



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
School of Agricultural Sciences & Forestry
Department of Crop Production
Trade Diploma in Agriculture – Year II
Final Examination
Trimester I - 2018

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 07 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.	20	50 minutes
		10	
		10	
		10	
		50 Marks	
B	Short answers Answer all the questions. Each question is worth 3 marks.	30 Marks	80 minutes
C	Long answers Answer only two questions from the following. Answer each in 300 words. Each question carries 10 marks.	20 Marks	50 minutes

SECTION A

[Compulsory]

- Answer all four parts in this section.

PART 1

MULTIPLE CHOICE

[20 marks]

- A. There are twenty multiple-choice questions in this part.
B. All are compulsory.
C. Each question is worth 1 mark.
D. For each question, choose the letter of the best answer on the ruled line 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. In which weather Station data are measured every day at 9.00am?
A. Synoptic.
B. Climatological.
C. Rainfall.
D. Automatic Weather Stations (AWS).
3. The percentage of nitrogen present in the atmosphere is _____.
A. 0.3
B. 21
C. 78
D. 0.9
4. The factor which determine and control the distribution of climate over the earth's surface is known as _____.
A. topography
B. altitude
C. latitude
D. climatology
5. How many percentage of incoming solar radiation is absorbed by the land and oceans?
A. 6.
B. 16.
C. 23.
D. 51.
6. How many percentage of solar radiation is absorbed by the atmosphere?
A. 16-20.
B. 3-6.
C. 7-23.
D. 51-55.

7. The response of living organisms to regular change in temperature is known as _____.
- A. non thermoperiodism
 - B. climatisation
 - C. thermoperiodism
 - D. phototropism
8. The imaginary lines drawn to connect points that have equal temperature is known as _____.
- A. isotherm.
 - B. cardinal temperature
 - C. heaving.
 - D. chilling.
9. The scorching of stem near the soil surface is known as _____.
- A. stem girdle
 - B. Sun Scald
 - C. desiccation
 - d. diapause
10. A very strong wind is known as _____.
- A. windward
 - B. pressure
 - C. force
 - D. gale
11. High pressure systems are also known as _____.
- A. anticyclones
 - B. elliptical
 - C. ridge
 - D. wedge
12. When the isobars are circular or elliptical in shape, and the pressure is lowest at the center, such a pressure system is called _____.
- A. anti-cyclone
 - B. cyclone
 - C. trough
 - D. storm
13. A physical process in which liquid water is converted into its vapour is known as _____.
- A. boiling point
 - B. evaporation
 - C. condensation
 - D. filtration
14. The combined loss of water vapour from transpiration and evaporation is known as _____.
- A. transpiration
 - B. evapotranspiration
 - C. evaporation
 - D. solubility

15. 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
16. Rain bearing clouds are known as _____.
- A. cirrus
 - B. cumulus
 - C. stratus
 - D. nimbus
17. 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
18. In a synoptic chart the symbol of feathers in the arrows characterizes _____.
- A. isobars
 - B. precipitation
 - C. wind direction
 - D. wind velocity
19. Conditions which produced one of the worst droughts to affect Fiji this century causing widespread water shortage is known as _____.
- A. El Nino
 - B. La Nina
 - C. Ozone layer
 - D. CFCs
20. 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 serial number of matching word.

Sl.No.	List A	Sl.No.	List B
1	Isobars	A	It is the loss of water from the plants.
2	Hail	B	Is 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	Saturation	F	At a relative humidity of 100%, the air is said to be at its _____.
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 answer booklet provided.
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. Closely spaced contours on the topographic map correspond to a steep slope on the hill. _____
 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. _____

SECTION.A Part.4

Fill in the blanks

[10 marks]

- 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 cumulus	Exosphere	Humidity
Atmosphere	0.5 to 5 cm	
	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 heap of cloud is known as _____.
10. _____ increases the greenhouse effect of the earth surface and affects crop and livestock production.

SECTION. B

[Compulsory]

(30 Marks)

SHORT ANSWERS

- Answer the following questions.
 - Each question is worth 3 marks.
 - There are 10 questions.
 - Discussing a point is very important to gain full marks.
1. Categorise at least 3 (three) rain measuring instruments.
 2. Analyse and discuss at least 3 (three) functions of light on the earth's surface.
 3. Apply any three importance of air temperature on crop plants.
 4. Distinguish between mountain winds and valley winds.
 5. Appraise how the clouds are formed in the atmosphere.
 6. Categorise the six main types of observations used in different weather forecasting.
 7. What are the methods of measuring rainfall?
 8. Analyse and discuss three environmental factors affecting the rate of transpiration.
 9. Appraise three main sources of uncertainty with regards to future climate changes.
 10. Convey three land surface changes that increase the greenhouse gases in the atmosphere.

SECTION C

Long Answers

(20 marks)

Answer any two (2) questions only.

- Each question is worth 10 marks.
 - There are 5 questions given.
 - Answer each question in approximately 250-300 words.
1. Analyse and discuss agricultural meteorology and its significance [economic benefits] in agriculture (crop farming /fisheries/ forestry).
 2. Distinguish how does low temperature cause injury to crop plants.
 3. Categorize the observed impacts of climate change on agriculture production in Fiji.
 4. Dew occurrence benefits the plants in many ways. Briefly analyze and discuss the three importance of dew to agriculture.
 5. Differentiate between cyclones and anti-cyclones with a suitable diagram.

THE END