UNIVERSITY OF KALYANI

PRACTICAL NOTEBOOK

B.A/ B.SC.4TH SEMESTER EXAMINATION, 2022

SRI KRISHNA COLLEGE, BAGULA ,NADIA

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CONTENT

1 . PREPARATION OF QUESTIONNAIRE :

(i). DESASTER MANAGEMENT IN YOUR COLLEGE CAMPUS .

(ii). MODERN TECHNOLOGY AND ITS IMPACT ON ENVIRONMENT.

2. PREPARATION OF MAP :

I. STUDY AREA
II. STUDY OF PH
III. STUDY OF NITROGEN
IV. STUDY OF AMMONICAL NITROGEN
V. STUDY OF PHOSPHATE
VI. STUDY OF POTASSIUM

3. AIR QUALITY INDEX (AQI) .

QUESTIONNAIRE

A questionnaire is a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent. A research questionnaire is typically a mix of close-ended questions and open-ended questions.

Open-ended, long-form questions offer the respondent the ability to elaborate on their thoughts. Research questionnaires were developed in 1838 by the Statistical Society of London.

The data collected from a data collection questionnaire can be both qualitative as well as quantitative in nature. A questionnaire may or may not be delivered in the form of a survey, but a survey always consists of a questionnaire.

Advantages of a good questionnaire design

- With a survey questionnaire, you can gather a lot of data in less time.
- There is less chance of any bias creeping if you have a standard set of questions to be used for your target audience. You can apply logic to questions based on the respondents' answers, but the questionnaire will remain standard for a group of respondents that fall in the same segment.
- Surveying online survey software is quick and cost-effective. It offers you a rich set of features to design, distribute, and analyze the response data.
- It can be customized to reflect your brand voice. Thus, it can be used to reinforce your brand image.
- The responses can be compared with the historical data and understand the shift in respondents' choices and experiences.
- Respondents can answer the questionnaire without revealing their identity. Also, many survey software complies with significant data security and privacy regulations.

Characteristics of a good questionnaire

Your survey design depends on the type of information you need to collect from respondents. Qualitative questionnaires are used when there is a need to collect exploratory information to help prove or disprove a hypothesis. Quantitative questionnaires are used to validate or test a previously generated hypothesis. However, most questionnaires follow some essential characteristics:

- **Uniformity:** Questionnaires are very useful to collect demographic information, personal opinions, facts, or attitudes from respondents. One of the most significant attributes of a research form is uniform design and standardization. Every respondent sees the same questions. This helps in data collection and statistical analysis of this data. For example, the retail store evaluation questionnaire template contains questions for evaluating retail store experiences. Questions relate to purchase value, range of options for product selections, and quality of merchandise. These questions are uniform for all customers.
- **Exploratory:** It should be exploratory to collect qualitative data. There is no restriction on questions that can be in your questionnaire. For example, you use a data collection questionnaire and send it to the female of the household to understand her spending and saving habits relative to the household income. Open-ended questions give you more

insight and allow the respondents to explain their practices. A very structured question list could limit the data collection.

- **Question Sequence:** It typically follows a structured flow of questions to increase the number of responses. This sequence of questions is screening questions, warm-up questions, transition questions, skip questions, challenging questions, and classification questions. For example, our motivation and buying experience questionnaire template covers initial demographic questions and then asks for time spent in sections of the store and the rationale behind purchases.

Types & Definitions

As we explored before, questionnaires can be either structured or free-flowing. Let's take a closer look at what that entails for your surveys.

- **Structured Questionnaires:** Structured questionnaires collect quantitative data. The questionnaire is planned and designed to gather precise information. It also initiates a formal inquiry, supplements data, checks previously accumulated data, and helps validate any prior hypothesis.
- **Unstructured Questionnaires:** Unstructured questionnaires collect quantitative data. They use a basic structure and some branching questions but nothing that limits the responses of a respondent. The questions are more open-ended to collect specific data from participants.

GEOGRAPHY DEPARTMENT

DESASTER MANAGEMENT IN OUR COLLEGE CAMPUS

[PREPARATION OF QUESTIONNAIRE]

Group_C

30-Apr-22

A questionnaire is a list of questions or items used to gather data from respondents about their attitudes, experiences, or opinions. Questionnaires can be used to collect quantitative and/or qualitative information. Questionnaires are commonly used in market research as well as in the social and health.

a.Name of the respondent:-_____

b. Age:-_____ c.Sex:-_____

d. Mailing address_____

e. Caste:_____ f. Family member::_____ g. Religion:_____

h. Occupation:_____ g. Monthly Income_____

1. How much do you know about disaster management ?

(a) In large quantities □ (b) In small quantities □

(c) Not at all □

2. Do you think the environment around our college campus is transparent?

(a) Yes □ (b) No □

3. Do we need to take any emergency measures in our college?

(a) Yes □ (b) No □

4. What equipments does our college have to deal with disaster ?

Ans;_____

5. Do you think these equipment are enough?

(a) Yes □ (b) No □

6. College students and people in the surrounding area are aware of the disaster?

(a) Yes □ (b) No □

7. Is our college financially ready to deal with disasters?

(a) Yes □ (b) No □

8. Is there a separate organization in the college to deal with disasters?

(a) Yes □ (b) No □

9. whether there is any shelter in the college during the disasters?

(a) Yes □ (b) No □

10. Is our college campus clean?

(a) Very Dirty □ (b) Dirty □

(c) Clean □ (d) Very Clean □

11. How much is it possible for student to face disaster?

(a) Disabled □ (b) Slightly Capable □

(c) Able □ (d) A little capable

12. What kind of disaster do you think could happens to our college?

(a) Flood and Cyclone □ (b) Earthquake □

(c) Fire □ (d) Others □

13. What kind of disasters are we currently preparing for?

(a) Flood and Cyclone □ (b) Earthquake □

(c) Fire □ (d) Others □

14. Has special training been provided for college students?

(a) Done □ (b) Didn't □

(c) Preparations are underway □

15. If there is a fire in our college for any reason there enough fire cylinder?

(a) Yes, there is □ (b) No, we haven't □

16. Can our college be able to provide services to the students during the disaster?

(a) Yes □ (b) No □

17. What do you think could be the main cause of thee disaster on our college campus?

Ans;_____

18. If there is a disaster an the college campus what do you think what effect will if have on the surrounding area?

Ans;_____

19. Is our college ready for any type disaster?

Ans;_____

20. Have you been involved any kind of Disaster-Management before?

(a) Yes □ (b) No □

21. Have our college had any Disaster-management experience before?

(a) Yes □ (b) No □

22. What kind of planning is needed for future disasters in college?

Ans;_____

23. If there is any lass in the college, is there any financial fund to deal with it?

Ans;_____

24. What actions should we take during a disaster?

Ans;_____

25. What are the key risk areas for the future disasters?

Ans;_____

26. Has there even been a man-made disaster?

Ans;_____

27. Can anyone be given the responsibility to deal with its form benign prepared for disaster

Ans;_____

28. Can our college authorities solve disaster problems?

Ans;_____

29. Has any law been created to deal with disaster?

Ans;_____

30. Can any measures be taken in the college in case of disaster?

Ans;_____

31. If disasters result serious then can take we help from Govt.?

(a) Yes □ (b) No □

32. What kind of helps do you think we would get if the government helped us?

Ans;_____

33. Can we take the help of magazines or newspapers?

Ans;_____

34. What else do you think would be better if the system?

Ans;_____

35. Do you think our disaster management has improved?

(a) Yes □ (b) No □

36. Can you tell us that how much improve our college have for disaster management by rating?

A. ★ □ B. ★★ □ C. ★★★ □

D. ★★★★ □ E. ★★★★★ □

Department of Geography

Srikrishna College,Bagula, Nadia

Survey Schedule on

Topic:
Mordern Technology and Its Impact on Environment

[Group_C]
30-Apr-22

1.a.Name of the respondent:-_____

b. Age:-_____ c.Sex:-_____

d. Mailing address_____

e. Caste:_____ f. Family member::_____ g. Religion:_____

h. Occupation:_____ g. Monthly Income_____

1. Is air pollution caused by the increase the number of vehicles due to the improvement technology?

(a) Yes □ (b) No □

2. Do you think increases of saw-mills are responsible for forest area decreasing?

(a) Yes □ (b) No □

3. Are the locals aware of about declining of natural resources due to use of modern technology?

(a) Yes □ (b) No □

4. Do you think the new technology is good for the natural environment of the area?

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

5. Is environment here adapted to the new technology?

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

6. Technology is blessing or a curse for our environment:

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

7. Can we save environment using by modern technology what do you think?

(a) Yes, of course □ (b) No, idon't think so. □

8. Are electric vehicles less harmful from normal vehicles?

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

9. How much does the web signal problematic for our environment as your opnion?

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

10. What do you think which side is most affected by modern technology?

(a) Agriculture □ (b) Industry □

(c) Services □

11. What do you think how does modern technology effects on birds and animals life?

(a) Not dangerous □ (b) Little bit dangerous □

(c) Very dangerous □

12. Can we less the rate of pollution using by modern technology?

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

13. Which are the harmful instrument used by this area?

(a) Vehicel □ (b) Refrigerator □

14. Is the use of modern technology changing the immunity of living things?

(a) No response □ (b) Strongly disagree □

(c) Disagree □ (d) Agree □

(e) Strongly Agree □

15. Do you think ~~that~~ the use of modern technology only pollutes the environment or improves the ecology of the environment or both?

Ans;_____

16. What are changing as a result of the use of modern machinery in agriculture?

(a) Soil fertility is increasing □ (b) Disruption of the ecosystem □

(c) Physical exertion has decreased (d) All of the above

17. What do you think is the improvement of human society as a result of the use of modern technology? (Must take at least five subjects)

Ans;_____

18. Which elements of the environment are directly affected or adversely affected by the use of modern machinery and technology?

Ans;_____

19. Which class of society do you think has a direct impact on the livelihood of the people due to the use of modern machinery and technology?

(a) Upper class □ (b) Middle class □

(c) Lower class □ (d) All of this □

20. Do you know about modern tools?

(a) Yes □ (b) No □

21. Is your area have used modern apparatus?

(a) Yes □ (b) No □

22. Having problems in your area due to the use of modern equipment?

(a) Yes □ (b) No □

23. Are you aware of modern equipment?

(a) Yes □ (b) No □

24. As a result of using modern equipment you having your own trouble?

Ans;_____

25. Modern equipment is mostly effect on which environment issue? What do you think for the effect?

Ans;_____

26. Now the word global warming is heard all around. What does it have to do with the use of companion modern equipment?

Ans;_____

27. What do you think by the use of modern machinery in agriculture?

Ans;_____

28. What measures should be taken to prevent excessive use of modern spells? What do you think is most important?

Ans;_____

29. What do you know about the steps taken by various international groups to prevent the excessive use of modern appliances like refrigerators, A.C etc?

Ans;_____

30. The use of modern appliances is harming the environment. How much do you believe in it?

Ans;_____

31. Which modern appliances is mostly harmed the environment what do you think?
Ans;_____

32. In the midst of the excessive use of modern machinery, are extinct species or animals on the verge of extinction today?

Ans;_____

33. Which of the points do you agree with that this harmed environment mostly?

Ans;_____

34. Do you think execution of environmental laws to be positive?

Ans;_____

35. What do you think for long time using ac is environmental temperature grown up ?

(a) Yes □ (b) No □

36. How much car do you think have moves in this area per day?

A. ★ □ B. ★★ □ C. ★★★ □

D. ★★★★ □ E. ★★★★★ □

37. What do you think is LPG gas more than eco friendly from wooden stove?

(a) Yes □ (b) No □

38. Have you any A.C/REFRIGERATOR? And if have then long time are you using that?

(a) Yes, we have; aporx 2 to 3 hours (b) Yes, we have; aprox 4 to 6 hours

(c) Yes, we have; aporx 8 to 12 hours (d) Yes, we have; all day

(e) No, we haven't

39. What is use mostly in this area_

(a) Plastic (b) Decompose plastic

(c) Normal papre

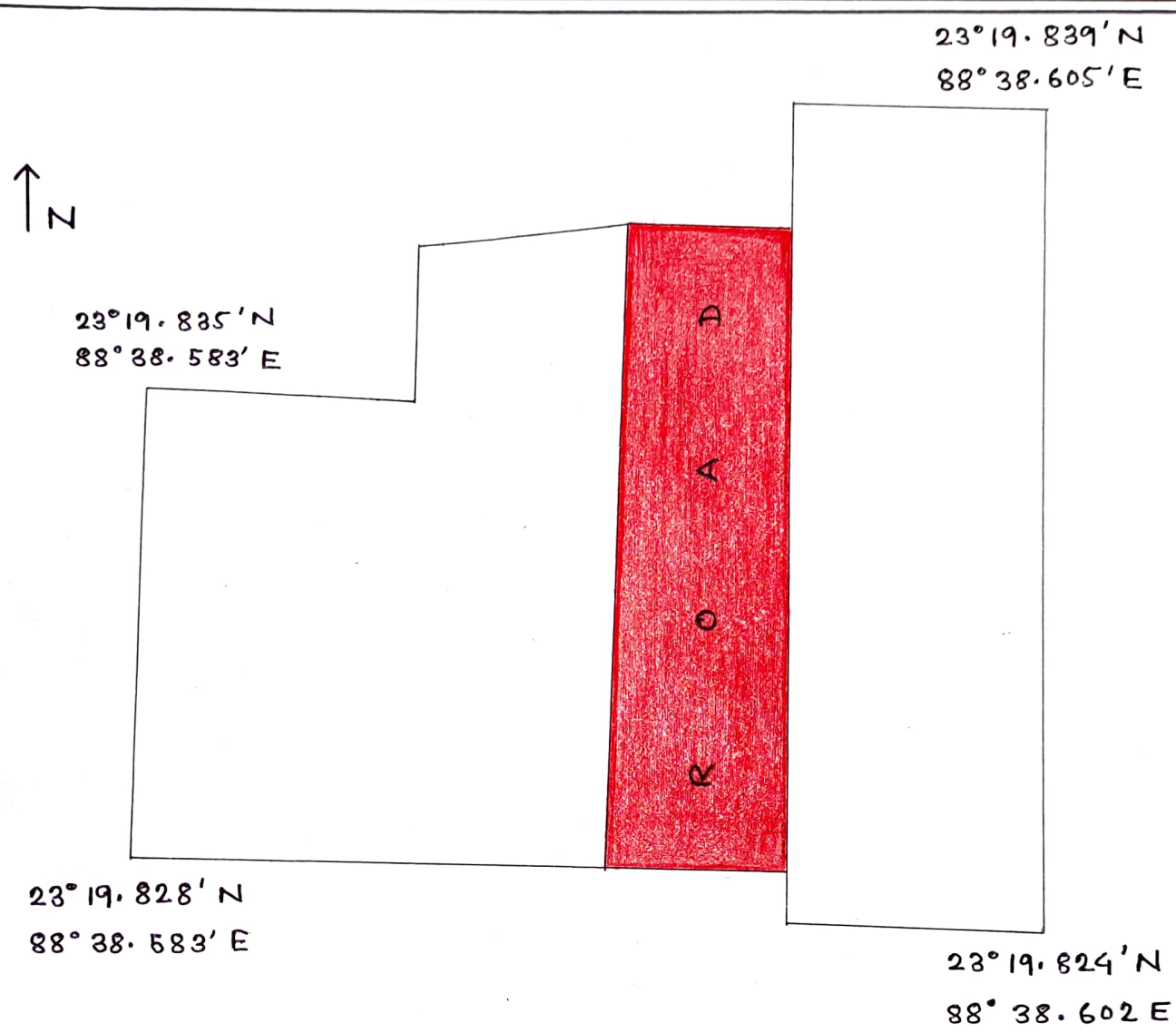
40. How much technological waste is in this area has? show your opinion by rating_

A. ★ □ B. ★★ □ C. ★★★ □

D. ★★★★ □ E. ★★★★★ □

STUDY AREA

(Srikrishna College Campus, Bagula, Nadia)



02/8/22

DETERMINATION OF SOIL ph

Acidity or Alkalinity Procedure;

1. Take clean test tube & pour distilled water up to 5 ml . mark.

2. Put 2 gms . of soil to the test tube with the scoop provided.

3. Add 0.5 gm . (1 spoonful) of barium sulphate from Container No. 3.

4. Allow the test tube to stand for 20 minutes with occasional shakings.

5 . Add 5 drops of indicator No.1 from Container No. 1 to the above , close the mouth of the tube with a clean rubber stopper and shake the contents thoroughly . Allow the soil to settle down completely.

6. Compare the colour of the upper liquid in the test tube with the Colour Chart No.1 and find out the nearest match which will indicate its pH.

7. If the colour of the upper liquid in the test tube indicates pH near 6 then repeat the whole experiment using indicator No.2 instead of indicator No.1 and match the colour of the upper liquid with the Chart No.2.

Introduction of soil ph :

Soil pH is a measure of the acidity or alkalinity of the soil. A pH value is actually a measure of hydrogen ion concentration. Because hydrogen ion concentration varies over a wide range, a logarithmic scale (pH) is used: for a pH decrease of 1, the acidity increases by a factor of 10.

Characteristics of soil ph :

Soils can be classified according to their pH value: 6.5 to 7.5—neutral. over 7.5—alkaline. less than 6.5—acidic, and soils with pH less than 5.5 are considered strongly acidic.

Important of soil ph :

is a measure of the acidity or alkalinity of a soil. The study of soil pH is very important in agriculture due to the fact that soil pH regulates plant nutrient availability by controlling the chemical forms of the different nutrients and also influences their chemical reactions.

Advantages of soil ph :

Soil pH affects the amount of nutrients and chemicals that are soluble in soil water, and therefore the amount of nutrients available to plants. Some nutrients are more available under acid conditions while others are more available under alkaline conditions.

Disadvantages of soil ph :

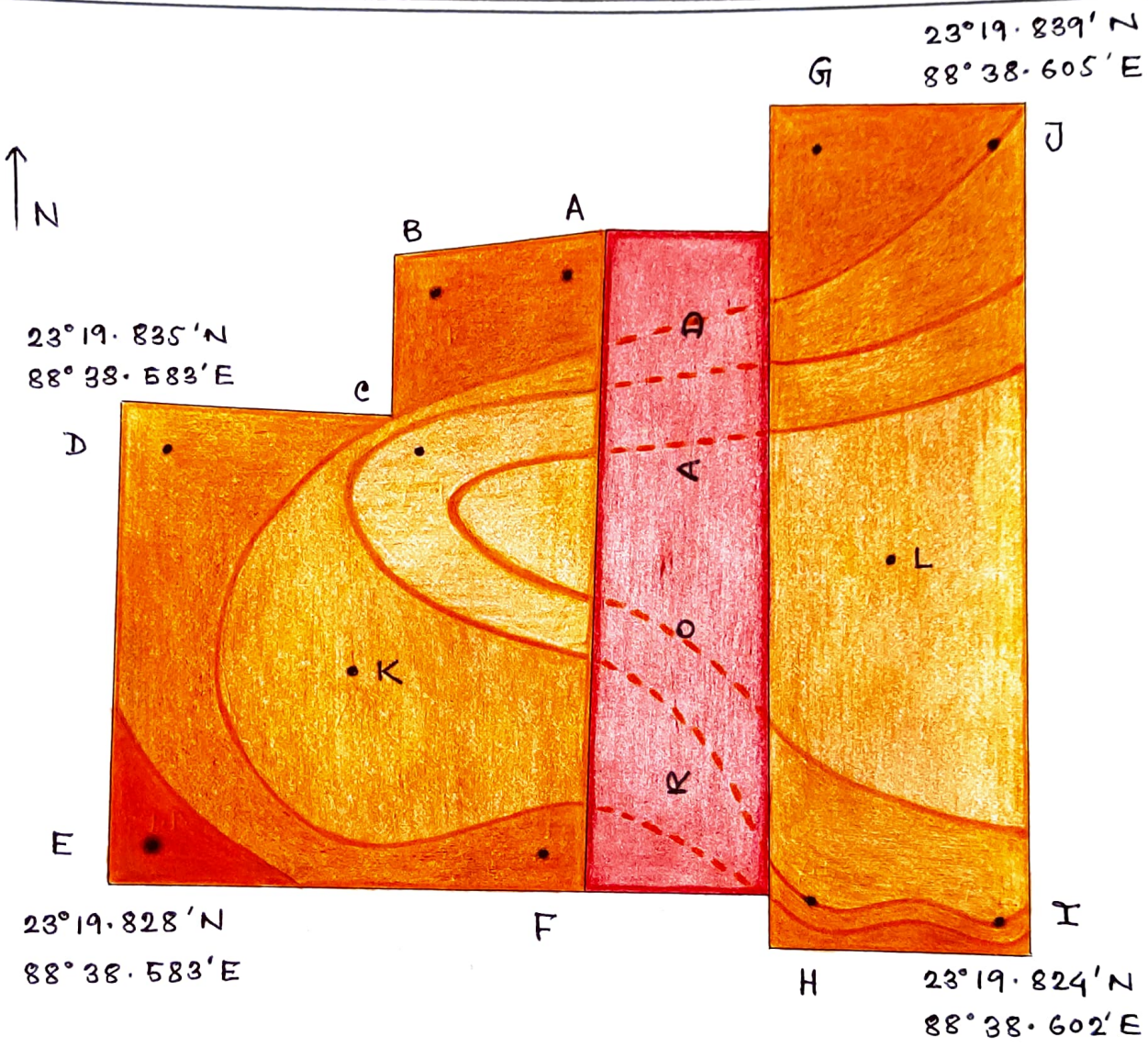
Decrease the availability of essential nutrients. Increase the impact of toxic elements. Decrease plant production and water use. Affect essential soil biological functions like nitrogen fixation.

TABLE 1 :

SOIL P.H.

SL NO .	STATIONS	P.H.
1	**A**	**8.25**
2	**B**	**8.4**
3	**C**	**7.4**
4	**D**	**8.35**
5	**E**	**9.1**
6	**F**	**8.1**
7	**G**	**8.5**
8	**H**	**7.5**
9	**I**	**7.5**
10	**J**	**8.0**
11	**K**	**7.6**
12	**L**	**6.5**

STATUS OF SOIL P.H
(Srikrishna College Campus, Bagula, Nadia)



LEGEND (Status of Soil P.H)	
	< 7
	7 - 7.5
	7.5 - 8
	8 - 8.5
	> 8.5

2.5 1.25 0 2.5 5 metre

02/8/22

INTERPRETATION :

Soil pH refers to soil salinity or alkalinity. Soil pH is considered variable in soil. Because it affects many chemical reactions.

Here the pH status of the collected soil samples is tested in the laboratory using proper methods.

In the study area, the soil pH varies from 6.5 to 9.1 from the soil pH map it is clear that the south western side has a pH of 9.1 i.e. the soil is more alkaline.

According to the map, it can be seen that the acidity of the soil increases and the pH of the soil decreases.

ESTIMATION OF NITROGEN

Procedure;

1. Take a clean test tube & fill it with distilled water up to 10 ml . Mark.

2. Add to above 2 gms . of soil sample with the scoop provided and close the test tube with a clean stopper.

3. Shake thoroughly for 5 minutes and filter . (How to filter a solution has been explained in text). For Nitrate Nitrogen Transfer 1 drop of the filtrate to a clean 2 " test tube and carefully add 8 drops of solution from Container No. 13. Compare the colour with the Colour Chart No.5 . For Ammoniacal Nitrogen Transfer 4 drops of filtrate from step 3 to another clean 2 " test tube and add 1 drop of solution from Container No.14 . Compare the colour with the Colour Chart No.6.

Introduction of soil nitrogen :

Nitrogen is added to soil naturally from N fixation by soil bacteria and legumes and through atmospheric deposition in rainfall. Additional N is typically supplied to the crop by fertilizers, manure, or other organic materials.

Important of soil nitrogen :

Why is Nitrogen so important? As the soil fertility page explains, nitrogen is really important for plant growth (structure), plant food processing (metabolism), and the creation of chlorophyll. Without enough nitrogen in the plant, the plant cannot grow taller, or produce enough food (usually yellow).

Disadvantages of soil nitrogen :

When nitrogen fertilizer is applied faster than plants can use it, soil bacteria convert it to nitrate. Water-soluble nitrate is flushed out of soils in runoff, where it pollutes groundwater, streams, estuaries, and coastal oceans. In farming communities, it's not uncommon for nitrate to render drinking wells unusable

Effects of soil nitrogen on plants growth :

Without amino acids, plants cannot make the special proteins that the plant cells need to grow. Without enough nitrogen, plant growth is affected negatively. With too much nitrogen, plants produce excess biomass, or organic matter, such as stalks and leaves, but not enough root structure.

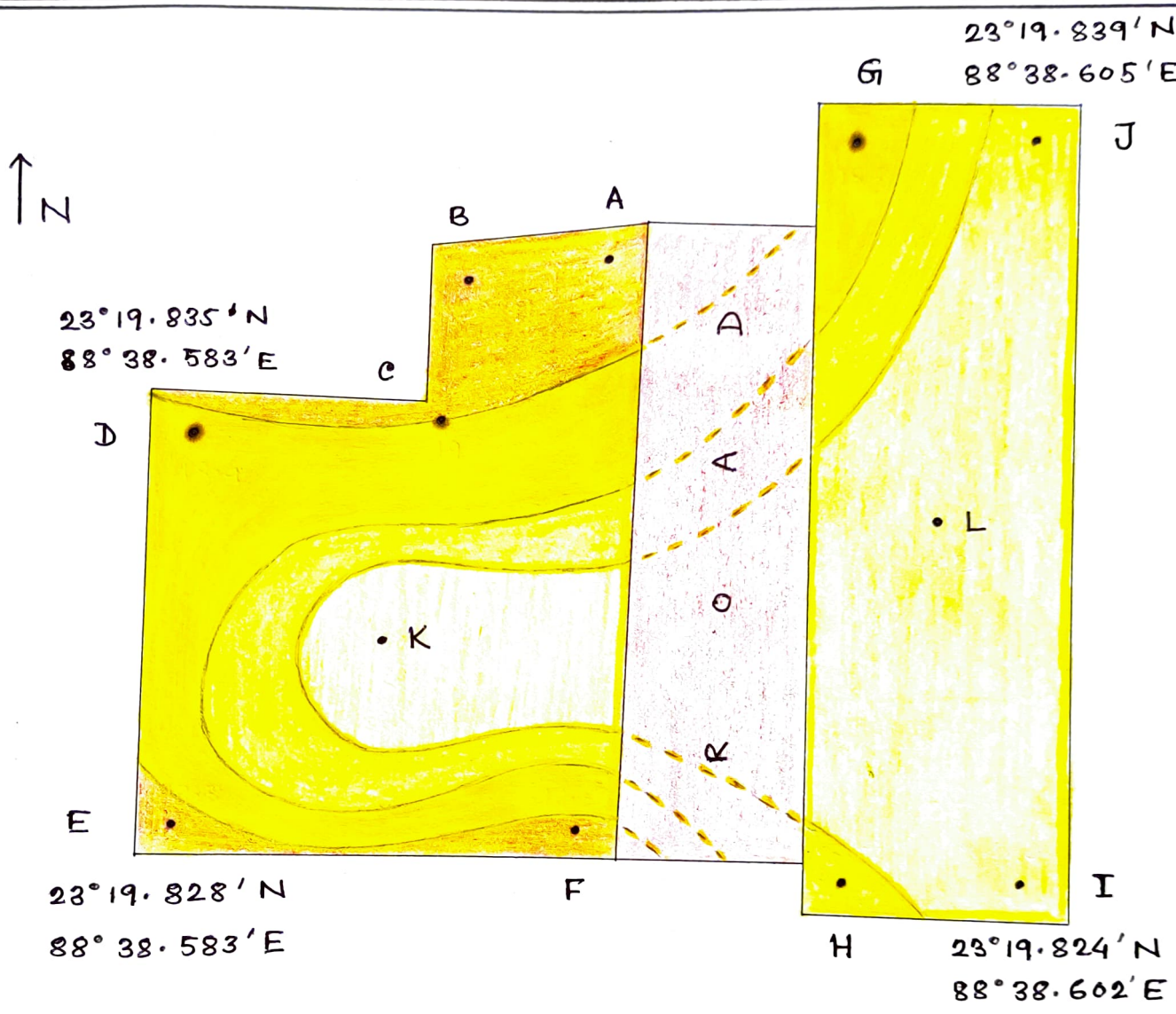
TABLE 2:

SOIL NITROGEN

SL NO .	STATIONS	NITROGEN (Kg / acre)
1	**A**	**20.41**
2	**B**	**20.41**
3	**C**	**19**
4	**D**	**18.4**
5	**E**	**19.5**
6	**F**	**19.5**
7	**G**	**18.5**
8	**H**	**7.5**
9	**I**	**4.14**
10	**J**	**1.81**
11	**K**	**1.81**
12	**L**	**4.12**

STATUS OF SOIL NITROGEN

(Srikrishna College Campus, Bagula, Nadia)



LEGEND
Status of Soil Nitrogen (Kg)/acre
< 7
7 – 13
13 – 19
> 19

2.5 1:250 2.5 5 metres

21/8/22

INTERPRETATION :

Nitrogen in the soil is an element on which plant growth and height depend. Too much nitrogen in the soil causes excessive growth of plants and harms the environment, while too little nitrogen in the topsoil results in stunted plant growth.

The nitrogen status of the soil samples collected here has been tested in the laboratory using proper methods.

In the studied area, soil nitrogen varies from 1.81 to 20.41 kg/acre. By looking at the map, we can understand that the amount of nitrogen is higher in the south-west and gradually decreases in the north-east.

ESTIMATION OF AMMONIACAL NITROGEN

Procedure;

1. Take a clean test tube and fill it with distilled water up to 10 ml . mark.

2. Add to it 2 gms . of soil , sample with the scoop provided and close the test tube with a clean stopper.

3. Shake the above thoroughly for 5 minutes and quickly take out 0.5 ml . of clay suspended liquid with a clean graduated dropper.

4. Transfer the liquid from the dropper to a clean test tube and add 1 ml . of solution from Container No.15 and 2 ml . of solution from Container No.16 while swirling the test tube.

5. Keep the test tube for half an hour . Compare the colour with the Colour Chart No.7.

Introduction of ammoniacal nitrogen :

An important step in the soil nitrogen cycle is the conversion of ammonium (NH_4^+) to nitrate (NO_3^-). This process results in nitrogen in the form most used by plants--nitrate. Ammonium has a positive charge. Clay particles in soil have a negative charge.

Causes of ammoniacal nitrogen :

Where does Ammonia Come From? Ammonia is produced for commercial fertilizers and other industrial applications. Natural sources of ammonia include the decomposition or breakdown of organic waste matter, gas exchange with the atmosphere, forest fires, animal and human waste, and nitrogen fixation processes.

Important of ammoniacal nitrogen :

Nitrogen is one of the macronutrients which is required in large amount for plant metabolism and growth act as a primary nutrient for plants. It is absorbed in Ammonium (NH_4^+), Nitrate (NO_3^-) ions forms. Nitrogen is the element which is not directly available to plants from atmosphere and earth's crust.

Advantages of ammoniacal nitrogen :

Ammonium nitrate fertilizers are very efficient and produce less greenhouse gas emissions than other fertilizers. Half of the nitrogen in ammonium nitrate fertilizer is quick release nitrogen which is immediately available to the plants.

Disadvantages of ammoniacal nitrogen :

One of ammonium nitrate's advantages is that it is not usually subject to volatilization. One of the disadvantages is the high cost per pound of nitrogen. Due to production costs and increased regulations, ammonium nitrate currently costs 20 plus percent more per pound of nitrogen than other common sources.

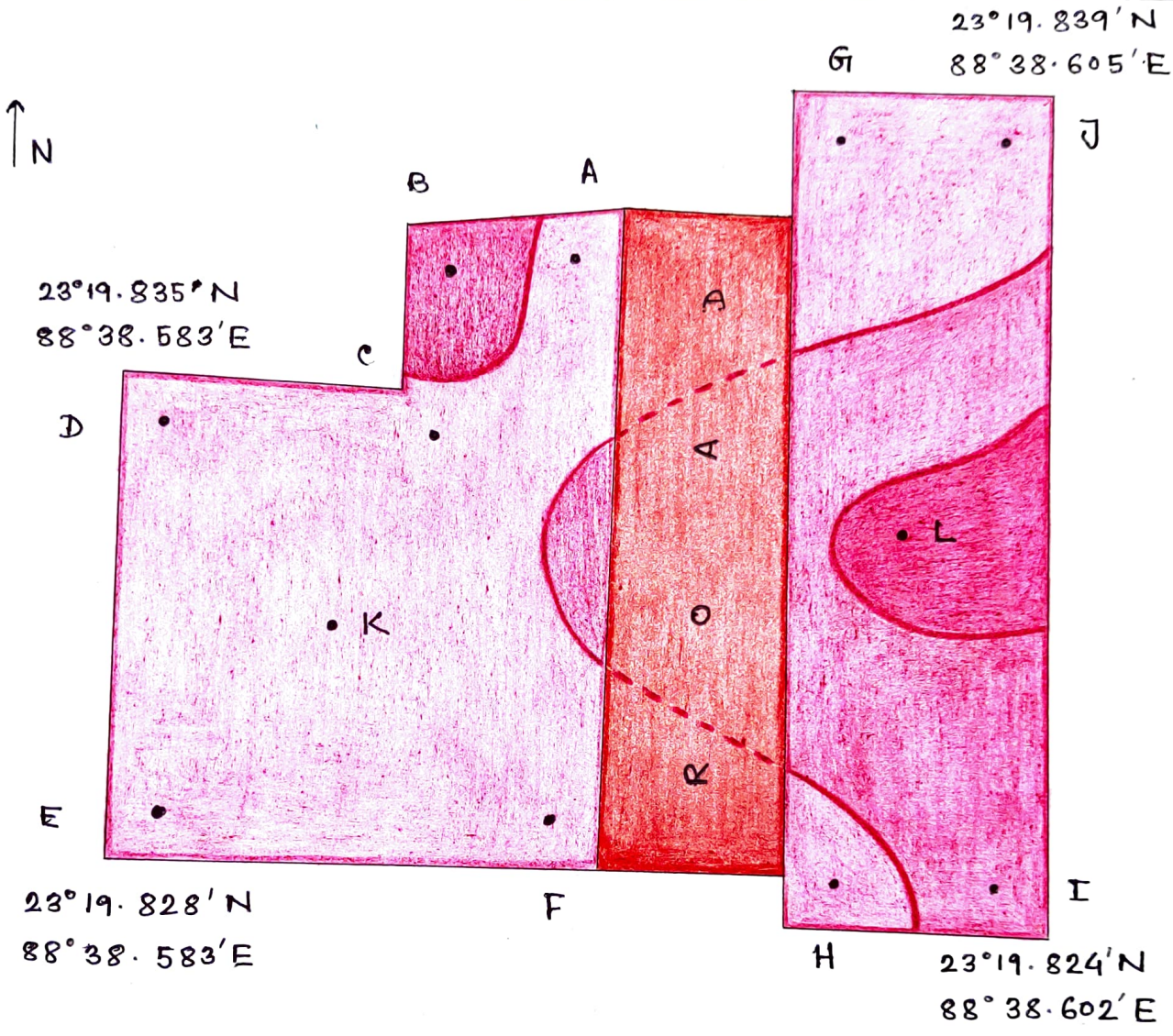
TABLE 3 :

SOIL AMMONICAL NITROGEN

SL NO .	STATIONS	AMMONICAL NITROGEN (Kg / acre)
1	**A**	**5.8**
2	**B**	**17.5**
3	**C**	**5.7**
4	**D**	**5**
5	**E**	**4.8**
6	**F**	**5.89**
7	**G**	**5.8**
8	**H**	**4.5**
9	**I**	**16.5**
10	**J**	**4.5**
11	**K**	**<4**
12	**L**	**18.25**

STATUS OF SOIL AMMONICAL NITROGEN

(Srikrishna College Campus, Bagula, Nadia)



LEGEND	
Status of Soil ammonical Nitrogen (Kg/acre)	
	< 9
	9 – 18
	> 18

2.5 1.25 0 2.5 5 metre

07/8/12

INTERPRETATION :

Ammonical nitrogen (NH3-N) is a measure for the amount of ammonia in soil. It is a toxic pollutant often found in landfill leachate and waste products such as sewage, liquid manure and other liquid organic waste products.

The amniotic nitrogen status of the collected samples was tested by proper methods.

In the study area, soil ammonical nitrogen varies from <4 to18.25 kg /acre. According to the map, the ammonical nitrogen content is higher in the eastern part and in the north-western part, the soil ammonical nitrogen content decreases as one goes south.

ESTIMATION OF AVAILABLE PHOSPHATE (OLSEN'S METHOD)

Procedure;

1. Take a clean test tube .

2. Pour solution from Container No.4 in the test tube up to 10 ml . mark.

3. Add a pinch of darco from Container No.5 to the above test tube.

4. Add to above , 5 gms . of soil with the scoop provided.

5. Close the tube with a clean rubber stopper . Shake the contents thoroughly for 3 minut and filter the solution . (How to filter a solution has been explained in the text).

6. Take the filtered solution up to 2 ml . mark in another test tube.

7. Pour 2 ml . of solution from Container No. 6 in the above test tube containing filtere solution.

8. Wash the inner side of the test tube with about 2 ml . of distilled water from the wash bottle . Keep it , this will be required at step No. 11.

9. Take 66 ml . of distilled water in a 100 ml . beaker.

10. Add to the beaker containing water 0.5 ml . of the solution from Container No.7.

11. Take 1 ml . of this solution from the beaker and add it to the solution at step No.8.

12. Shake the contents thoroughly after closing the tube with a stopper.

13. Add distilled water up to 10 ml . mark in the above test tube.

14. Compare the colour of the solution with Colour Chart No.3 . Note Solution in Container No.7 (Stannous chloride) oxidises or deteriorates if kept for more than three months . So , it should be reduced before use at step 10. 2 pcs of Zinc granule from Container No.9 and 2 or 3 drops of Hydrochloric Acid from Container No.8 may be used for reducing the 0.5 ml . solution in a separate test tube before it is put to use at step 10 .

Introduction of soil phosphate :

The phosphorus content of soils ranges from 200 to 2000 kg phosphorus in the upper 15 cm of 1 ha of soil, with an average of about 1000 kg P. Second, the phosphorus compounds commonly found in soils are mostly unavailable for plant uptake, often because they are highly insoluble.

Characteristics of soil phosphate :

Phosphorus (P) is often the most limiting nutrient for crop and forage production

Important of soil phosphate :

Phosphorus (P), next to nitrogen, is often the most limiting nutrient for crop and forage production. Phosphorus' primary role in a plant is to store and transfer energy produced by photosynthesis for use in growth and reproductive processes. Soil P cycles in a variety forms in the soil.

Advantages of soil phosphate :

Phosphorus is one of the major plant nutrients in the soil. It is a constituent of plant cells, essential for cell division and development of the growing tip of the plant. For this reason it is vital for seedlings and young plants.

Disadvantages of soil phosphate :

Another major disadvantage of soil phosphate is the high probability of water pollution. Phosphorus that makes its way into soil via phosphate fertilizers and binds tightly to soil particles is unlikely to move out of the soil.

Effects of soil phosphate on plants growth :

The buildup of phosphorus in lawns, gardens, pastures and croplands can cause plants to grow poorly and even die. Excessive soil phosphorus reduces the plant's ability to take up required micronutrients, particularly iron and zinc, even when soil tests show there are adequate amounts of those nutrients in the soil.

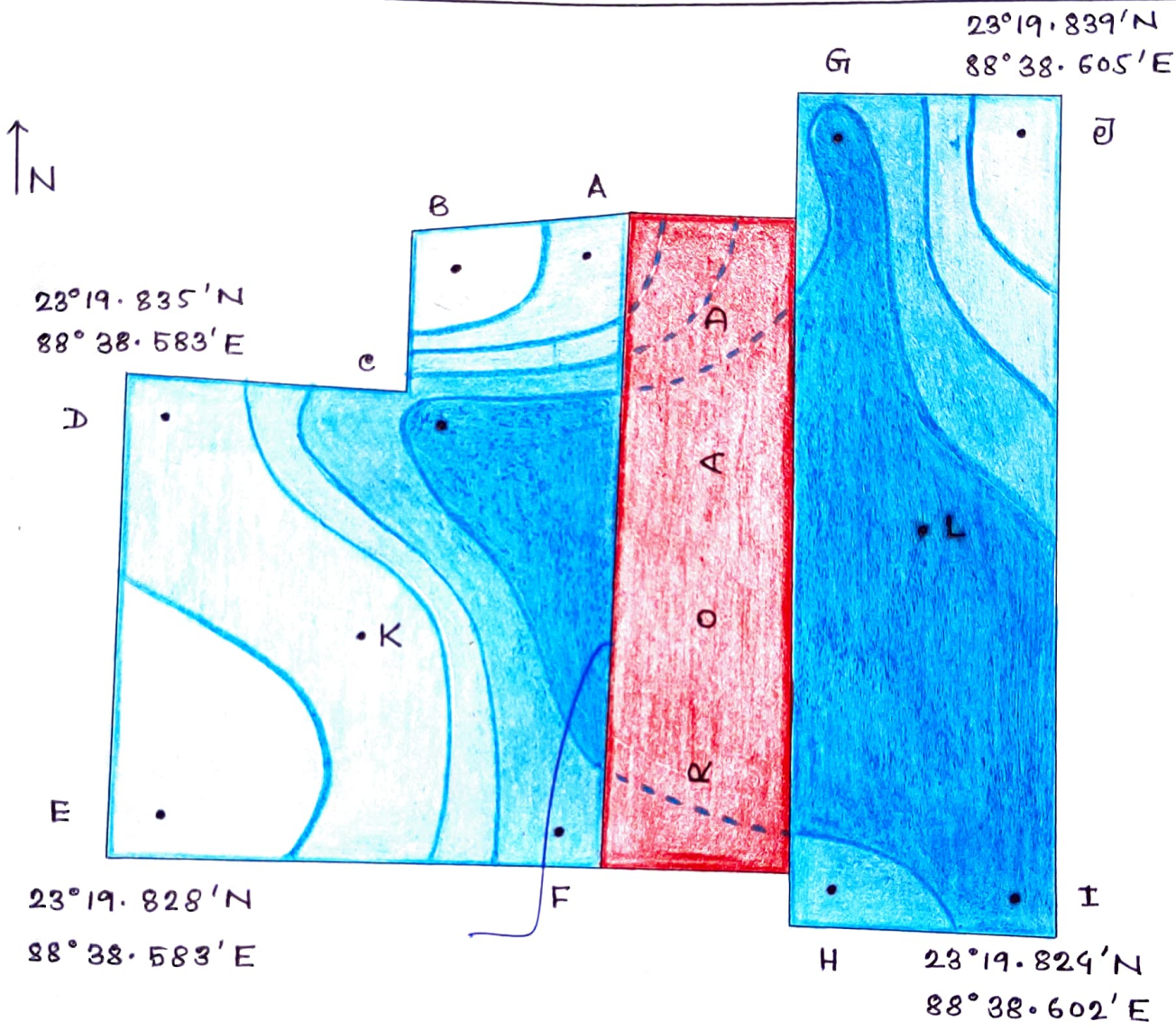
TABLE 4 :

SOIL PHOSPHATE

SL NO .	STATIONS	PHOSPHATE (Kg / acre)
1	**A**	**9.07**
2	**B**	**<0.5**
3	**C**	**>29.48**
4	**D**	**12.68**
5	**E**	**0.75**
6	**F**	**24.5**
7	**G**	**28.08**
8	**H**	**26.08**
9	**I**	**>29.48**
10	**J**	**12.37**
11	**K**	**8.5**
12	**L**	**30.58**

STATUS OF SOIL PHOSPHATE

(Srikrishna College Campus, Bagula, Nadia)



LEGEND
Status of Soil phosphate (Kg/acre)
< 7
7 – 14
14 – 21
21 – 28
> 28

2.5 1.25 0 2.5 5 metre

02/8/22

INTERPRETATION :

The primary role of phosphate in soil is growth. Based on this, plant growth can be observed. The phosphate status of the collected samples was tested by proper methods.

In the study area, soil phosphate varies from <0.5 to >29.48 kg/acre. From the map, it can be seen that the phosphate content is higher in the entire intermediate area from the south-east and decreases towards the boundary of the map.

ESTIMATION OF AVAILABLE POTASSIUM

Procedure;

1. Take a clean test tube.

2. Pour in it solution from Container No.10 up to 10 ml . mark.

3. Add 5 gms . of soil with the scoop provided to the above solution.

4. Shake the solution for one minute after closing the tube with a rubber stopper and then filter . Keep the filtrate for use at step 8.

5 . Take another clean test tube.

6. Pour solution from Container No.11 up to 2 ml . mark.

7. Add 6 drops solution from Container No.12 to the above without touching the side of the test tube.

8 . Take 2 ml . of the solution from step 4 in a syringe.

9. Inject the solution from the syringe with force into the other solution at step 7. Turbidity will develop in the solution after five minutes.

10. Compare the turbidity with the Colour Chart No. 4 . Note : The heavy black lines should be observed through the solution and not the Colour . The temperature should be maintained below 20 degree centigrade throughout the experiment . For this purpose the solution should be cooled in an ice bath or pitcher . water .

Introduction of soil potassium :

Potassium in soil can be thought of as existing in four pools according to their availability of K for uptake by plant roots (Figure 1). It is present dissolved in the soil water, adsorbed onto particles of clay and organic matter and held within the layers of clay particles.

Important of soil potassium :

Potassium is associated with the movement of water, nutrients and carbohydrates in plant tissue. It's involved with enzyme activation within the plant, which affects protein, starch and adenosine triphosphate (ATP) production.

Characteristics of soil potassium :

Potassium metal is soft and white with a silvery lustre, has a low melting point, and is a good conductor of heat and electricity. Potassium imparts a lavender colour to a flame, and its vapour is green. It is the seventh most abundant element in Earth's crust, constituting 2.6 percent of its mass.

Advantages of soil potassium :

For perennial crops such as alfalfa, potassium plays a role in stand persistence through the winter. Other roles of K include: Increases root growth and improves drought resistance. Maintains turgor; reduces water loss and wilting.

Disadvantages of soil potassium :

High Potassium Percentage in fertilizers can build up in the soil, causing long-term imbalances in soil pH and fertility. Fertilisers containing potassium must be applied wherever soil potassium reserves are inadequate for targeted crop or pasture production.

Effects of soil potassium on plants growth :

Potassium also helps regulate the opening and closing of the stomata, which regulates the exchange of water vapor, oxygen and carbon dioxide. If K is deficient or not supplied in adequate amounts, it stunts plant growth and reduces yield.

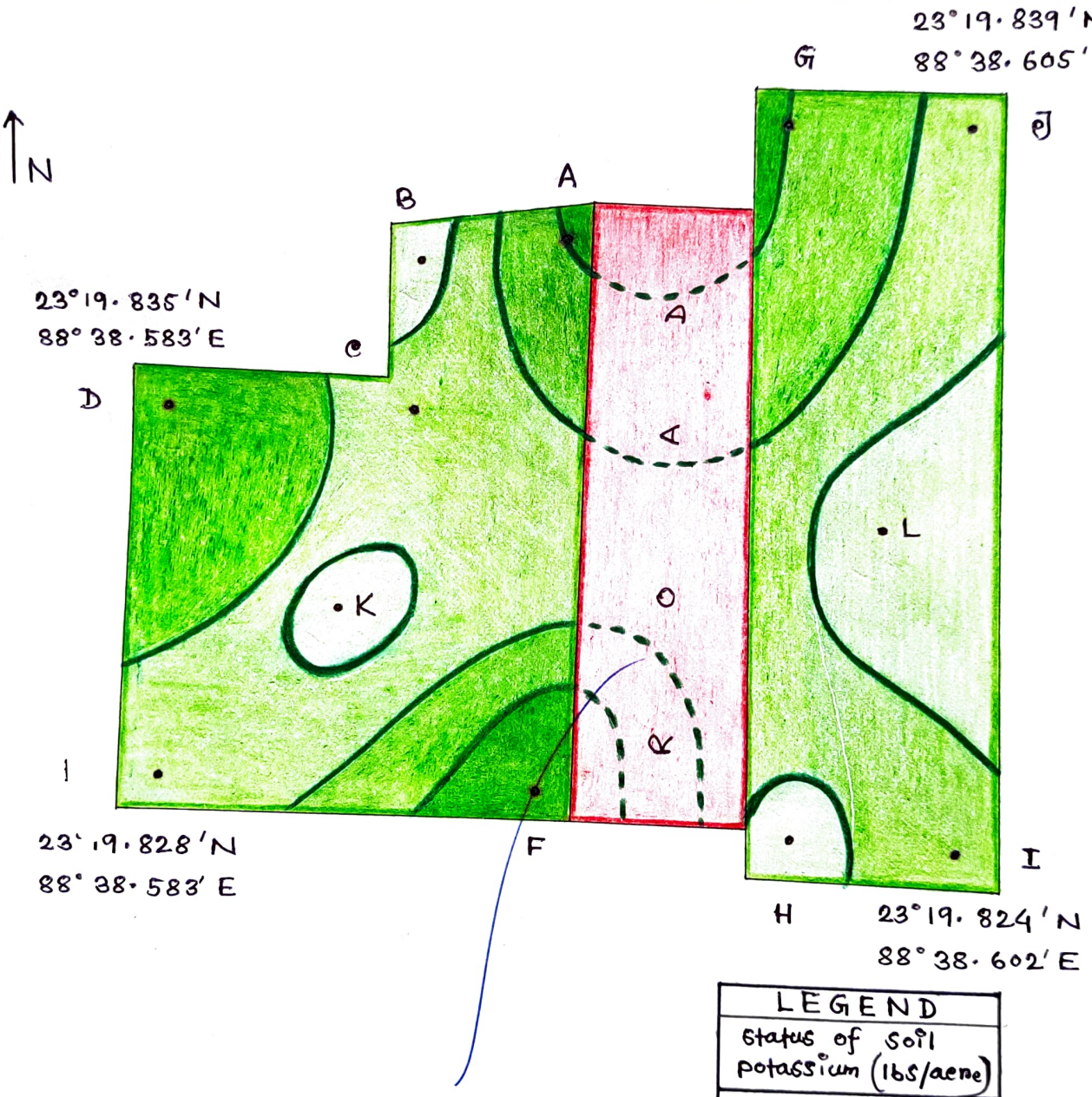
TABLE 5 :

SOIL POTASSIUM

SL NO .	STATIONS	POTASSIUM (Ibs / acre)
1	**A**	**300**
2	**B**	**<100**
3	**C**	**175**
4	**D**	**275**
5	**E**	**175**
6	**F**	**350**
7	**G**	**300**
8	**H**	**<100**
9	**I**	**175**
10	**J**	**175**
11	**K**	**<100**
12	**L**	**<100**

STATUS OF SOIL POTASSIUM

(Srikrishna College Campus, Bagula, Nadia)



INTERPRETATION :

Potassium is an important nutrient in soil, helps the stems to become straighter and stronger, improves drought tolerance and helps the plants to pass through the winter by checking the potassium status in samples collected using the correct method.

In the studied area, soil potassium varies from <100 to 350 kg/acre. According to the map, it can be said that the potassium content in the soil is low at point K and L, but the amount of potassium in the soil increases as one moves from that region toward the boundary of the map.


INDIA

Air Quality Index

The **air quality index** (AQI) is a number used to report the quality of the air on any given day: it basically tells you how clean the air is. It measures particles and chemicals in the air that affect people's health (and ignores those that do not). The health effects from extreme pollution in places like China can be severe. These effects can range from slight irritations, to reduced endurance, to respiratory problems.

Different countries have different AQIs, so it is difficult to compare one location to another on a worldwide scale. Some countries are more safety-conscious than others. The United States uses a 500 point scale to report air quality. Any rating between 0 and 50 is considered good. A score between 51 and 100 indicates a moderate level of health concern. An AQI number between 101 and 150 is considered unhealthy for sensitive groups like the elderly or people with heart or breathing problems. Scores between 151 and 200 are described as unhealthy, while 201 to 300 is considered very unhealthy. And finally, air quality in the 301 to 500 range is deemed hazardous.

Air quality generally declines as the day goes on, because businesses and cars are releasing increasing amounts of pollution as they work. Air quality can vary by time of year, but this depends on the exact country or city. Winter can be worse in places where large amounts of fossil fuels are burned for heat, while the heat of summer can actually lead to greater ozone levels due to natural processes that occur in polluted air. Quality is also affected by stagnant air, wind speeds, and chemical reactions between pollutants in the air. If the air isn't moving much, for example, pollution won't dissipate as quickly.

The AQI does have limitations, however: it only records certain chemicals, and doesn't differentiate between them. For example, the exact mix of pollutants tends to be different in the summer versus the winter: carbon monoxide is common in the winter, whereas ozone is common in the summer. Since it is a general measure, the AQI can't tell you how dangerous the particular pollutants present on a day happen to be.

Year quality index or AQI measures the air quality of a region, in this case the area is kalyani industrial area. Here are two details of lockdown period and current period. The difference between the polutance in the year of the two period is noticiable.

According to the data, during lockdown period the air quality is on the better side due to shut down of vehicles, mills, factories etc. At that time the air quality in the region was 61 according to AQI.

At present, all the factories vehicles, schools, colleges and various offices are starting up, so the amount of pollutants in the air has increased. Therefore, at this time the air quality in the region was 85 according to AQI.

If this continuous, it will gradually move from satisfactory moderate.

As a result, the resident of this region will suffer from various respiratory diseases, hard and lung problem. The problems apply to both children and adults.

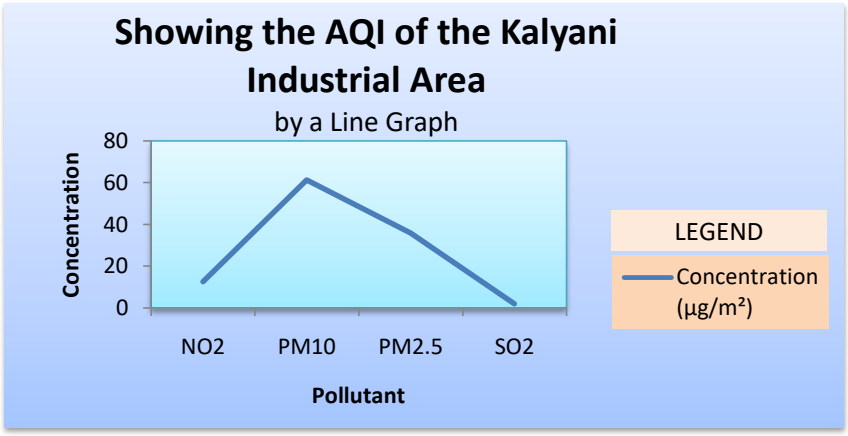
Air Quality Index

Kalyani Industrial Area

Before Lockdown:

AQI for Kalyani Industrial Area on 08/06/2020

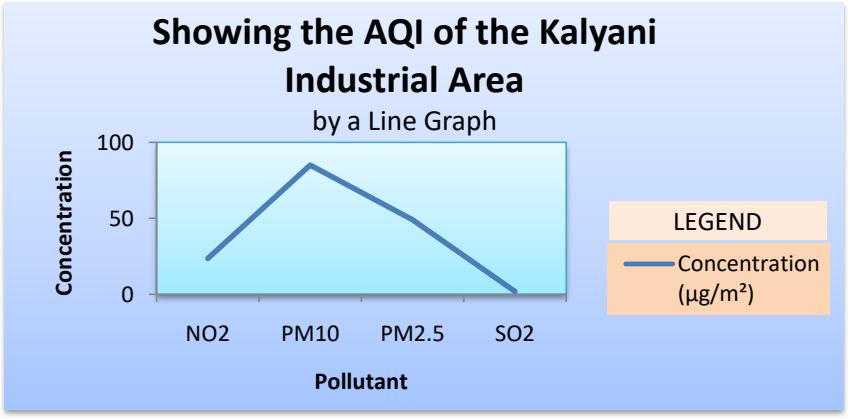
Pollutant	Concentration ($\mu g/m^2$)	Sub Index
NO_2	12.57	16
PM10	61.27	61
PM2.5	35.87	60
SO2	2	3



After Lockdown:

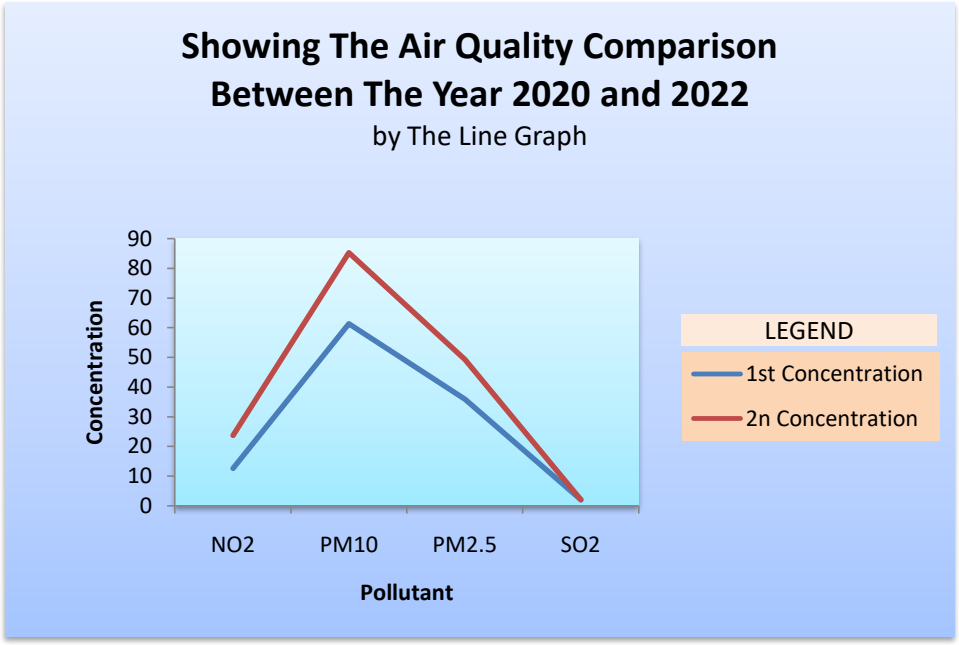
AQI for Kalyani Industrial Area on 06/06/2022

Pollutant	Concentration	Sub Index
NO_2	23.67	30
PM10	85.23	85
PM2.5	49.26	82
SO2	2	3



Compare The Survey Area Between Year 2020 to Year 2022:

Pollutant	1st Concentration	2n Concentration
NO_2	12.57	23.67
PM10	61.27	85.23
PM2.5	35.87	49.26
SO2	2	2



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