Practice Test 20

READING SUB-TEST – PART C

In this part of the test, there is one text about an aspect of healthcare.
Choose the answer (**A, B, C, or D**) that you think fits best according to the text.

Text – Climate Variability and Vector-Borne Diseases

Paragraph 1

The interaction between environmental conditions, human populations, and infectious agents plays a critical role in shaping patterns of disease transmission. In recent years, increasing attention has been directed towards the influence of climatic variability on the emergence and spread of vector-borne diseases. While this relationship is widely acknowledged, its complexity presents challenges for researchers and healthcare systems alike. Changes in climate may alter ecological systems, affecting both vectors and hosts. However, these effects are not always predictable or uniform across regions. As a result, understanding these interactions remains a key area of ongoing research.

Paragraph 2

Climate is widely regarded as a key determinant of disease distribution, particularly for illnesses transmitted by vectors such as mosquitoes and ticks. Environmental factors including temperature, rainfall, and humidity influence vector survival, reproduction, and geographic range. For instance, warmer temperatures may extend the habitat of disease-carrying organisms, potentially increasing transmission rates. However, the extent of these effects varies depending on local ecological and social conditions. In some regions, climate may play a dominant role, while in others, additional factors may be more influential. Therefore, the relationship between climate and disease distribution is complex and context-dependent.

Paragraph 3

Large-scale climate patterns, such as the El Niño Southern Oscillation, can have significant impacts on disease dynamics. In several regions, increases in temperature and rainfall associated with El Niño events have been linked to outbreaks of diseases

such as dengue fever and malaria. In addition, some studies have reported increases in hospital admissions for diarrhoeal diseases during such periods. However, these associations are not always consistent across different geographic areas. Variability in local conditions and healthcare infrastructure may influence outcomes. Consequently, while El Niño is a useful indicator, it is not a definitive predictor of disease outbreaks.

Paragraph 4

Despite growing evidence of these associations, the role of climate in disease transmission remains a subject of ongoing debate. Differences in data quality, study design, and regional variability make it difficult to establish clear and universal patterns. Some studies report strong correlations between climate variables and disease incidence, whereas others suggest that non-climatic factors may be equally or more important. This inconsistency has led to differing interpretations among researchers. As a result, conclusions regarding the extent of climatic influence must be approached with caution.

Paragraph 5

Recent research has applied mathematical modelling techniques to better understand the relationship between climate and disease. By analysing long-term datasets, researchers have identified periodic patterns in disease incidence that correspond with climatic cycles. These models have the potential to improve forecasting of disease outbreaks. However, their accuracy depends heavily on the quality and completeness of available data. In addition, models may not account for all relevant variables. Therefore, while useful, modelling approaches have inherent limitations.

Paragraph 6

Changes in population demographics, patterns of urbanisation, and variations in healthcare infrastructure also play a significant role in shaping disease dynamics. In some settings, improvements in public health measures have led to a reduction in disease incidence. In contrast, rapid urban growth may create environments that facilitate the spread of vector-borne diseases. These contrasting effects highlight the importance of considering non-climatic factors. Consequently, disease patterns cannot be explained by climate alone.

Paragraph 7

Understanding the complex interaction between climate and disease is essential for developing effective prevention and control strategies. While predictive models offer valuable insights, they must be integrated with broader public health approaches to be

effective. Reliance on a single method may lead to incomplete or inaccurate conclusions. Therefore, a comprehensive and multidisciplinary approach is required. Only through such integration can healthcare systems respond effectively to emerging challenges.