

KATHMANDU UNIVERSITY
End Semester Examination [C]
December, 2024

Marks Scored:

Level : B.Sc.
Year : II

Course : AGRS 201
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 13-Dec.

SECTION "A"
[20 Q × 1 = 20 marks]

Choose and encircle the most appropriate option from each set of choices.

- The coldest layer of the atmosphere is _____
a. Stratosphere b. Troposphere c. Mesosphere d. Exosphere
- Mode of thermal energy transfer using Stephan-Boltzmann law is for _____
a. Convection b. Conduction c. Latent heat flow d. Radiation
- The maximum amount of water available for the plant uptake is considered as _____
a. Saturation Capacity b. Field Capacity
c. Permanent Wilting Point d. Ultimate Wilting Point
- Pre-monsoon precipitation (March, April and May) received _____ percent of the total annual precipitation _____
a. 3.5 b. 4.5 c. 12.5 d. 80
- When relative humidity is _____, air is saturated, condensation starts.
a. 0% b. 25% c. 80% d. 100%
- The agroclimatic zone of Nepal having altitude ranges from about 1000 to 15000 masl and the average annual temperature of 17 °C to 24 °C is _____
a. Tropical zone b. Sub-tropical zone
c. Sub-temperate zone d. Temperate zone
- Which of the following rain gauge is non recording type of rain gauge _____
a. Tipping bucket rain gauge b. Floating rain gauge
c. Symon's rain gauge d. Weighing rain gauge
- Flooded rice field is considered as chimney for the emission of _____
a. CO₂ b. NO₂ c. SO₂ d. CH₄
- If the maximum temperature is 25°C and the minimum temperature is 15°C and the base temperature as 15°C. Calculate GDD for this condition
a. 5 b. 10 c. 15 d. 20
- Lysimeter is an instrument to measure _____
a. Wind direction b. Evapotranspiration
c. Solar intensity d. Rainfall intensity

Fill in the blanks.

11. Heat required to increase the temperature of 1 gram of soil by 1°C is called as _____.
12. According to Koppens Classification of Climate, symbol *Af* represent _____.
13. The layer of atmosphere marked by turbulence and eddies is known as _____.
14. The branch of meteorology that deals with the wind and wave forecasts for ships operating at sea _____.
15. The temperature of environments at a particular location and particular time is known as _____.
16. The temperature trend in Nepal showed a sharp increasing order by _____ $^{\circ}\text{C}$ per year.
17. Instrument that is used to measure the solar duration is _____.
18. The agrometeorological model DSSAT stands for _____.
19. The name of the instrument used to measure the evaporation rate is _____.
20. The type of weather forecasting on a very short-term mesoscale period of up to 2 hours according to the World Meteorological Organization is _____.

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F.M. : 55

SECTION "B"

[5Q × 5 = 25 marks]

Attempt *ANY FIVE* questions.

1. Define agrometeorology. Write are the scopes of agrometeorology. Explain. [1+4=5]
2. What is climate change and climate variability? Explain. Enlist the evidences of climate change in Global scenario and Nepal. [3+2=5]
3. What are the various procedures involved in weather forecasting and what are the different types of weather forecasting? [3+2=5]
4. What are the major factors affecting flood and explain the strategies for flood prevention. [3+2=5]
5. Why Climate Resilient Agriculture is needed in Nepal? Discuss in brief the basic pillars of Climate Resilient Agriculture. [2+3=5]
6. What is crop simulation? What are the major applications of DSSAT and CROPWAT model in agriculture? [1+4=5]

SECTION "C"

[3Q × 10 = 30 marks]

Attempt *ANY THREE* questions.

7. Explain in details about Koppen's Classification and Thornthwaite classification of climate?
8. Write the working principle of the following instruments with appropriate figure: [4×2.5=10]
 - a. Maximum and minimum thermometer
 - b. Pyranometer
 - c. Anemometer
 - d. Lysimeter
9. Describe the recording types of rain gauge. Explain the mass curve and hyetograph with appropriate figures. [5+5=10]
10. Differentiate between weather station and automatic weather station. Explain the major components of automatic weather station. [2+8=10]

