

UNIVERSITY OF COLOMBO – SRI LANKA

FACULTY OF ARTS

SPECIAL DEGREE EXAMINATION IN ARTS (GEOGRAPHY) PART I

SECOND SEMESTER END EXAMINATION-2022/2023

GYG 2231 –METEOROLOGY AND CLIMATOLOGY

Time: Two (02) Hours

Answer **Three (03)** questions only.

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1.

- (i) State the difference between weather and climate. (03 Marks)
- (ii) Explain the advantages of using 30-year standard periods for climatological research. (07 Marks)
- (iii) “At present, countries should need to pay more attention to extreme weather events”. Do you agree with this idea? Discuss with examples. (10 Marks)

2.

- (i) State the **Stefan Boltzmann’s law** on solar radiation. (03 Marks)
- (ii) Explain the distribution of incoming solar radiation received to the Earth. (07 Marks)
- (iii) Discuss how the enhanced greenhouse effect distorts the Earth’s heat balance. (10 Marks)

3.

- (i) Name three micro-scale air motions. (03 Marks)
- (ii) Using a diagram, briefly describe how the Coriolis force affects the two hemispheres of the Earth. (07 Marks)
- (iii) “The circulation of the atmosphere is a key component of the Earth’s climate.” Discuss your ideas on this statement. (10 Marks)

4.

- (i) Name the three common processes that cause the lifting of air. (03 Marks)
- (ii) Describe the **Dry Adiabatic Lapse Rate** with the aid of a diagram. (07 Marks)
- (iii) Classify the formations of different clouds according to the altitude and explain their weather features. (10 Marks)

5.

- (i) What are the different areas of origin of tropical cyclones and their regional names? (03 Marks)
- (ii) Explain why tropical cyclones are formed only over the warm seas. (07 Marks)
- (iii) Examine how a tropical cyclone differs from a temperate cyclone. (10 Marks)

6.

- (i) What is meant by ocean **Gyres**? (03 Marks)
- (ii) Briefly examine the importance of the upwelling and downwelling processes of an ocean. (07 Marks)
- (iii) Discuss the role of oceans on the Earth's atmospheric process. (10 Marks)

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