

**UNIVERSITY OF COLOMBO –SRI LANKA**

**Special Degree Examination in Arts (Geography) – Part III**

**First Semester End Examination - 2018/2019**

**GYG 4183- APPLIED METEOROLOGY AND CLIMATOLOGY**

**Two Hours (02)**

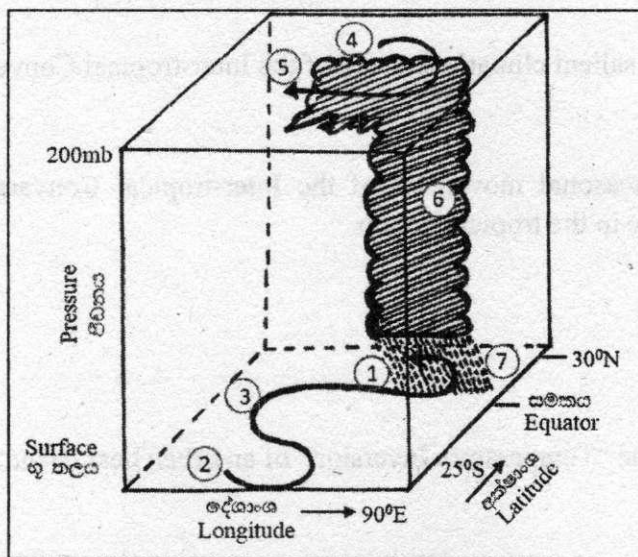
**Answer Three (03) Questions Only**

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1.
  - i Define the Inter-tropical Convergence Zone (ITCZ). (02 Marks)
  - ii Name the seven regional Inter-tropical Convergence Zones. (04 Marks)
  - iii Briefly explain the salient climatic features of the Inter-tropical Convergence Zone. (06 Marks)
  - iv Discuss how the seasonal movement of the Inter-tropical Convergence Zone affect weather and climate in the tropical region. (08 Marks)
  
2.
  - i What is meant by the “Temperature Inversion” of an urban heat island? (02 Marks)
  - ii State the Temperature Inversion layer of an urban heat island with the aid of a diagram. (04 Marks)
  - iii Briefly explain how the Canyon Layer of an urban heat island affects the wind circulation. (06 Marks)
  - iv Explain with specific examples, the challenges that have been faced by the different countries when taking measures to mitigate the effects of urban heat islands. (08 Marks)

3. i Name **four** regional monsoon systems. (02 Marks)
- ii Figure No.1 depicts the process of the Indian monsoon. Name the components that are shown in numbers (1),(2),(3),(4) and (5). (04 Marks)
- iii Explain how the components of (2) and (4) in the figure No. 1 contribute to the origin of the monsoon. (06 Marks)
- iv Examine the factors that contribute to inter-annual variability of the monsoon system. (08 Marks)

Figure No.1



4. i Name the **two** modes that used in cloud seeding. (02 Marks)
- ii Briefly explain **one** of the modes that you have mentioned in 4 (i) (04 Marks)
- iii Explain how the cloud seeding method can be used to minimize the impact of storms. (06 Marks)
- iv "Though the developed countries of the world express positive views on cloud seeding, they suffer from adverse impacts of the changes in precipitation patterns". Do you agree with this idea? Discuss with suitable examples. (08 Marks)

5. i What is meant by the "Niño-3.4 Region" in terms of the El- Niño Southern Oscillation?  
(02 Marks)
- ii Depict the Walker Circulation with the aid of a diagram. (04 Marks)
- iii Define the "Thermocline" and explain the nature of the thermocline during an El- Niño event.  
(06 Marks)
- iv "Though forecasting of the El- Niño Southern Oscillation phenomenon has been developed at present, most of the countries in the world are unable to minimize adverse effects of it." Critically examine this idea. (08 Marks)
6. i State two major advantages of using the remote sensing method for weather forecasting.  
(02 Marks)
- ii What are the major criteria that used in satellite based Nephanalysis. (04 Marks)
- iii Examine the advantages of using weather satellites for precipitation forecasting.  
(06 Marks)
- iv Critically evaluate the success of remote sensing-based weather forecasting in the tropical region.  
(08 Marks)

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