



FIJI NATIONAL UNIVERSITY

College of Agriculture, Fisheries & Forestry

School of Agricultural Sciences

Department of Crop Production

Trade Diploma in Agriculture – Year II

Trimester I Final Examination - 2017

AMC 501: Agro-meteorology and Climate Change

Time Allowed: 3.00 hours

Total Marks: 100

[An extra ten minutes is allowed for reading this paper]

INSTRUCTIONS

1. This paper consists of 8 pages.
2. Write all your answers in the Answer Book provided.
3. Write your student ID number on the front page of your Answer Book.
4. If you use extra sheets of paper be sure to show clearly the number of question being answered and to tie each sheet securely in your Answer Book at the appropriate place.
5. There are three sections in this paper. Sections A and B are compulsory. Note the choices in Section C.

“MOBILE PHONES ARE STRICTLY NOT ALLOWED”

SUMMARY OF QUESTIONS

Section	Guidelines	Total Marks	Suggested Time
A	Part 1: Multiple Choice Questions. Part 2: Fill in the Blanks. Part 3: True and False. Part 4: Matching.	10	40 minutes
		10	
		10	
		10	
		40 Marks	
B	Short answers Answer all the questions. Each question is worth 3 marks.	30 Marks	50 minutes
C	Long answers Answer only three questions from the following. Answer each in 300 words. Each question carries 10 marks.	30 Marks	90 minutes

SECTION A[Compulsory]

- Answer all four parts in this section.
- Each part is worth 10 marks.

PART .1

MULTIPLE CHOICE

[10 marks]

- A. There are ten multiple-choice questions in this part.
B. **All** are compulsory.
C. Each question is worth 1 mark.
D. For each question, circle the letter of the **best** answer on the grid provided in your Answer Book.

1. The earth dealing with physical processes in the atmosphere that produce weather is known as

- A. Zoology.
- B. Meteorology.
- C. Weathering.
- D. Climate.

2. The factor which determine and control the distribution of climate over the earth's surface is known as

- A. Topography.
- B. Altitude.
- C. Lalitude.
- D. Climatology.

3. How many percentage of solar radiation is absorbed by the atmosphere?

- A. 16-20.
- B. 3-6.
- C. 7-23.
- D. 51-55.

4. The response of living organisms to regular change in temperature is known as

- A. Non thermoperiodism.
- B. Climatisation.
- C. Thermoperiodism.
- D. Phototropism.

5. A very strong wind is known as

- A. Windward.
- B. Pressure.
- C. Force.
- D. Gale.

6. When the isobars are circular or elliptical in shape, and the pressure is lowest at the center, such as pressure system is called

- A. anti-cyclone.
- B. cyclone.
- C. trough.
- D. storm.

7. The combined loss of water vapor from transpiration and evaporation is known as

- A. transpiration.
- B. evapotranspiration.
- C. evaporation.
- D. solubility.

8. An aggregation of minute drops of water suspended in the air at higher altitude is known as

- A. rainfall.
- B. cloud.
- C. dew.
- D. none of these.

9. The prediction of weather for the next few days to follow is known as

- A. synoptic climatology.
- B. synoptic report.
- C. weather forecast.
- D. weather bulletins.

10. Which of the following is best defined as the collection and interpretation of information about a target area without being in physical contact with it.

- A. satellites.
- B. remote sensing.
- C. infrared spectrum.
- D. desertification.

PART .2

Matching

[10 marks]

- Match the descriptions in List B with the words in List A.
- Write the letter of the description from List B in the space beside the matching word.

List A

List B

- | | |
|---------------------------|--|
| 1. Isobars | a. It is the loss of water from the plants. |
| 2. Hail | b. An example of electromagnetic spectrum. |
| 3. Xerophyte | c. When the cooler air moves over the water across the coast line from sea to land. |
| 4. U.V rays | d. When the air moves from land to sea it is known as |
| 5. Satellite image | e. The average weather condition of a place taken over a long period of time is termed as. |
| 6. Saturated | f. At a relative humidity of 100%, the air is said be |
| 7. Climate | g. A violent thunderstorm. |
| 8. Transpiration | h. Plants which grows in deserts and has adaptations to conserve water |
| 9. Multispectral Scanning | i. It is a character of a symbol used in synoptic charts or weather maps. |
| 10. Sea breeze | j. Is an example of remote sensing |
| | k. Process and element involved in electromagnetic sensing of earth resources. |

Part.3

True and False

[10 marks]

- Write 'T' if you think that the statement is correct and 'F' if you think it is incorrect.
- Write your answers in the space provided on the right hand side beside each question.

1. Weather is highly variable. _____
2. A person who studies the nature of climates local, regional or global is known as a botanist. _____
3. Albedo is when light is reflected back to the outer space. _____
4. Temperature changes with latitude. _____
5. High pressure systems are also known as anti-cyclones. _____
6. Very high or very low relative humidity is very conducive for higher yields. _____
7. Rainfall is also known as precipitation. _____
8. There are two stages to synoptic climatology study. _____
9. Within the atmosphere there are naturally occurring greenhouse gases which trap some of the outgoing infrared radiation emitted by the earth and the atmosphere.

10. Most transpiration occurs from the stems and branches. _____

- Fill in the blanks with the appropriate words from the table given below to complete the following statements.
- Do NOT use a word more than once.
- Write your answers in the space provided.

Cyclone	Light	0.1 to 2cm
Radiation	Knot	Pressure
Cirrus	Exosphere	Humidity
Nimbus	0.5 to 5 cm	
Atmosphere	Carbon dioxide	

1. _____ is an example of a weather abnormality.
2. The part of the spectrum which is visible is known as _____.
3. _____ is the gaseous portion of the earth.
4. _____ helps in transmission of heat energy from sun to the earth surface.
5. The _____ is a unit of speed.
6. Air _____ is an environmental factor which affects evaporation.
7. High _____ prolongs the survival of crops under moisture stress.
8. Hail varies from _____ in diameter and can be damaging crops and small buildings.
9. The rain bearing clouds are known a _____.
10. _____ increases the greenhouse effect of the earth surface and affects crop and livestock production.

SHORT ANSWERS

- Answer the following questions.
- Each question is worth 3 marks.
- There are 10 questions only.
- Discussing a point is very important to gain full marks.

1. List evaporation measuring instruments? (3marks)
2. List and discuss at least 3 (three) functions of light on the earth's surface. (3 marks)
3. List and discuss the 3 (three) importance of air temperature on crop plants. (3marks)
4. Differentiate between mountain winds and valley winds. (3 marks)
5. Briefly describe how the clouds are formed in the atmosphere. (3 marks)
6. List the six main types of observations used in different weather forecasting. (3marks)
7. What are the methods of Measuring Rainfall? (3marks)
8. List and explain the three environmental factors affecting the rate of transpiration. (3marks)
9. Briefly discuss the three main sources of uncertainty with regards to future climate changes. (3marks)
10. List the three land surface changes that increases the greenhouse gases in the atmosphere. (3marks)

Section C

Long Answers

(30 marks)

- Answer any three (3) questions only.
 - Each question is worth 10 marks.
 - There are 5 questions given.
 - Answer each question in approximately 250-300 words.
1. Define agricultural meteorology and discuss its significance [economic benefits] in agriculture (crop farming/ fisheries/ forestry). **(10 marks)**

 2. Discuss how does low temperature cause injury to crop plants. **(10 marks)**

 3. Briefly discuss the observed impacts of climate change on agriculture production in Fiji. **(10 marks)**

 4. Dew occurrence benefits the plants in many ways. Briefly discuss the three importance of dew to agriculture. **(10 marks)**

 5. Differentiate between cyclones and anti-cyclones with a suitable diagram. **(10marks)**

THE END

