**6. Reference**

Texts are meaningful communicative units of language. Meaning of texts is accomplished by formal links. It is important to identify these links in order to fully understand a text. The most frequent formal links present in academic texts are referring expressions, transitional devices and lexical chains.

Referring expressions are pronouns (he, it, those, which, etc.) that point to something mentioned in the text. Transitional devices are linking words (also, however, first, etc.) that connect ideas and provide unity to the text. Lexical chains refer to synonyms / near synonyms (power/energy), antonyms (renewable/non-renewable) and general words or phrases (global warming/climate change/temperature increase) that help create elegant repetition in a text.

**Pre-tasks**

**Nitrous oxide, a greenhouse gas, is on the rise**

**Circle the letter that corresponds to the best option to complete each exercise in sections 1 – 5**

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| --- | --- |
| 1. **Predicting** (5)

According to the cues provided, what is the text about? 1. N2O is the third most important long-lived greenhouse gas.
2. We have learnt how to produce more food with less nitrous oxide emission.
3. Increasing use of nitrogen fertilizers is leading to higher N2O levels in the atmosphere.
4. N2O in the atmosphere has been found to decrease steadily since the mid-20th century.
 | Resultado de imagen para nitrous oxide"November 18, 2019 |

Nitrous oxide (N2O) is the third most important long-lived greenhouse gas, after carbon dioxide and methane. Nitrous oxide is also one of the main stratospheric ozone depleting substances -- and we are releasing more of it into the atmosphere than previously thought. This conclusion was published in a new study this week in Nature Climate Change.

"We see that the N2O emissions have increased considerably during the past two decades, but especially from 2009 onwards," said lead scientist Rona L. Thompson from NILU-Norwegian Institute for Air Research. "Our estimates show that the emission of N2O has increased faster over the last decade than estimated by the Intergovernmental Panel on Climate Change (IPCC) emission factor approach." Increasing use of nitrogen fertilizers is leading to higher N2O levels in the atmosphere.

In the study, scientists found that nitrous oxide in the atmosphere has risen steadily since the mid-20th century. This rise is strongly linked to an increase in nitrogen substrates released to the environment. Since the mid-20th century, the production of nitrogen fertilizers, widespread cultivation of nitrogen-fixing crops (such as clover, soybeans, alfalfa, lupins, and peanuts), and the combustion of fossil and biofuels have increased enormously the availability of nitrogen substrates in the environment. "The increased nitrogen availability has made it possible to produce a lot more food," Thompson said. "The downside is of course the environmental problems associated with it, such as rising N2O levels in the atmosphere."

"This new publication demonstrates both how we can solve a problem of growing greenhouse gas emissions and how current efforts are falling short in some regions of the world," said co-author Eric Davidson of the University of Maryland Center for Environmental Science. "These emissions come primarily from using fertilizers to grow food and increasing livestock herds, but we have learned how to produce more food with less nitrous oxide emission."

"In Europe and North America, we have succeeded in decreasing growth in nitrous oxide emissions, an important contributor to climate change and stratospheric ozone depletion," he added. "Unfortunately, the same cannot be said for Asia and South America, where fertilizer use, intensification of livestock production, and the resulting nitrous oxide emissions are growing rapidly. “The good news is that this problem can be solved, but the less good news is that it will take a global effort, and we are far from there yet," he said.

Adapted from: https://www.sciencedaily.com

1. **Skimming (30)**

Choose from the list **A-F** the main idea for paragraphs **1-5**. There is one extra letter that you do not need to use.

1. Developing countries have succeeded in reducing N2O emissions; whereas the others have not yet.
2. The increased nitrogen availability has made it possible to produce a lot more food.
3. More N2O is being released into the atmosphere than previously estimated.
4. We are now being told that N2O emissions pose no threat to the environment.
5. Increasing use of nitrogen fertilizers is leading to higher N2O levels in the atmosphere.
6. People have learned how to produce more food with less N2O emission.

Paragraph 1

Paragraph 2

Paragraph 3

Paragraph 4

Paragraph 5

1. **Scanning (10)**
2. ***What are carbon dioxide, methane and nitrous oxide?***
3. Hazardous liquids
4. Solid substances
5. Manmade objects
6. Greenhouse gases
7. ***Why is nitrous oxide harmful?***
8. It has a nasty smell
9. It is toxic for people
10. It is an ozone depleting substance
11. It causes flooding
12. ***What causes increasing nitrous oxide emissions?***
13. The increasing use of motor vehicles
14. The increasing use of nitrogen fertilizers
15. The increasing generation of biofuels
16. The increasing use of natural resources
17. ***When have nitrous oxide emissions increased faster?***
18. 2009 onwards
19. The past two decades
20. The mid-20th century
21. Last year
22. ***What is nitrogen fertilizer used for?***
23. To clear land
24. To grow flowers
25. To produce food
26. It is NOT mentioned
27. ***What factors are associated with the rise of nitrous oxide in the atmosphere?***
28. The production of nitrogen fertilizers
29. Widespread cultivation of nitrogen-fixing crops
30. The combustion of fossil and biofuels
31. All of the above
32. ***What benefits did the increase of nitrous oxide in the atmosphere bring about?***
33. Environmental problems associated with nitrous oxide
34. Abundant food production
35. People’s interest in agriculture
36. People’s well being
37. ***What positive aspect does the publication show?***
38. How to solve the problem of growing greenhouse gas emissions
39. How current efforts are failing in some regions in the world
40. How leaders of the world are coming together to try to find a solution
41. None of the above
42. ***Where have nitrous oxide levels decreased?***
43. Asia and South America
44. Central America
45. Europe and North America
46. Africa
47. ***The text does NOT mention:***
48. How developed countries have managed to produce more food with less nitrous oxide emissions
49. The factors that contribute to the availability of nitrogen substrates in the environment
50. The effects that high levels of nitrous oxide have to the environment
51. Where the paper was published
52. **Inferencing (25)**
53. ***What are greenhouse gases?***
54. Gases released from forests
55. Gases that trap heat in the atmosphere
56. Gases emitted from greenhouses
57. None of the above
58. ***What do greenhouse gases do to the environment?***
59. They are harmless
60. They cause soil degradation
61. They contribute to global warming
62. All of the above
63. ***What is nitrous oxide?***
64. A chemical compound
65. An oxide of nitrogen
66. A colorless gas
67. All of the above
68. ***Which of these activities is responsible for nitrous oxide emissions?***
69. Farming
70. Mining
71. Deforestation
72. Fishing
73. ***What happens when the ozone layer is depleted?***
74. There is less oxygen available in the environment
75. The earth is exposed to the sun’s ultraviolet radiation
76. Animals eat less food and are nervous
77. It rains more often
78. ***What does the Intergovernmental Panel on Climate Change do?***
79. It evaluates climate change science
80. It passes laws to control the climate
81. It fines governments for breaking the law
82. None of the above
83. ***How can more food be produced with less nitrous oxide emissions?***
84. By growing food that does not need nitrogen fertilizers
85. By using organic fertilizers more efficiently
86. By using only synthetic fertilizers
87. By banning organic or synthetic fertilizers
88. ***Why is it difficult to reduce nitrous oxide emissions in Asia and South America?***
89. People do not know about the environmental consequences of the use of nitrogen fertilizers
90. The governments do not raise environmental awareness among the population
91. People are not very environmentally aware
92. All of the above
93. ***What does the sentence “...we are far from there yet...” in line 29 imply?***
94. We are a long way from our final destination
95. It will be difficult to reduce nitrous oxide in poor countries
96. The ozone layer is far from the Earth
97. Nitrous oxide is very expensive
98. ***What is the message of the text?***
99. Nitrous oxide emissions have increased considerably in the atmosphere
100. Increasing nitrous oxide is the effect of nitrogen fertilizer use
101. Nitrous oxide is an ozone depleting gas
102. Nitrous oxide is a greenhouse gas
103. **Vocabulary (10)**
104. ***The noun “study” in line 4 can be explained as:***
105. school
106. research
107. advertisement
108. studio
109. ***The adverb “faster” in line 7 can be understood as:***
110. more slowly
111. more efficiently
112. more softly
113. more quickly
114. ***The noun “substrates” in line 12 can be replaced by:***
115. liquids
116. solid waste
117. substances
118. vegetables
119. ***The verb “solve” in line 19 can be replaced by:***
120. create
121. attack
122. have
123. present

1. ***The adjective “current” in line 20 can be explained as:***
2. present-day
3. actual
4. real
5. past
6. ***The noun “depletion” in line 25 can be replaced by:***
7. layer
8. growth
9. reduction
10. dust
11. ***The noun “livestock” in line 27 can be understood as:***
12. farm animals
13. wild animals
14. endangered species
15. crops
16. ***The verb “growing” in line 28 can be described as:***
17. releasing
18. studying
19. coming
20. increasing
21. ***The noun “effort” in line 29 can be explained as:***
22. wish
23. need
24. attempt
25. desire
26. ***The verb “said” in line 29 can be understood as:***
27. swore
28. promised
29. replied
30. begged

**Task 1**

1. **Reference (20)**

***Write the referent word(s) at the end of each sentence.***

1. What does the subject pronoun “we” in line 3 refer to?
2. What does the object pronoun “it” in line 3 point to?
3. What does the noun phrase “the last decade” in line 8 stand for?
4. What does the noun phrase “This rise” in line 12 indicate?
5. What instances of nitrogen-fixing crops are given in lines 14-15?
6. Find a synonym for the word “disadvantage” in line 17.
7. What does the object pronoun “it” in line 18 refer to?
8. What does the noun phrase “these emissions” in lines 21-22 imply?
9. What does the noun phrase “this problem” in line 28 refer to?
10. What does the subject pronoun “it” in line 29 denote?