2279/01/O/N/25

1 (a) **(i)** Using Table 1.1 and Fig. 1.1, complete the graph on Fig. 1.2 by:

- labelling the axes
- plotting the data for site 5 and site 8
- drawing and labelling an arrow for the location of Manstone Rock. [3]

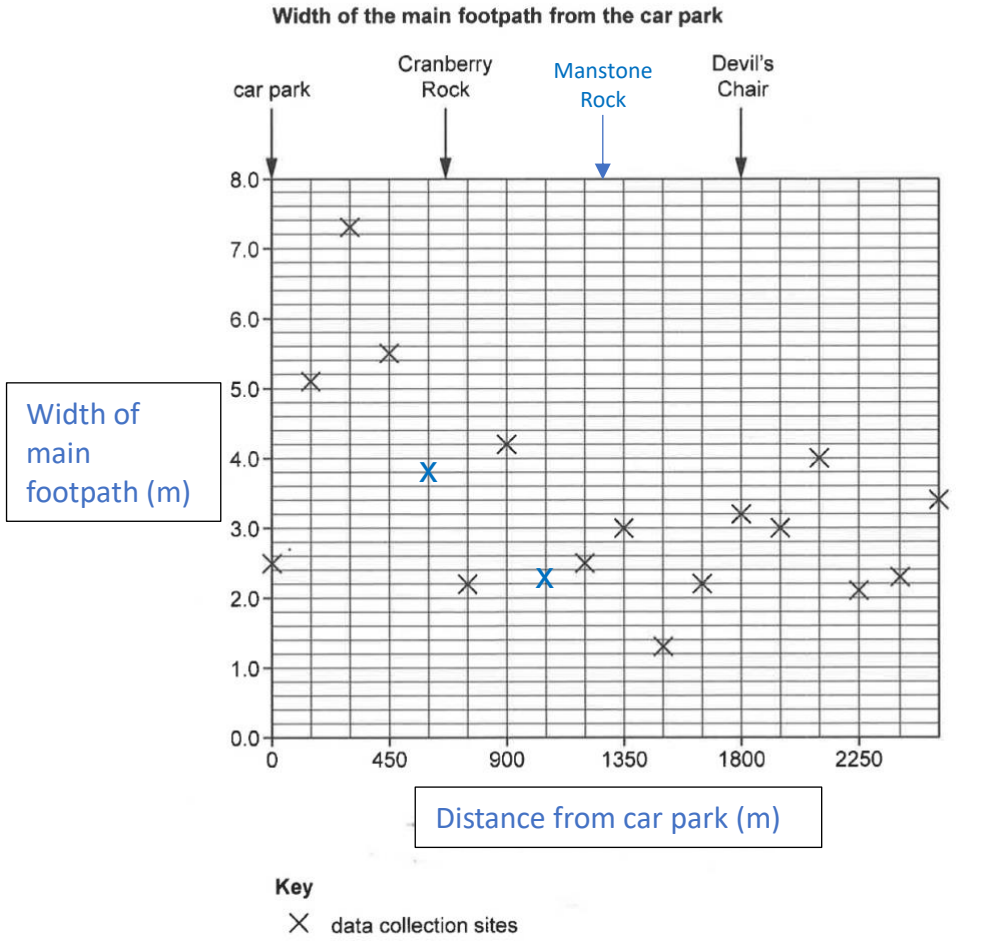

Fig. 1.2

(ii) Using Figs. 1.2 and 1.3, evaluate how well the data supports the hypothesis: 'The width of the main footpath decreases with increasing distance from the car park'. [3]

- The data supports the hypothesis to a **large extent** as the footpath is generally wider near the car park and narrows with increasing distance. [1]
- For example, Site 3 at 300m has the widest width of 7.3m, while Site 18 at 2550m has a narrow width of only 3.4m. [1]
- However, there are **anomalies** such as Site 15 at 2100m, where the footpath width increases again to 4.0m, possibly due to terrain or people creating side paths, as seen in Fig. 1.3 at Site 13 where vegetation is damaged from walkers leaving the main trail. [1]

(iii) With reference to Figs. 1.1 and 1.3, explain how the students could extend their study of footpath erosion at the nature reserve. [4]

- Students can **measure additional indicators of erosion** such as vegetation cover or soil exposure. [1] Since vegetation damage and exposed soil indicate off-path walking and degradation, students can **record percentage vegetation cover at regular intervals** along the path edges, to obtain a more holistic understanding of environmental impact beyond just footpath width. [1]

- Students can also **conduct observations during different times or seasons** as erosion may vary depending on visitor volume or weather conditions. [1] By **repeating the study on weekends, holidays, and different seasons** (e.g. wet vs dry), they can identify whether erosion worsens with increased use or rainfall. [1]

Accept other plausible answers.

(b) (i) Using Table 1.2, evaluate which method of collecting litter data is more appropriate to test the hypothesis. [3]

- **Method B** is more appropriate because it allows for a **systematic and consistent count** of the number of different types of litter every 200 metres. [1] This makes it easier to **quantitatively compare** the change in litter types with increasing distance from the car park. [1]

- It is also **less time-consuming and more efficient**, enabling data collection over a **larger area** with less risk of human error in identifying and recording every single piece of litter. This improves the **reliability** of the results. [1]

- Although Method A gives exact positions, it may be too detailed and harder to summarise for pattern analysis. Method B provides **clear, comparable data** that directly supports testing the **overall trend** of both amount and type of litter. [1]

(ii) Describe an appropriate way to present the findings for either method in Table 1.2. [3]

- An appropriate way to present the findings is a **comparative bar graph.** [1]

- On the **x-axis**, students can plot the distance from the car park at regular 200 metre intervals. On the **y-axis**, students can show the **total number of litter items** recorded. [1]

- Each bar would be represent the **different types of litter** (e.g. plastic, paper, metal, food waste), using different colours for each type. This allows for a **visual comparison** of both the total amount and variety of litter along the footpath. [1]

Accept other plausible answers.

(iii) With reference to Figs. 1.1 and 1.3, suggest two closed-ended questions with pre-defined responses which the students could ask the reserve manager about reducing litter. [4]

1. **Question 1:**
   "Would you consider increasing the number of litter bins along the main footpath to reduce littering?"
   - Yes
   - No
   - Already implemented

2. **Question 2:**
   "Do you think installing signs reminding visitors not to litter would help reduce waste in the reserve?"
   - Very effective
   - Somewhat effective
   - Not effective

Accept other plausible answers. Note each question must be:
- *Closed-ended*
- *Contain **pre-defined options***
- *Relevant to **reducing litter***
- *Grounded in the **context of the reserve***

2 (a) Describe two pull factors at tourist destination regions. [2]

- Tourist destination regions with a **favourable climate**, such as warm temperatures and clear skies, attract tourists who seek sunny conditions for relaxation, beach holidays, or outdoor activities. [1]

- **Cultural attractions** such as historical monuments, festivals, and religious sites draw visitors interested in learning about local heritage and experiencing traditions. [1]

- **Scenic natural landscapes** such as mountains, beaches, or waterfalls also act as pull factors, as they offer opportunities for sightseeing, photography, and outdoor recreation. [1]

- Destinations with **modern entertainment and leisure facilities** such as theme parks, luxury resorts, and vibrant shopping districts attract tourists seeking fun and recreation. [1]

Accept other plausible answers.

(b) (i) Describe the motivation for sports tourism. [3]

- Many tourists are motivated to travel internationally to **participate in sporting events**, [1] such as marathons, triathlons, or skiing competitions, which offer a sense of achievement and personal challenge. [1]

- Others travel to **watch major sporting events**, such as the FIFA World Cup or the Olympics, where the excitement, atmosphere, and shared passion among fans create a memorable experience. [1]

- Some tourists are drawn to **engage in recreational sports** in specific environments not available in their home countries, [1] such as surfing in Bali or skiing in the Swiss Alps, making the destination itself part of the motivation. [1]

(ii) With reference to Fig. 2.1, suggest the impacts of international festivals on the economy of a country, such as Cyprus. [4]

- International festivals **increase tourism revenue** through accommodation and related services. [1] This is supported by the fact that 42.6% of respondents stayed for two nights, and 25.5% stayed for three to four nights, leading to increased spending on lodging, food, and local transport. [1]

- Festivals help to **prolong tourist stays**, encouraging them to explore beyond the festival itself. [1] According to Fig. 2.1, 71.7% of tourists combined the festival with a holiday, meaning they would likely spend more on leisure and recreational activities. [1]

- Festivals can also **encourage repeat visits**, which supports **long-term economic growth**. [1] Fig. 2.1 shows that 88.9% of tourists would return to Cyprus, indicating a high potential for sustained visitor expenditure in future. [1]

(c) Explain how community-based tourism can be achieved sustainably. [3]

- Community-based tourism can be achieved sustainably by **involving local people in planning and decision-making**, [1] which ensures that tourism activities **align with community needs and values**. [1]

- It is important to **use local resources and labour** to create job opportunities, [1] which helps **distribute the economic benefits** of tourism directly to residents and **reduces leakage**. [1]

- Community-based tourism can be achieved sustainably by implementing **eco-friendly practices such as waste reduction, limiting tourist numbers, and educating visitors,** [1] which helps to **minimise environmental degradation and protect heritage** in the long run. [1]

(d) With reference to Fig. 2.2, explain how a pro-poor tourism project could affect the lives of local people. [3]

- A pro-poor tourism project could provide **employment opportunities in accommodation, guiding, or handicraft production**, [1] helping to **raise household incomes** in settlements like the one shown in Fig. 2.2. [1]
- It could also improve **infrastructure and services**, such as clean water, waste management, or education, [1] as **tourism investment is channelled into upgrading** the settlement's living conditions. [1]
- Increased interaction with visitors may **enhance cultural pride and social capital**, [1] especially if the community is **empowered to showcase their heritage and traditions** in a dignified and respectful way. [1]

3 (a) (i) Using Fig. 3.1, compare the average temperatures at Mangaluru and Kempegowda. [3]

- Mangaluru generally experiences **higher temperatures than Kempegowda across all seasons**, particularly during the monsoon and post-monsoon periods. [1]
- **Kempegowda has cooler temperatures in the winter**, with parts of the day showing temperatures as low as 13–17.9°C, which is not seen in Mangaluru. [1]
- Mangaluru has **more consistent** warm to hot temperatures throughout the day and across all seasons, whereas Kempegowda shows **greater variation** between cool, moderate, and warm ranges. [1]

Accept other plausible comparisons.

(ii) With reference to Fig. 3.2, explain how the Coriolis force influences the Southwest monsoon in India. Refer to Fig. 3.2. [3]

- The Coriolis force causes the Southwest monsoon winds to **deflect to the right in the Northern Hemisphere** as they move northwards from the equator. [1]
- As shown in Fig. 3.2, the winds **approach India from a south-westerly direction**. [1]
- This deflection **brings moist air from the Indian Ocean to the Indian subcontinent**, resulting in the characteristic southwest monsoon rains. [1]

(b) With reference to Figs. 3.3 and 3.4, to what extent do you agree with the statement: 'The natural variability of climate has contributed more to climate change than anthropogenic factors'? Explain your answer. [9]

Agree: Natural variability of climate contribute more to climate change

- Natural factors such as **solar output, large scale volcanic eruptions**, and **orbital variations** have historically caused climate change over millions of years.
- In Fig. 3.3, global temperature fluctuated from around **10°C to 30°C** over the past **300 million years**, with warmer periods corresponding to times when the Earth lacked polar ice caps.
- Variations in the Sun's energy output directly affect the Earth's energy balance. When solar radiation increases, more incoming shortwave energy is absorbed by Earth's surface, leading to higher global temperatures. Conversely, a decline in solar output results in cooling.
- Additionally, **Milankovitch cycles,** long-term variations in the Earth's orbit and axial tilt, alter how solar energy is distributed, influencing glacial and interglacial periods.
- In addition, **large scale volcanic eruptions** also affect climate by releasing ash and sulphur dioxide, which form aerosols that reflect sunlight and cause temporary cooling.
- For instance, the **1991 Mount Pinatubo eruption in the Philippines** released **20 million tonnes of sulphur dioxide** into the stratosphere. This formed a global layer of sulphate aerosols that reflected sunlight, resulting in a **temporary global temperature drop of about 0.5°C** over the following months.
- Therefore, natural processes have been the main cause of large-scale and long-term climatic changes before the industrial era, as evidenced by the long and gradual fluctuations in Fig. 3.3.

Counterpoint: Anthropogenic factors contribute more to climate change

- However, the **recent rapid warming since 1850** is primarily caused by **human activities**, not natural factors.
- According to Fig. 3.4, global temperature has increased by about **1.2°C since 1850**, with the **observed temperature (black line)** closely following the **temperature change due to human and natural causes (red line)**, rather than **natural causes alone (blue line)**.
- This sharp increase coincides with the **Industrial Revolution**, when the burning of fossil fuels for energy released vast amounts of **carbon dioxide and methane**, enhancing the greenhouse effect. These gases trap outgoing longwave radiation in the atmosphere, increasing global heat retention.
- For example, in **China**, the world's largest CO_2 emitter, industrialisation and coal-powered plants have caused significant emissions, with levels exceeding **10 billion tonnes of CO_2 annually**.
- **Deforestation and land-use change** also reduce carbon absorption, amplifying warming. Unlike natural drivers, which fluctuate slowly, human activities produce a sustained accumulation of greenhouse gases, making this warming trend persistent.

- Thus, anthropogenic influence explains both the timing and the intensity of the modern rise in global temperature, as natural variability alone cannot account for such a steep trend over a short timescale.

Conclusion

- I agree with the statement to a large extent due to the **rate and magnitude of recent climate change** which shows that **anthropogenic factors have now overtaken natural variability as the dominant cause**.
- As shown in Fig. 3.3, natural temperature fluctuations occurred gradually over **millions of years**, influenced by long-term factors like orbital shifts or changes in solar output. However, Fig. 3.4 reveals a sharp **1.2°C rise in under 200 years**, a change far too rapid to be explained by natural causes alone.
- The **observed warming trend** closely aligns with the **combined human and natural model (red line)**, while the **natural-only line (blue)** remains relatively flat. This indicates that natural drivers remain stable, whereas human activities have significantly intensified the **greenhouse effect**, trapping more heat in the atmosphere.
- Therefore, while natural variability shaped Earth's past climate, the **current pace, scale, and direction of change point clearly to anthropogenic influence**. I agree **to a large extent** with the view that **human activities now contribute more significantly to climate change**, a conclusion supported both by scientific explanation and clear data trends in the figures.