



FIJINATIONAL UNIVERSITY

**COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY**

**SCHOOL OF AGRICULTURAL SCIENCES**

**DEPARTMENT OF CROP PRODUCTION**

**BACHELOR OF SCIENCE IN AGRICULTURE YEAR I**

**AGM-501 (Principles of Agricultural Meteorology)**

**Date of Examination:**

**Time:**

**FINAL EXAM TRIMESTER- 3, 2017**

**DURATION 3 HOURS**

**INSTRUCTIONS TO STUDENTS**

1. This paper consists for 5 pages. Please check to see that your paper is complete.
2. Printed or written material is not allowed in examination hall.
3. Answer all the questions in the answer booklet. Number your answers correctly in the answer booklet.
4. Attach all the sheets used as your answer paper in their correct sequence and secure with a string.
5. Use both sides of the answer sheet and write your candidate number on each sheet.

<b>SECTION</b>	<b>PARTICULARS</b>	<b>TOTAL MARKS</b>	<b>TIME ALLOCATIONS</b>
<b>A</b>	<b>Part 1: Multiple Choice Questions Part 2: Fill in the Blanks Part 3: True and False Part 4: Matching</b>	<b>40</b>	<b>40 minutes</b>
<b>B</b>	<b>Short answers</b>	<b>20</b>	<b>50 minutes</b>
<b>C</b>	<b>Long answers</b>	<b>40</b>	<b>90 minutes</b>
	<b>Total</b>	<b>100</b>	

### SECTION –A

There are four parts in this section. All the questions are compulsory. In your answer booklet write the question number followed by the answer.

**Part I: Multiple Choice Questions. Pick the correct answer.**

**(10×1.5=15 Marks)**

- (1) An applied science which deals with the relationship between weather/climatic conditions and agricultural production \_\_\_\_\_
- Meteorology
  - Agrometeorology
  - Aerology
  - None of these
- (2) Combined loss of water vapor from transpiration and evaporation is \_\_\_\_\_
- Transpiration
  - Evapotranspiration
  - Evaporation
  - None of these
- (3) \_\_\_\_\_ is most common measure of atmospheric humidity.
- Absolute humidity
  - Relative humidity
  - Humidity
  - None of these
- (4) All forms of water that reach the earth from the atmosphere is called \_\_\_\_\_
- Rainfall
  - Precipitation
  - Snow fall
  - None of these
- (5) Precipitation in the form of water drops of size larger than 0.5 mm to 6 mm is \_\_\_\_\_
- Dew
  - Rain
  - Glaze
  - None of these
- (6) The response of living organisms/plants to regular changes in temperatures, either day/night or seasonal, is known as \_\_\_\_\_
- thermo-periodism.
  - light periodism.
  - adaptation
  - None of these

- (7) \_\_\_\_\_ is defined as the ratio between reflected radiation to the incident radiation on a crop field, snow, leaves etc.
- Anti-cyclone
  - Reflectance
  - Albedo
  - None of these
- (8) RSMC-tropical Cyclone Centre is situated at \_\_\_\_\_ in Fiji.
- Sigatoka
  - Nadi
  - Suva
  - Nausori
- (9) \_\_\_\_\_ refers to the direction a wind blowing to.
- Windward
  - Leeward
  - Seaward
  - Howard
- (10) The study of Earth's atmosphere and its processes is called.
- atmospheric science.
  - aerology.
  - (a) and (b)both
  - None of these

**Part 2: Fill in the blanks.**

**(10×1 = 10 Marks)**

- .....is the interdisciplinary scientific study of the atmosphere.
- The study of Earth's atmosphere and its processes is called .....
- The atmosphere has a mass of about ..... kg.
- The weather averaged over a long period known as .....
- ..... layer of atmosphere is called as “Seat of weather phenomena”.
- Fiji enjoys a .....climate with heavy rain under prevailing conditions.
- The average height of this lower most layer of the atmosphere is about ..... kilometers.
- CO<sub>2</sub> contributes most.....to the anthropogenic greenhouse effect.
- .....is a state or condition of the atmosphere at a given place and at a given instant of time.
- The energy transmission through space from the sun to the earth is through.....

**Part 3: Mark True or False.**

**(10×1 =10 Marks)**

- (1) Validity period for short range weather forecasting is 72 hours. (True/False)
- (2) Increase in temperature increases the rate of transpiration. (True/False)
- (3) Remote sensing provides information to identify the important indicators of desertification. (True/False)
- (4) Synoptic method is a subjective technique of weather prediction. (True/False)
- (5) Rainfall varies greatly both in time and space. (True/False)
- (6) Nadraki provides expert weather and climate consultative services to business, industry, government and non-government organizations and the community in Fiji. (True/False)
- (7) Albedo is defined as the ratio between incident radiations to the reflected radiation on a crop field, snow, leaves. (True/False)
- (8) Instrument used to collect and measure the precipitation is called rain gauge. (True/False)
- (9) There are four points of temperature which influence the growth of crop plants termed as "cardinal points". (True/False)
- (10) Short term adjustments in daily and weekly agricultural operations are possible by weather forecasting. (True/False)

**Part 4: Match the following character of symbols used in synoptic chart.**

**(5x1=5 Marks)**

Sl. no.	Symbols	Sl.no.	Weather element/Character/Phenomena
1	Numbers at the end of isobars	A	Wind direction
2	Shading	B	Isobars
3	Arrows	C	Wind velocity
4	Narrow black lines	D	Precipitation
5	Feathers in the arrow	E	Pressure values in millibar

**SECTION- B (Short Answers)**

**(5×4 = 20 Marks)**

**Answer any five questions. Each question carries 4 marks.**

1. Analyse and discuss environmental factors affecting transpiration.
2. Appraise applications of remote sensing in agriculture.
3. What are cardinal temperatures? Distinguish with suitable example.
4. What are different functions of light?
5. Analyse and discuss practical utility of studying agricultural meteorology.
6. Maximum and minimum temperatures for January 1<sup>st</sup> 2016 were 33.3°C and 21.7°C respectively. Calculate daily mean temperature for January 1<sup>st</sup> 2016?
7. Differentiate between cyclone and anticyclone.

**Section-C (Long answers)**

**(4×10=40 Marks)**

**Answer only four from the following questions. Question 1 is compulsory for all. Each question carries 10 marks.**

1. Following is the evaporation (mm) data for first six months of year 2016.

January	February	March	April	May	June
1055	1076	1297	945	761	707

- a) Calculate mean evaporation for this period.
  - b) Calculate range of evaporation for this period.
  - c) Calculate mean evaporation for first quarter of year 2016.
2. Differentiate among injuries caused by high and low air temperature in plants.
  3. Define agricultural meteorology. Discuss its significance in agriculture.
  4. Differentiate between weather and climate in detail.
  5. Design a neat layout of agro meteorological observatory.
  6. What is weather forecasting? Analyse and discuss utility of weather forecasts in detail.

**THE END**