



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2014/2015

**SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN HYDROLOGY AND WATER RESOURCE
MANAGEMENT**

WRM 207: CLIMATOLOGY

DATE: 14TH APRIL 2015

TIME: 2 HOURS

INSTRUCTIONS

Answer ALL Questions in Section A and ONLY THREE Question from Section B

SECTION A: Answer all Questions in this Section

40 Marks

1. Explain the meaning of the following terms 10 Marks
 - a. Solar system
 - b. Atmospheric window
 - c. Jetstream
 - d. Lapse rate
 - e. Wind

2. a) Comment on the source of energy of the sun 4 Marks
b) Discuss the contrast in temperature range between continental and maritime climates 6 Marks

3. With the help of a sketch diagram, describe how you could check the consistency of a rainfall record at a station. 10 Marks

4. Discuss why it is warm on a cloudy night and cold on a clear night 10 Marks

SECTION B: Answer only THREE Questions from this Section

60 Marks

5. a) Describe how solar radiation is affected as it travels through the atmosphere 14 Marks
b) Discuss how the solar energy absorbed at the surface is utilized 6 Marks

6. a) Identify three regions which are best developed as air mass sources 6 Marks
b) An air mass is designated mTw on a weather map.
 - i) Identify the air mass 2 Marks
 - ii) Describe its characteristics, including its likely origin 10 Marks
 - iii) How is the air mass temperature compared to the ground temperature? 2 Marks

7. a) Identify four factors that can affect the quality of data recorded at a weather station 4 Marks
b) A weather observer recorded wind as NE in the morning and SE in the afternoon, convert them into azimuth degrees? 4 Marks
c) Describe how the sunshine measuring instrument works 6 Marks
d) Is it possible to record 12 hours of sunshine in a day? Explain 6 Marks

8. a) With the help of a diagram discuss how radiation, temperature and relative humidity vary in a day. Explain the differences in their variation 15 Marks
b) Explain with the help of a sketch how you expect temperature to vary in Kenya within a year 5 Marks