Siberia and Arctic.

(Any four regions can be included in the answer)

(0.5 × 4 = 2.0 Marks)

(ii). Describe in brief, three ways of erosion taken place in the valley glacier regions.

Glacial erosion consists of three ways. They are:

1. Plucking:

Plucking means dislocation of loose bedrock by the glacier. When the water in joints and openings in the bedrock is frozen, the pressure of ice rises and removes the loose particles of the bedrock. As ice and glaciers move, they scrape along the surrounding rock and pull away pieces of rock, which causes erosion.

2. Abrasion:

Abrasion is the grinding and polishing of the surface by the moving glacier. It is the process in which a glacier scrapes underlining rock. Rock, Particles, pebbles and sand contained in the glacier exert a pressure on the land.

3. Sweeping / Striations:

Sweeping means, the removal of material of the surface by large rocks contained in the glacier. A scratch or groove produced on the surface of a rock by a geologic agent, glacier. Striations run parallel to the flow directions of the ice.

(2 × 3.0 = 6.0 Marks)

(iii) Briefly explain with suitable diagrams three landforms created by the erosive action in the continental glacier regions.

The erosive action of the continental glaciers in these areas has created several landforms:

1. Roche Moutonnee:

    A Roche Moutonnee is an asymmetric bedrock hill shaped by the flow of glacial ice. An abraded bedrock formed by an over - riding glacier. It is striated and has a gentle slope facing the upstream direction of ice movement and plucked on the side facing away from the ice to give a steep slope. Because of their characteristic shape, they are called Roche Moutonne.

Fig. 8.33: Roche moutonnee
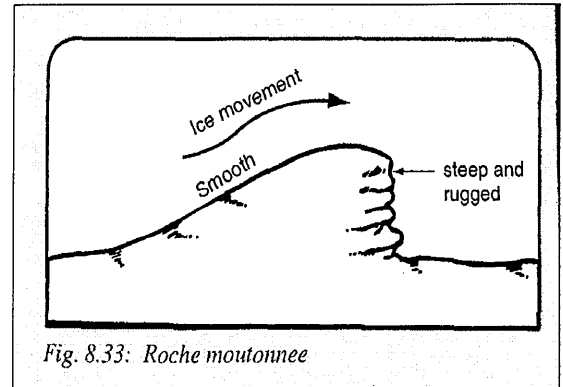
2. Nunataks:

    Nunataks are areas where just the submits of mountains penetrate. A hill or mountain that has been completely encircled by a glacier. There are several adjacent peaks exactly like this Nunataks.
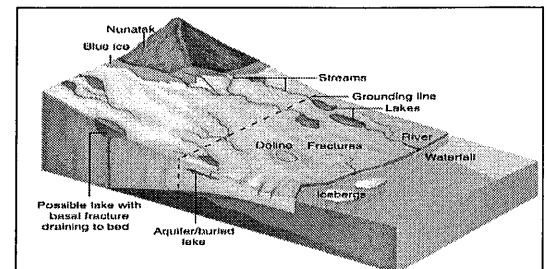

3. Fjords:

    A glaciated valley flooded by the sea to form a long, narrow, steep - walled inlet. During the last ice age, glaciers carved deep valleys in the coastal mountains ranges. When the ice age came, the glaciers melted away, leaving deep, U - shaped valleys. The water stored in the glaciers and within the vast ice sheets that covered continents during the ice age, flowed back into the sea and caused sea level to rise. The rising sea filled the deep valleys, creating fjords or flooded glacial

4. Crag and Tail:

    Landform developed by glacial erosion of rocks on unequal resistance. The crags are cliff developed in strong rock. The tail is formed in softer rocks from erosion in its lee.

Crag and tail
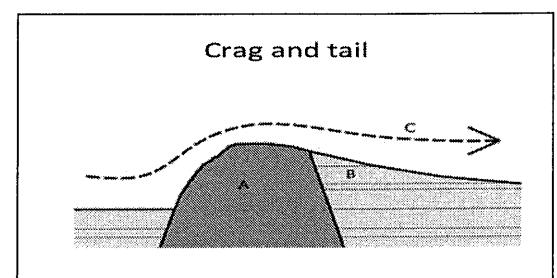
(2.0× 3 = 6.0 Marks)

(iv) Briefly explain three landforms with suitable diagrams created by deposition in continental glacier regions.

There are many depositional landforms:

1. Drumlines:

A smooth, glacially stream - lined hill that is elongated in the direction of ice movement. Drumlines are generally composed of till. Drumlines tend to be asymmetric along their length, with a gentle downstream slope and a steeper upstream slope.

2. Eskers:

A long, narrow ridge of stratified glacial drift deposited by a stream flowing beneath a glacier stream bed. Eskers are snake-like ridges of sand and gravel that form when sediment fields meltwater tunnels at the base of a glacier.

3. Kames:

A body of stratified glacial sediment. A mound or an irregular ridge deposited by a sub - glacial stream as an alluvial fan or a delta.

4. Kettle:

A closed depression in a deposit of glacial drift formed where a block of ice areas buried or partly buried and then melted. If the water table is high, Kettles fill with the water and turn in to roughly circular lakes.

5. Varve:

A pair of thin sedimentary layers, one relatively coarse - grained and light coloured and the other relatively fine - grained and dark - coloured, formed by deposition on a lake bottom during a period of one year.

6. Outwash Plain:

The area beyond the margins of a glacier where melt water deposits sand, gravel and mud washed out from the glacier.

7. Terminal Moraine:

A ridge of material deposited by a glacier at the line of maximum advance of the glacier. The end moraine at the farthest limit of glaciation.

8. Erratic:

   Large blocks of rock, which are of a material quite different to that of the rock of the region. These blocks are known as erratic, and they were uprooted in one region and deposited away from hundreds of kilometers in another region.

9. Boulder Clay Deposits/ Till:

   Thick deposits of clay containing angular rock particles, cover large ports of glaciated low lands. Because of the numerous boulders in the clay, these deposits are called boulder clay deposits.
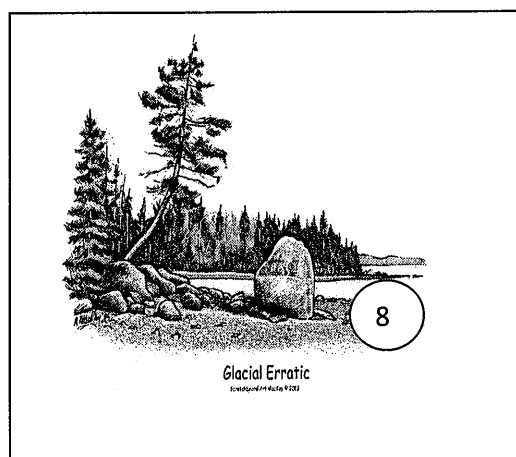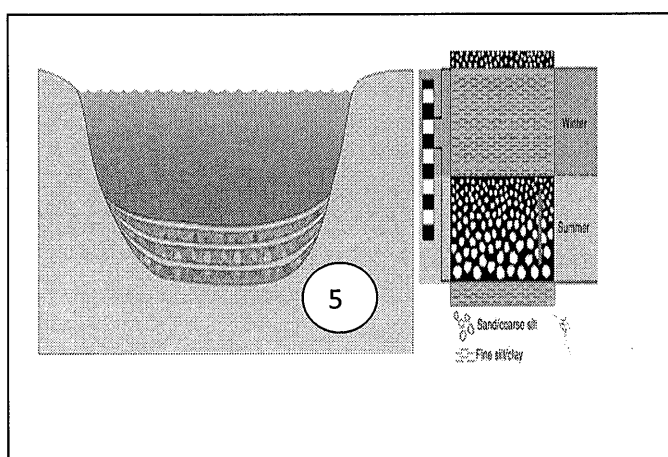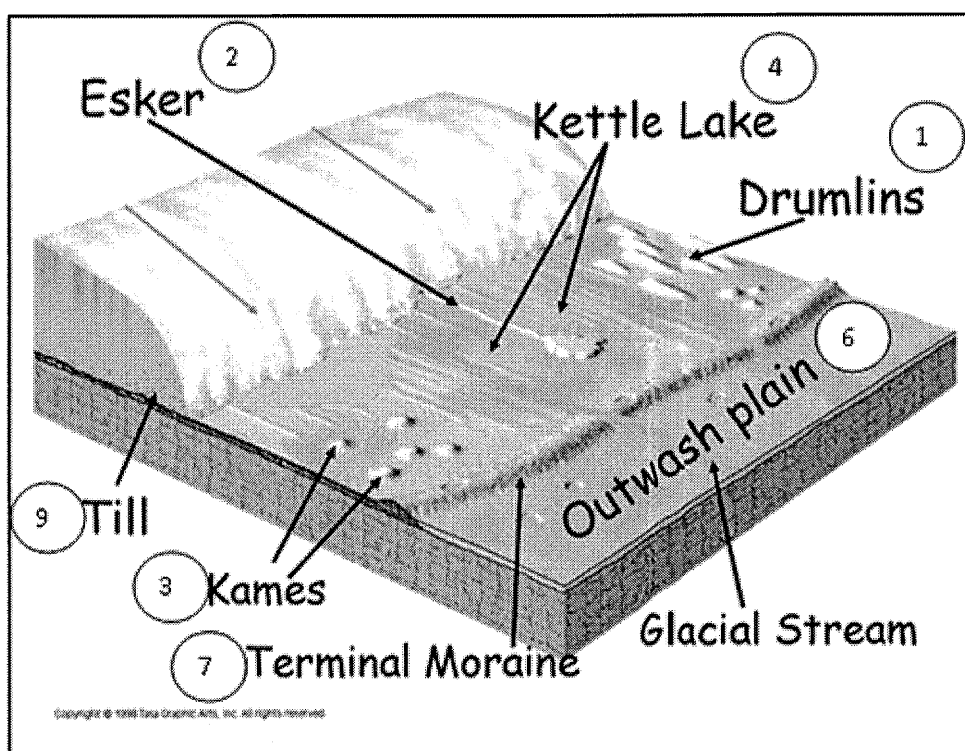
Description   -   1 mark

Sketch   -   1 mark

(2.0× 3 = 6.0 Marks)

(2) (i) Name four major types of Koppen's world climatic classification with relevant letters.

          A -   Tropical Climate

          B -   Dry Climate

          C -   Warm Temperate Climate

          D -   Cold Climate

          E -   Polar Climate

(0.5 × 4 = 2.0 Marks)

(ii) Selecting one type of the Koppen's world climatic classification you have learned describe three of its salient features.

Tropical Climate (A)

1. This climate is distributed in regions near the equator in low latitudes.

2. The mean temperature is above 18°C. No winter season. The coldest month temperature is more than 18°C.

3. Annual rainfall is high and it exceeds the amount of annual evaporation.

4. Tropical rainy climate has been divided into three sub - types as tropical wet (Af), monsoon (Am) and savanna (Aw) climates.

5. Main vegetation type of Af climate is tropical rain forest with tall trees and large trunks. Plants are evergreen.

6. Rainfall in tropical savanna climate (Aw) is lesser than in Af and Am climate types. It is less than 600mm.

7. Nearly 60% of the mammalian species and 70% - 80% of the insect species of the world could be found in these climate regions.

8. Heavy rainfall spread throughout the year varies between 2500 mm - 5000 mm in Af climate.

9. Annual rainfall in Aw climate regions is about 1016 - 1500 mm.

10. Four layers could be seen in the plant stratification in tropical rain forests.

               If A is selected   = 6.0 marks

               If only Aw/ Af/ Am/ selected = 3.0 marks

(2.0 × 3 = 6.0 Marks)

(iii) Describe three main characteristics in the geographical distribution pattern of rainfall in Sri Lanka during the South - West Monsoon season.

1. South - West monsoon occurs between May to September.

2. Owing to the relief features, western slopes of the central highlands receive a large amount of rainfall.

3. Eastern side of the mountains gets relatively less rainfall.

4. Maximum rainfall values for certain locations in the western slopes of the central highlands are given below.

   Yatiyanthota   (5259 mm),

   Watawala   (5024 mm),

   Maliboda   (5330 mm)

5. Coastal areas, relative to western slopes, receive less rainfall.

   Colombo (2403 mm), Batticaloa, Ambalanthota, Jaffna and Mannar, receive less rainfall during the South - West Monsoon period.

6. The lowest rainfall is in the North - Western and South - Eastern low lands.

7. During the Southwest monsoon period;

   Watawala, Ginigathhena and Norton Bridge receive 65% of the annual rainfall.

   Other parts of the South West area experience 35% to 65%.

   The rest of the country gets 10% to 35% of the annual total.

8. A dry period occurs in the lowland dry zone during this season.

$$(2.0 \times 3 = 6.0 \text{ Marks})$$

(iv) Explain with three examples, the impact of the South West Monsoon rains on the vegetation cover in the wet zone of Sri Lanka.

1. Tropical rainforest and evergreen forests are distributed in the low land and mid country of wet zone due to plenty of rainfall during the South - West monsoon.

2. Wet zone receives a high rainfall throughout the year. Also, maximum rainfall is received in the months from May to September. Due to this rainfall and temperature, vegetation is evergreen and tropical rain forest is seen.

3. Because of high rainfall, plant diversity is very high. About 100 - 140 endemic plants could be seen.

4. Forest diversity is also high. Trees are made of soft wood compared to dry zone trees.

5. Due to high rainfall, a thick under growth is seen.

6. Plant stratification could be seen. Soil moisture caused by heavy rains supports the plant growth.

(2.0 × 3 = 6.0 Marks)

(3) (i) What is meant by 'Natural hazards' and 'Disasters'?

Natural hazards	Disasters
A natural phenomenon, harmful to man and environment, caused by factors extraneous to man. It has different types.	Activation of a natural hazard, destructive to human life, property and environment, an unexpected and sudden event.

(1.0 ×2 = 2.0 marks)

(ii) Describe three salient features of the following natural hazards in the world.

No.	Natural hazard	Salient Features
(a)	Floods	1. A widespread disaster in the world. The floods could occur in three ways. a) Floods in river valley areas when the water level of the river increases. b) Floods in urban areas that occur due to the obstruction of water ways. c) Floods in coastal areas due to sea invasions during cyclones and high tides. 2. There are some river valleys in the world with frequent floods 3. Man's contribution makes floods a hazard. 4. Filling lowlands, poor knowledge, poverty, unauthorized constructions make floods a disaster. 5. Human activities close to riverbanks also support flooding.
(b)	Landslides	1. It is a rapid downward movement of rocks, soils and other material in mountain slopes or areas of steep slopes with loose soils due to the gravity. 2. It occurs due to physical factors as well as human activities. 3. There are physical reasons. 4. Also, there are some human reasons.
(c)	Earthquakes	1. An intense shaking of Earth's surface. 2. The shaking is caused by movements in Earth's outermost layer. 3. The shaking is resulted from a sudden release of energy in the Earth's lithosphere that creates seismic waves. 4. A shock along the boundaries of the tectonic plates occurs due to the emission of energy stored in Earth's crust. 5. High population density and concentration of human activities make it a hazard.

(2.0 ×3 = 6 marks)

(iii) Explain three impacts of the natural hazard you have selected above (ii) on human environment.

No.	Disaster	Human Life	Personal Property	Infrastructure	Livelihood Problems	Social Problems
(a)	Floods	Loss of human life and injury	Damages of houses and property	Communication links, Power plants, Roads and Bridges are damaged.	Destruction of crops, loss of livestock. Some economic activities may come to a halt.	Deterioration of health conditions due to waterborne diseases. People are forced to leave their homes.
(b)	Landslides	Loss of human life and injury	Damages of houses and property	Destruction of infrastructure facilities Shortage of drinkable water.	Destruction of agricultural land.	People are displaced and destruction of normal life.
(c)	Earthquakes	Loss of human life and injury	Damages of houses and property	Can produce severe damage to infrastructures, roads, railways and pipelines.	Destruction of modes of production and loss of the time and resources required to repair.	People show unusual behavior. They may run away, jump out of windows, or may be panic.

(2.0 × 3 = 06 Marks)

(iv) Explain three steps taken by the Disaster Management Centre in Sri Lanka under the preparedness stage of the Disaster Management Cycle.

1. Preparation of National Disaster Management Plan and National Emergency Operation Plan

2. Coordinating and monitoring of preparation of disaster preparedness and response plans at provincial, District, Local Authority, Divisional and Grama Niladhari Levels.

3. Coordinate with health authorities on preparation of preparedness plans for emergency response

4. Assist for implementing the School Disaster Safety Programme

5. Strengthening local authorities for emergency response

6. Development of response plans for different hazards such as cyclone, floods, landslides etc

7. Identification of vulnerable communities for different hazards and implement preparedness activities to ensure the safety of people

8. Formation of disaster management committees

9. Awareness on disaster management, hazards and vulnerability

10. Preparation of hazard maps showing safe locations, safe routes, etc

11. Conducting mock drills

$$(2.0 \times 3 = 6.0 \text{ Marks})$$

(4). (i) Name four factors that would help in the identification of differences among Biomes.

1. Distribution
2. Climate
3. Characteristics of vegetation
4. Plant species
5. Animal species

$$(0.5 \times 4 = 02 \text{ marks})$$

(ii) Briefly describe three major characteristics in the temperate zone forest biomes or Mediterranean woodlands biomes.

Temperate Zone Forest Biome

1. Distribution: Zone between latitudes of 50^0 - 60^0 in both hemispheres. This biome could be seen in Eastern region of North America, Northern and Central region of Europe, Eastern region of Asia, and Western costal area of South America.

2. Climate: Clear seasonality can be seen. Temperature is about 15^0 C. Annual rainfall is between 750 - 1500 mm. Although rainfall is low but it is sufficient for plant growth. Soil is highly fertile.

3. Characteristics of vegetation: Many plants are deciduous. Evergreen plants also could be seen. Height of the dominant trees are about 25 - 30m. To some extent a stratification could be seen. Nature of plants change with seasons. Leaves fall in the winter.

4. Plant Species: Oak, beach, birch, maple, elm.

5. Animal Species: African buffalo, deer, fox, porcupine, dove.

Mediterranean Biome

1. Distribution: This Biome type could be seen in all continents in varying extents. It is found around the Mediterranean Sea in Europe and Northern Africa, California in North America, Western coastal region of South America, around Cape Town in South Africa and in Perth and Adelaide in Australia.

2. Climate: A dry and warm climate exists. Temperate varies from $26.6\ ^0$ C - $32.2\ ^0$ C in summer to 10^0 C in winter. Mean annual rainfall is less than 762 mm and it is rhythmic.

3. Characteristic of vegetation: Vegetation have adopted themselves to drought conditions of summer. Leaves are thorny. They are insulated with wax and resin. Thick dark and gnarled trees.

4. Plants species: Eucalyptus, Cedar, Oak, Olive, Tulip, Deodar, Pine, Rosemary, Lavender

5. Animal species: Deer, Birds, Wolf, Dingo

<div align="right">(2.0×3 = 06 marks)</div>

(iii) Briefly explain three environmental problems arisen due to artificial wetlands in Sri Lanka.

Artificial wetland in Sri Lanka are:

1. Salters
2. Constructed reservoirs
3. Agricultural land (paddy land)
4. Quarries

Environmental problems

1. Loss of natural vegetation.
2. Wetlands being used for filling and construction work without paying due attention to their significance.
3. Such quarries are unsafe, breeding places for mosquitoes and other health related issues.
4. Floods may occur due to abandoned paddy lands.
5. Loss of soil fertility due to salinity around salters.

<div align="right">(2.0×3 = 06 marks)</div>

(iv) Explain three measures taken by the government of Sri Lanka to minimize the environmental problems associated with artificial wetlands.

1. Improve environmental friendly ideas and attitudes.

2. Protect environment by providing education.

3. Impose laws and regulations.

4. Enforcement of law agents on whom who violate the environmental laws.

5. Maintain human activities in a sustainable manner at the artificial wetlands.

(2.0 ×3 = 06 marks)

Part II - Human Geography

5. In **Table 1**, data on world Crude Death Rate for the period from 1950-55 to 2015-20 are provided.

Table 1: World Crude Death Rate

Region	1950 -55	1970 -75	1990 -95	2010 -15	2015 -20
More Developed countries	10.6	9.5	10.0	9.9	10.2
Less Developed countries	23.1	12.9	8.9	7.2	7.0
Africa	26.7	18.7	14.3	9.3	8.2
Asia	22.6	12.0	8.0	6.9	6.9
Europe	11.2	10.2	11.2	10.9	11.0
Latin America and the Caribbean	15.5	9.5	6.5	6.0	6.3
North America	9.5	9.2	8.6	8.1	8.6
Oceania	13.3	9.5	7.6	6.9	6.8

Source : United Nations, Population Division, World Population Prospects, 2019

  (i) What is meant by 'Crude Death Rate'?   *(02 marks)*

  (ii) State **four** salient features of the World Crude Death Rates that can be identified from the data given in **Table 1**.   *(04 marks)*

  (iii) Selecting **two** of the salient features that you have mentioned in above (ii), briefly discuss **two** factors responsible for each feature.   *(06 marks)*

  (iv) Explain in brief **four** factors responsible for the decline in the crude death rate in Sri Lanka since Independence.   *(08 marks)*

6. (i) Name **two** sectors of modern technology to which the methods applied in agriculture belong in order to increase food production.   *(02 marks)*

  (ii) Selecting one of the sectors mentioned in above (i), explain with **two** examples, how the new technology has contributed to increase food production.   *(06 marks)*

  (iii) Examine **three** adverse effects of new technology applied in agriculture.   *(06 marks)*

  (iv) Discuss in brief **three** measures that can be adopted to minimize the adverse effects you have mentioned in above (iii).   *(06 marks)*

7. (i) What is an extraction industry?   *(02 marks)*

  (ii) Describe in brief **three** salient features of the geographical distribution pattern of iron ore deposits in the world.   *(06 marks)*

  (iii) Describe **three** trends in the world iron ore trade.   *(06 marks)*

  (iv) Discuss **three** problems encountered by the extraction industry in the world.   *(06 marks)*

8. (i) What is meant by the term 'tourist'?   *(02 marks)*

  (ii) Describe in brief **three** types of tourism.   *(06 marks)*

  (iii) Describe **three** economic benefits of the tourism industry in Sri Lanka.   *(06 marks)*

  (iv) Examine **three** measures that have been taken by the government of Sri Lanka to improve the tourism industry.   *(06 marks)*

✽ ✽ ✽

Part II - Human Geography

5. In **Table 1**, data on world Crude Death Rate for the period from 1950-55 to 2015-20 are provided.

Table 1: World Crude Death Rate

Region	1950 -55	1970 -75	1990 -95	2010 -15	2015 -20
More Developed countries	10.6	9.5	10.0	9.9	10.2
Less Developed countries	23.1	12.9	8.9	7.2	7.0
Africa	26.7	18.7	14.3	9.3	8.2
Asia	22.6	12.0	8.0	6.9	6.9
Europe	11.2	10.2	11.2	10.9	11.0
Latin America and the Caribbean	15.5	9.5	6.5	6.0	6.3
North America	9.5	9.2	8.6	8.1	8.6
Oceania	13.3	9.5	7.6	6.9	6.8

Source : United Nations, Population Division, World Population Prospects, 2019

(i)   What is meant by "Crude Death Rate"?

Number of deaths per 1000 population in a country in a given year.

(02 marks)

(ii)   State four salient features of the world Crude Death Rates that can be identified from the data given in Table 1.

1. Contrasting differences in crude death rates between developed and developing countries.

2. The crude death rates in developed countries do not show a serious change during the given period.

3. The crude death rates in developed countries have shown fluctuations.

4. Crude death rates in developing countries have declined spectacularly

5. Crude death rate in Europe shows a stable trend with minor changes.

6. Crude death rate in North America too, shows a negligible decrease.

7. Crude death rates have spectacularly declined in Africa.

8. Crude death rates in Asia, too have declined tremendously.

9. In Latin America and the Caribbean too, crude death rates have declined remarkably.

10. As a whole crude death rate in the world has declined remarkably.

11. Differences in crude death rates can be seen among different regions.

(1.0×4 = 04 marks)

(iii)Selecting two of the salient features that you have mentioned in above (ii), briefly discuss two factors responsible for each feature.

<u>Decline in death rate in all regions.</u>

1. In all regions, health services and medical facilities were improved.

2. Control of epidemics.

3. Improvement in economic conditions.

4. Programmes implemented to increase peoples' awareness.

5. Polices of international organizations and their assistance.

<u>Stability in death rate in developed regions.</u>

1. In this part of the world, behavior of death rate is a function of population factors rather than economic factors. (e.g. changes in age - structure)

2. Rapid ageing of population.

3. Health services and medical facilities in these regions are at a high level and their impact on death rate is much less compared to the situation in developing countries.

4. Remarkable decline in death rates in developing countries.

<u>Crude death rate in developing countries have declined spectacularly.</u>

1. Development in health services and medical facilities.

2. Eradication of epidemics.

3. Assistance of World Health Organization

4. Implementation of nutrition programmes.

5. Increasing awareness of health and sanitation.

$$(1^1/_2 \times 2 \times 2 = 6.0 \text{ marks})$$

(iv)Explain in brief four factors responsible for the decline in the crude death rate in Sri Lanka since independence.

1. Improvement in health services and medical facilities.

2. Spread of health services and medical facilities to rural areas.

3. Eradication of epidemics.

4. Spread of education.

5. Social and economic development.

6. Free health services

7. Improvement in nutrition.

$$(2.0 \times 4 = 8.0 \text{ marks})$$

(6) (i) Name two sectors of modern technology to which the methods applied in agriculture belong

in order to increase food production.

1. Green Revolution

2. Gene Technology

3. Organic Farming

(1+1=02 marks)

(ii) Selecting one of the sectors mentioned in above (i), explain with two examples,

how the new technology has contributed to increase food production.

Green Revolution

Example I - Introduction of high yielding varieties (HYVS):

1. Initiated by two international foundations, namely Ford and Rockefeller Foundations. Later, International Rice Research Institute (IRRI); Consultant Group on International Agricultural Research (CGIAR);

2. Some high yielding varieties: IR8, IR36, for rice, NERCAS for variety for Africa, Norin 10 for Japanese wheat, H4 and BG varieties in Sri Lanka.

3. The effect of growing varieties was the key issue for food production and establishing food security

Example II - Utilization of new Agricultural Machinery

1. New machines were used in agricultural farming activities from the beginning to end of it.

2. The main machine was the tractor with a range from hand tractor to large tractors and combine harvesters.

3. Our neighboring country, India is a good example for this.

4. Sri Lanka was also using tractors for farming activities and increased the productivity.

Example III - The utilization of artificial fertilizers, insecticides and pesticides

1. The agricultural impact was excellent with the high yielding varieties than out performed yield of traditional varieties.

2. It leads to self - sufficiency in rice production.

Gene Technology

"Genetically modified grains, vegetables, roots and fruits were provided by Multi-National Corporations".

Example I - Grain Production: GM grains are paddy, corn, soya beans, wheat.

1. These GM seed varieties are resistant to diseases and increased their production.

2. Grown in U. S. A. Brazil, Argentina, India, Canada and in some developing countries. These GM seed varieties extensionally grown and product is supplied to the international market.

3. A good example for GM rice variety is Golden Rice. It is grown in vitamin A deficiency regions such as South East Asia, South Asia and Africa.

Example II - Vegetables and Root Productions

1. Various types of vegetables and roots have been produced using gene technology. Among them are tomatoes, beans, carrot, sweet potato, potatoes, cowpea, canola seeds (for oil) etc.

2. Tomato :- In 2017, the world tomato production was 182,301 thousand Mt, and it is an increase by 1.6%.

3. Potato:- China is the leading producer and produced 26% of the world total production in 2016, secondly India - 12.50% and Thirdly Russia - 7.62%.

Example III - Fruit Production

1. A large number of improved varieties of fruits have been produced with the use of gene technology.

2. Among them banana, papaya, grapes, apples and oranges are common.

3. Many countries grow these fruits and even export to the common markets.

Organic Farming/ agriculture

"Organic agriculture is a production system that protect the soil, quality of environmental system and human health. It combines sectors of tradition, modernity and science that bring the benefits to the environment and to the related communities. (International Federation of Organic Agriculture Movement). There is a new trend in organic agriculture in the world and crop diversification, organic fertilizer and biological pesticides are practiced. Since 1990s, food production has been increased rapidly by organic farming".

Example I - Soil management

1. Soil management heavily focuses on improving the plant nutrients available in the soil in the farm by using techniques like green manuring and composing.

2. Use of various methods to improve the soil fertility including crop rotation, cover cropping, reduce tillage, and application of composts.

3. At present, there is an increasing demand for composed fertilizer in many parts of the world.

4. In Sri Lanka too, the agricultural extension service centers giving instructions on how to prepare and produce compost fertilizer for domestic purposes.

Example II - Weed management

1. For this purpose, biological and chemical strategies are used and pesticides are not utilized.

2. Use covers to protect the sunlight receiving on weeds.

3. Removing and cutting weeds.

4. Weed growth controlled by using high temperature.

$(3.0 \times 2 = 06 \text{ marks})$

(iii). Examine three adverse effects of new technology applied in agriculture.

1. Usage of insecticides and pesticides destroyed edible green vegetables and fish.

2. Destroyed bio - diversity.

3. As utilization of chemical fertilizer, pesticides and weedicides is done badly, it was harmful to the environment as well as to the life of the farmers.

4. Many countries come under the control by Multi-National Corporations.

5. High cost of inputs made poor farmers debtors.

6. Well off farmers obtained favorable effects.

7. Increase the economic inequalities among farmers.

8. Go away from traditional values and knowledge.

9. Water pollution by mixing chemicals to the ground water and to the surface water.

10. Genetically modified vegetables and fruits are harmful to human body.

11. Some suitable pests to agriculture are destroyed.

12. Traditional types of seeds disappeared gradually.

(2.0×3 = 06 marks)

(iv). Discuss in brief three measures that can be adopted to minimize the adverse effects you have mentioned in above (iii)

These measures are to be taken to minimize the adverse effects:

1. New acts to be introduced to avoid damages done by the utilization of artificial fertilizer and agro chemicals.

2. Utilization of organic fertilizer to be popularized among farmers instead of artificial fertilizers.

3. Educate the farmers about environmental management strategies.

4. Further improvement and enhancement of credit facilities with low interest rates and availability of irrigation water for cultivation.

5. Provide and improve knowledge for the farmers regarding the adverse effects by new technology and exhibiting model farms.

6. Establishing storage facilities to protect and reserve traditional seed varieties.

7. Only allow to cultivate certified genetically modified vegetables and fruits which are not harmful to the human body.

8. Improve the farmers awareness regarding Nano technology, e-agriculture, Agricultural Intelligence (AI) and drone technology.

9. Technical assistance on machines and advices should be obtained from agriculturally advanced countries in Asia, like China, Japan, South Korea, Philippine and India.

(2.0×3 = 6.0 marks)

(7)   (i) What is an extraction industry?

"Extractive industries are the process of bringing the deposited minerals of the earth such as coal, iron ore , petroleum, natural gas, limestone, gem, mica etc. to the earth surface"

(02 Marks)

(ii) Describe in brief three salient features of the geographical distribution pattern of iron ore deposits in the world.

1. China is the world's largest producer of iron ore followed by Brazil and Australia at the second and third positions respectively.

2. Majority of the world's total reserves of iron-ore of 3,20,000 million tons is located in North America, Russia, United Kingdom, Brazil, South Africa and India.

3. Iron ore producing areas are widely distributed in the world. There are about 60 countries producing iron-ore.

4. Distribution of iron-ore can be identified on regional basis;

    a) Great Lakes in North America

    b) Ukraine and Kuznetsk region in Russia

    c) Sanshi region in China

    d) South Suwacowe in Brazil

    e) Hammersley range in Australia

    f) South Wales, Midland valley, Sheffield and Birmingham in U. K.

5. Deposits of iron-ore in the former industrialized countries in Western Europe have declined.

6. Comparatively, African countries have low iron-ore reserves.

(2.0×3 = 06 marks)

(iii). Describe three trends in the world iron ore trade.

1. Fifteen countries have shipped 96.8% of global export of iron-ore in 2019.

2. In 2016, five countries have exported high value of iron-ore in the world as follows.

Australia	- 39.5	US $ Billion (55.0%)
Brazil	- 13.3	US $ Billion (18.5%)
South Africa	- 3.6	US $ Billion (5.0%)
Canada	- 2.9	US $ Billion (4.0%)
Ukraine	- 2.3	US $ Billion (3.2%)

3. The leading iron-ore importing countries in 2019 were

China	- 69.1%
Japan	- 7.5%
South Korea	- 4.8%
Germany	- 2.7%
Netherlands	- 2%

    At present, China is the leading importer in the world. More than half of the world iron-ore import is done by China.

4. In the year 2018, some 1.35 billion metric tons of iron-ore were imported by Asia making it the world's largest iron ore importing region. Even in Asia, the countries in Asia Pacific region, which are rapidly industrializing countries, take the priority.

5. A prominent place is held by China and Australia in iron-ore trade. Australia export iron-ore to China, as the demand for steel has risen supply for infrastructure developments and buildings.

6. The main feature of the iron-ore market is rapid increase in the demand.

    (2.0 ×3 = 06 marks)

(iv). Discuss three problems encountered by the extraction industry in the world.

1. Depletion of iron-ore deposits gradually

2. Increasing demand for low quality reserves.

3. Increasing the depth of mines.

4. Frequent accidents around the mining areas.

5. Low demand for human labour.

6. Environmental problems.

7. Increasing production cost.

8. Emerging crisis among states, companies and tribal communities.

(2.0 ×3 = 06 marks)

(8) (i) What is meant by the term "tourist"?

"A tourist can be defined as a person who visits a country for a certain period, objectively for entertainment, sports, observing beautiful landscapes, visiting cultural and historical places etc. and spend his/her own money and leave the visited country".

(02 marks)

(ii) Describe in brief three types of tourism.

Environmental Tourism

Natural attractions (Geographical or biological feature) have the specific appeal to this tourism. This includes rainforest, grassland, mountains, beaches, swamps causes etc.

Cultural Tourism

This tourism engages with a country or a region's culture, life style, history of the people, their art, architecture etc. of these areas.

Recreational Tourism

This tourism includes activities participating in some kind of recreational activities or participating in sports or cultural events.

Aesthetic Tourism

It is belong to the "pleasure in beauty". A tourist or a group of tourists travelling to beautiful landscapes for the purpose of site seeing and leisure is belong to this category.

Adventure Tourism

This tourism is a type in which tourists do some adventures activities like skydiving, hill climbing, scuba diving etc.

(2.0 ×3 =06 marks)

(iii) Describe three economic benefits of the tourism industry in Sri Lanka.

    1. One of the sources of earning foreign exchange.

    2. Generating vast member of direct and indirect employment opportunities.

    3. Encouraging the regional development activities.

    4. Enhance the investment capacities around the country.

    5. Improve the government income.

    6. Promote the living standards of the people living in tourism zones.

$$(2.0 \times 3 = 06 \text{ marks})$$

(iv). Examine three measures that have been taken by the government of Sri Lanka to

improve the tourism industry.

    1. Updating polices related to the tourism industry.

    2. Ensuring the tourists' identity and protection

    3. Encouraging the improvement of local tourism.

    4. Improving new areas of tourism.

    5. Taking steps to minimize the adverse effects of tourism industry.

    6. Providing bank loans, tax relief to the tourism industry.

$$(2.0 \times 3 = 06 \text{ marks})$$

***