

ALP 2305: AGROMETEOROLOGY & CROP WATER REQUIREMENTS

CAT I

Date 2<sup>nd</sup> November 2016

**ANSWER ALL QUESTIONS: (30 MARKS)**

**QUESTION 1**

a) Define the following types of droughts

(i) Meteorological

(ii) Agricultural

(iii) Hydrological

(3 Marks)

b) Explain briefly the components of hydrological drought

(4 Marks)

**QUESTION 2**

a) At a climate station, air pressure is measured as 100 kPa, air temperature as 20°C, and the dew point temperature as 16°C. Calculate

(i) a) vapor pressure

(ii) b) relative humidity

(iii) c) specific humidity

(6 Marks)

$$\text{Use } e_s = 611 \exp \left[ \frac{17.27T}{237.3 + T} \right] \text{ pa}$$

b) Explain briefly how relative humidity affects

(i) Leaf growth

(ii) Photosynthesis

(3 Marks)

(3 Marks)

**QUESTION 3**

(a) Explain briefly the process of formation of rainfall

(3 marks)

(b) What are the advantages and disadvantages of using the arithmetic mean method in calculating areal rainfall?

(3 marks)

(c) Explain how rainfall affects crop production

(4 marks)