Post Graduate School
Indian Agricultural Research Institute, New Delhi

Examination for Admission to Ph.D. Programme 2011-2012

Discipline : Environmental Sciences

Discipline Code : 10 Roll No.

Please Note:

(i) This question paper contains 12 pages. **Please check whether all the pages are printed in this set.** Report discrepancy, if any, **immediately** to the invigilator.

(ii) ***There shall be NEGATIVE marking for WRONG answers in the Multiple Choice type questions (No. 1 to 130) which carry one mark each. For every wrong answer 0.25 mark will be deducted.***

PART – I (General Agriculture)

Multiple choice questions (No. 1 to 30). Choose the correct answer (*a, b, c* or *d*) and enter your choice in the circle (by shading with a pencil) on the OMR - answer sheet as per the instructions given on the answer sheet.

1. Which of the following crops have been approved for commercial cultivation in India?
a) Bt cotton and Bt brinjal
b) Bt cotton and Golden Rice
c) Bt maize and Bt cotton
d) Bt cotton only

2. This year (2010-11) the expected food grain production in India is
a) 212 million tonnes
b) 220 million tonnes
c) 235 million tonnes
d) 250 million tonnes

3. The genome of which of the following crops is still not completely sequenced?
a) Rice
b) Soybean
c) Sorghum
d) Wheat

4. According to the Approach Paper to the 12th Five Year Plan, the basic objective of the 12th Plan is
a) Inclusive growth
b) Sustainable growth
c) Faster, more inclusive and sustainable growth
d) Inclusive and sustainable growth

5. To address the problems of sustainable and holistic development of rainfed areas, including appropriate farming and livelihood system approaches, the Government of India has set up the
a) National Rainfed Area Authority
b) National Watershed Development Project for Rainfed Areas
c) National Mission on Rainfed Areas
d) Command Area Development and Water Management Authority

6. Which of the following sub-schemes are not covered under the Rashtriya Krishi Vikas Yojana?
a) Extending the Green Revolution to eastern India
b) Development of 60,000 pulses and oilseeds villages in identified watersheds
c) National Mission on Saffron
d) National Mission on Bamboo

7. The minimum support price for the common variety of paddy announced by the Government of India for the year 2010-11 was
a) ₹ 1030
b) ₹ 1000
c) ₹ 980
d) ₹ 950

8. According to the Human Development Report 2010 of the United Nations, India's rank in terms of the human development index is
a) 119
b) 134
c) 169
d) 182

9. Which of the following does not apply to SRI method of paddy cultivation?
a) Reduced water application
b) Reduced plant density
c) Increased application of chemical fertilizers
d) Reduced age of seedlings

10. Which organic acid, often used as a preservative, occurs naturally in cranberries, prunes, cinnamon and cloves?
a) Citric acid
b) Benzoic acid
c) Tartaric acid
d) Lactic acid

11. Cotton belongs to the family
a) Cruciferae
b) Anacardiaceae
c) Malvaceae
d) Solanaceae

12. Photoperiodism is
a) Bending of shoot towards source of light
b) Effect of light/dark durations on physiological processes
c) Movement of chloroplast in cell in response to light
d) Effect of light on chlorophyll synthesis

13. Ergot disease is caused by which pathogen on which host?
a) *Claviceps purpurea* on rye
b) *Puccinia recondita* on wheat
c) *Drechlera sorokiniana* on wheat
d) *Albugo candida* on mustard

14. Rocks are the chief sources of parent materials over which soils are developed. Granite, an important rock, is classified as
a) Igneous rock
b) Metamorphic rock
c) Sedimentary rock
d) Hybrid rock

15. Which one of the following is a *Kharif* crop?
a) Pearl millet
b) Lentil
c) Mustard
d) Wheat

16. The coefficient of variation (C.V.) is calculated by the formula
a) (Mean/S.D.) × 100
b) (S.D./Mean) × 100
c) S.D./Mean
d) Mean/S.D.

17. Which of the following is commonly referred to as muriate of potash?
a) Potassium nitrate
b) Potassium chloride
c) Potassium sulphate
d) Potassium silicate

18. Inbred lines that have same genetic constitution but differ only at one locus are called
a) Multi lines
b) Monohybrid
c) Isogenic lines
d) Pure lines

19. For applying 100 kg of nitrogen, how much urea would one use?
a) 45 kg
b) 111 kg
c) 222 kg
d) 333 kg

20. The devastating impact of plant disease on human suffering and survival was first realized by epidemic of
a) Brown spot of rice in Bengal
b) Late blight of potato in USA
c) Late blight of potato in Europe
d) Rust of wheat in India

21. The species of rice (*Oryza*) other than *O. sativa* that is cultivated is
a) *O. rufipugon*
b) *O. longisteminata*
c) *O. glaberrima*
d) *O. nivara*

22. The enzyme responsible for the fixation of CO_2 in mesophyll cells of C-4 plants is
a) Malic enzyme
b) Phosphoenol pyruvate carboxylase
c) Phosphoenol pyruvate carboxykinase
d) RuBP carboxylase

23. Which one of the following is a 'Vertisol'?
a) Black cotton soil
b) Red sandy loam soil
c) Sandy loam sodic soil
d) Submontane (Tarai) soil

24. What is the most visible physical characteristic of cells in metaphase?
a) Elongated chromosomes
b) Nucleus visible but chromosomes not
c) Fragile double stranded loose chromosomes
d) Condensed paired chromosomes on the cell plate

25. All weather phenomena like rain, fog and mist occur in
a) Troposphere
b) Mesosphere
c) Ionosphere
d) Ozonosphere

26. Which of the following elements is common to all proteins and nucleic acids?
a) Sulphur
b) Magnesium
c) Nitrogen
d) Phosphorous

27. Silt has intermediate characteristics between
a) Sand and loam
b) Clay and loam
c) Loam and gravel
d) Sand and clay

28. Certified seed is produced from
a) Nucleus seed
b) Breeder seed
c) Foundation seed
d) Truthful seed

29. Seedless banana is an
a) Autotriploid
b) Autotetraploid
c) Allotriploid
d) Allotetraploid

30. Which one of the following is used to test the goodness-of-fit of a distribution?
a) Normal test
b) t-test
c) Chi-square test
d) F-test

PART – II (Subject Paper)

Multiple choice questions (No. 31 to 130). Choose the correct answer (*a, b, c* or *d*) and enter your choice in the circle (by shading with a pencil) on the OMR - answer sheet as per the instructions given on the answer sheet.

31. The National Water Policy was announced by Govt. of India in which year?
a) 2001
b) 2002
c) 2003
d) 2004

32. Highest rate of deforestation in the world has been observed in which country?
a) China
b) Congo
c) India
d) Brazil

33. Among the various ecosystems, which is the most productive?
a) Tropical seasonal forest
b) Tropical rain forest
c) Temperate evergreen forest
d) Temperate deciduous forest

34. Out of 1000 Kcal of sunlight, only _____ Kcal is stored in plant tissues.
a) 12
b) 14
c) 95
d) 98

35. Chitin is formed from _____ linked subunits of α-acetylglucosamine.
a) α1-4
b) α1-6
c) β1-4
d) β1-6

36. Methane is _____ times more effective than CO_2 in trapping heat.
a) 25
b) 200
c) 220
d) 250

37. Halocathode lamp is used in which instrument?
a) Atomic absorption spectrophotometer
b) Gamma spectrophotometer
c) Compound microscope
d) Gas chromatograph

38. When organic amendments with C/N ratio greater than 20 are added _____ occurs.
a) Net mineralization of carbon
b) Net mineralization of ammonium
c) Net immobilization of ammonium
d) Net immobilization of carbon

39. One molecule of N_2O is equivalent in heat trapping ability to about _____ molecules of CO_2.
a) 20
b) 220
c) 250
d) 298

40. According to WHO, the maximum permissible limit for arsenic content in drinking water is
a) 0.001 ppm
b) 0.01 ppm
c) 0.05 ppm
d) 0.10 ppm

41. Malathion belongs to which group of chemicals?
a) Organobromine
b) Carbamates
c) Organochlorines
d) Organophosphates

42. The Stern Committee is associated with
a) Economic impact of climate change
b) Status of ecosystem degeneration
c) Declining biodiversity
d) Food severity

43. The Environment Protection Act, Govt. of India was enacted in which year?
a) 1980
b) 1982
c) 1984
d) 1986

44. The infrared spectrum of radiation ranges from
a) 180 to 380 nanometer
b) 380 to 800 nanometer
c) 0.8 to 50 micrometer
d) 0.5 to 500 micrometer

45. The rate of storage of organic matter in plant tissues in excess of the respiration is known as
a) Secondary productivity
b) Gross primary productivity
c) Net community productivity
d) Net primary productivity

46. The bioindicators for trace metals are
a) Molluscs
b) Finfish
c) Vibrio cholerae
d) Macuoalgae

47. Monitoring of environmental quality is done according to which standard?
a) ISO 11000
b) ISO 14000
c) ISO 15000
d) ISO 16000

48. The amount of heat needed to raise the temperature of 1 g of water by 1°C is defined by
a) Calorie
b) Joule
c) BTU
d) Horsepower

49. Hydrogen has a fuel value of _____ KCal/g.
a) 10.8
b) 33.9
c) 44.5
d) 55.7

50. Year 2010 was celebrated as
a) Year of Biodiversity
b) Year of Climate Change
c) Year of Save the Earth
d) Year of Save the Tiger

51. Documentary "Inconvenient Truth" was produced by
a) George Bush
b) Bill Clinton
c) Al Gore
d) R.K. Pachauri

52. Who is known as Waterman of India?
a) Ramesh Singh
b) Rajender Singh
c) Vinoba Bhave
d) Baba Amte

53. Press mud is a byproduct of which industry?
a) Tannery
b) Sugar industry
c) Paper mill
d) Distillery

54. The prediction for increased CO_2 in 2030 has been estimated to be
a) 450,000 ppb
b) 490,000 ppb
c) 520,000 ppb
d) 540,000 ppb

55. $C_{10}H_8O$ represents
a) Petroleum
b) Coal
c) Lubricating oil
d) Heavy gas oil

56. The minimum land area recommended for forest cover to maintain proper ecological balance in India is
a) 25%
b) 33%
c) 43%
d) 50%

57. Which of the following agricultural practices is most ecofriendly?
a) Organic farming
b) Shifting cultivation
c) Cultivation of HYV
d) Polyhouse cultivation

58. Through which states does the river Chambal flow?
a) Uttar Pradesh, Madhya Pradesh and Rajasthan
b) Madhya Pradesh, Gujarat and Uttar Pradesh
c) Rajasthan, Madhya Pradesh and Bihar
d) Haryana, Rajasthan and Madhya Pradesh

59. Which soil is the most common in the Indo-Gangetic Plains?
a) Podzol
b) Alluvial
c) Laterite
d) Regur

60. Fall in air temperature with increasing elevation is known as
a) Thermal anomaly
b) Thermal reduction
c) Temperature fall
d) Lapse rate

61. Which layer in the atmosphere maintains an almost uniform horizontal temperature?
a) Troposphere
b) Tropopause
c) Stratosphere
d) Ionosphere

62. Most of the weather phenomenon takes place in the
a) Stratosphere
b) Troposphere
c) Tropopause
d) Ionosphere

63. Taiga represents which of the following?
a) A genus of tiger facing extinction
b) The treeless ground bordering the Arctic Ocean
c) Coniferous forests
d) A fossil of an extinct species of tiger

64. The age of earth has been estimated to be
a) 800 million years
b) 400 million years
c) 4.6 billion years
d) 3.8 billion years

65. In the past when the earth was still hot, its atmosphere was composed of
a) Oxygen, hydrogen and nitrogen
b) Water vapour, ammonia, methane and hydrogen
c) Water vapour, hydrogen and oxygen
d) Oxygen, carbon dioxide and nitrogen

66. The major source of oxygen in the atmosphere is
a) Photolysis
b) Transpiration by plants
c) Volcanic eruptions
d) Photosynthesis by plants

67. Which of the following is not a source of geothermal energy?
a) Coal
b) Hot geysers
c) Hot springs
d) Volcanoes

68. Which of the following is a conventional as well as renewable source of energy?
a) Wood
b) Coal
c) Uranium
d) Solar energy

69. For safe storage of food grains, the moisture content should be
a) Less than 14%
b) 16-18%
c) 20-40%
d) Above 26%

70. Which of the following chemicals is used as a fertilizer and an explosive?
a) Semtex
b) C^{-14}
c) TNC
d) Ammonium nitrate

71. What is 'smog'?
a) Dust and fog
b) Smoke and fog
c) PAN and fog
d) Aerosols and fog

72. Headquarter of the UNEP is located at which city?
a) Geneva
b) London
c) Nairobi
d) Cairo

73. Groundwater in 80 percent area of which country is in the grip of arsenic pollution?
a) Thailand
b) Brunei
c) Bangladesh
d) Nigeria

74. Autotrophs are identified as
a) Primary producers
b) Secondary producers
c) Tertiary producers
d) Self producers

75. What is an euphotic zone in a lake?
a) Zone upto which the light penetrates in the lake
b) Zone upto which the photosynthesis takes place in the lake
c) Zone upto which organisms can survive in the lake
d) Zone of uniform light intensity in the lake

76. What is background radiation?
a) Radiation that is received by the earth in a day
b) Radiation that is reflected by earth in a day
c) Radiation that is always present in the environment
d) Radiation absorbed by the ozone layer

77. World's largest tropical rainforest is located in which country?
a) Argentina
b) Indonesia
c) Kenya
d) Brazil

78. Most important agricultural source of cadmium pollution
a) Phosphate fertilizers
b) Ammonium sulphate
c) Urea
d) Muriate of potash

79. Majority of ozone destruction occurs through
a) Oxygen system
b) Hydrogen system
c) Nitrogen system
d) Chlorine system

80. Which industry is not a source of mercury pollution?
a) Chloralakali
b) Fertilizer
c) Polyvinyl chloride
d) Electric lamp

81. Spent wash is the effluent generated by which industry?
a) Brewery
b) Distillery
c) Canning
d) Dairy

82. For a wastewater biochemical oxygen demand (BOD) gives the measure of
a) Organic matter present in wastewater
b) Biodegradable organics present in wastewater
c) Organics and microbes present in wastewater
d) Oxygen requirement of wastewater

83. Among the following characters, which is not found in hydrophytes?
a) Abundant air space and cavities
b) Plentiful xylem and schlerenchymatous tissue
c) Poor development of roots
d) Stomata found only an upper surface of leaf

84. Deep water rice plants tend to modify their
a) Physiological characters
b) Anatomical characters
c) Genetic characters
d) Cytological characters

85. Sunken stomata and multiple epidermis are found in the leaves of
a) Hydrophytes
b) Mesophytes
c) Xerophytes
d) Heliophytes

86. Tigon is a fertile hybrid produced by crossing between
a) Dog and jackal
b) Sheep and goat
c) Lion and tigress
d) Tiger and lioness

87. Who proposed the binomial theory of plant classification?
a) Hooker
b) Hutchinson
c) Carolus Linnaeus
d) Benthom

88. The most important biological barrier between different species is
a) Their ability to interbreed
b) Their inability to interbreed
c) They are different in their genomic constitution
d) They are distinct in chemical composition

89. Competition for food, light and space is greater between
a) Distinctly related species found in different habitats
b) Distinctly related species found in same habitat
c) Closely related species found in different habitats
d) Closely related species found in same habitat

90. Largest number of plant species occurs in which ecosystem?
a) Chaparrel
b) Taiga
c) Deciduous forest
d) Tropical rainforest

91. The aquatic plants provide food and _____ to aquatic animals.
a) Carbon dioxide
b) Oxygen
c) Nitrogen
d) Phosphorus

92. Which of the following belongs to the highest level of food chain?
a) Producers
b) Carnivores
c) Herbivores
d) Decomposers

93. In a pond ecosystem, the pyramid of biomass is
a) Irregular
b) Inverted
c) Upright.
d) Equal

94. Which of the following provides both manure and energy?
a) Thermal plant
b) Biogas pant.
c) Nuclear plant
d) Compost plant

95. Which of the following is a natural interlinking of river in India?
a) Ganga, Yamuna and Saraswati
b) Krishna and Godawari
c) Narmada and Mahanadi
d) Yamuna and Brahmaputra

96. *Pseudomonas* is an important component of nitrogen cycle which
a) Fixes molecular nitrogen
b) Produces molecular nitrogen
c) Transform organic nitrogen into ammonical form of nitrogen.
d) Transfer nitrogen

97. Which animal has recently been recognized as an endangered species?
a) Black buck
b) Indian elephant
c) Vulture
d) Panther

98. Red sea devices its name from the
a) Profuse growth of red flowered plant
b) Red bloom caused by blue green algae
c) Red bloom caused by red algae.
d) Red coloured effluents discharged from the land

99. Which region of the earth's surface receives the highest amount of insolation?
a) Land masses
b) Water bodies
c) Equatorial region
d) Tropical deserts

100. The earth's surface receives the solar radiant energy at which of the following rates (per centimeter per minute)?
a) 2 calories
b) 4 calories
c) 6 calories
d) 8 calories

101. Which of the following crops originated in the Hindustan centre?
a) Rice, brinjal, sugarcane, redgram
b) Cotton, pineapple, cabbage, apple
c) Wheat, maize, chickpea, castor
d) Soybean, litchi, grape, tomato

102. Which of the following fluorocarbons has highest global warming potential?
a) CFC-113.
b) CFC-114
c) CFC-115
d) HCFC-22

103. Under which of the climatic condition do laterite soils develop?
a) Cold temperate climate
b) Hot and dry climate
c) Mediterranean type of climate
d) Monsoonal climate

104. Which form of nitrogen will be accumulated in the soil following the death of Nitrobacter bacteria during nitrogen mineralization process?
a) NH_4
b) NO_2
c) N_2O
d) NO_3

105. Which of the following organisms is responsible for the production of methane in rice fields?
a) Methanogen
b) Methanotrophs
c) Pseudomonas
d) Nitrosomonas

106. A nuclide of C^{14} emits
a) β radiation
b) α radiation
c) γ radiation
d) X-rays

107. Nitrate pollution may occur in the areas of
a) Vegetable cultivation
b) Rice cultivation
c) Pulse cultivation
d) Maize cultivation

108. The second most abundant element in lithosphere is
a) N_2
b) O_2
c) Si
d) Al

109. Nitrous oxide is emitted from soil during the process of
a) Denitrification
b) Volatilization
c) Carboxylation
d) Mineralization

110. The level of CO_2 has increased during the last century by
a) 50 percent
b) 100 percent
c) 150 percent
d) 200 percent

111. Mule is an example of
a) Pre-zygotic reproductive isolation
b) Post-zygotic reproductive isolation
c) Ecological isolation
d) Mechanical isolation

112. Who is the Chairman of the IPCC?
a) Dr. R.K. Pachauri
b) Dr. M.S. Swaminathan
c) Dr. R.A. Maselkar
d) Dr. A.P.J. Abdul Kalam

113. Acid rain may lead to
a) Enhancement in the bio-availability of heavy metals in soil
b) Reduction in the bio-availability of heavy metals in soil
c) Transformation of heavy metals into liquid
d) Zero-effect on the availability of heavy metals in soil

114. Minamata disease is caused due to the excess of the following element
a) Cd
b) Zn
c) As
d) Hg

115. Which of the following is not a highly variable constituent of atmosphere?
a) Water vapour
b) Ozone
c) Particles
d) Helium

116. The acid rain predominantly contains
a) Sulphuric acid and nitric acid
b) Hydrochloric acid and perchloric acid
c) Hydrofluoric acid and hydrochloric acid
d) Sulfurous acid and nitrous acid

117. As per WHO standard, the maximum permissible limit of NO_3 in drinking water is
a) 5 mg/L
b) 10 mg/L
c) 20 mg/L
d) 45 mg/L

118. The headquarter of the IPCC is located in
a) Rome
b) New York
c) Geneva
d) Washington DC

119. The oceans contain how much of earth's water?
a) 20%
b) 50%
c) 90%
d) 97%

120. According to WHO standard, the safe noise level for a city is
a) 10 dB
b) 20 dB
c) 45 dB
d) 60 dB

121. 'World Environment Day' is observed on
a) 28th February
b) 5th March
c) 5th June
d) 7th June

122. Nitrification is responsible for the formation of which greenhouse gas?
a) Methane
b) Nitrous oxide
c) CFC
d) CO_2

123. Biogas is predominantly a mixture of carbon dioxide and
a) Methane
b) Oxygen
c) Hydrogen
d) Nitrogen

124. Which one of the following is the upper most layer in the soil profile?
a) O1
b) O2
c) Al
d) R

125. Which of the following has high tolerance level towards soil salinity and sodicity?
a) Barley
b) Sugarcane
c) Onion
d) Lettuce

126. Which country has the highest amount of per capita CO_2 emission?
a) USA
b) India
c) China
d) Canada

127. Average net primary productivity is lowest in
a) Tropical rainforest
b) Temperate rainforest
c) Tundra
d) Agricultural land

128. _____ is the ratio of the biomass incorporated by a consumer trophic level to the biomass of its prey trophic level.
a) Genetic diversity
b) Feedback loop
c) Ecological efficiency
d) Bio-synergy

129. According to Chapman, the inherent property of an organism to reproduce to survive is termed as
a) Population density
b) Inherent value
c) Survival of fitness
d) Biotic potential

130. Increase in concentration of chemicals through food chain from lower to the higher trophic levels is called as
a) Bioaugumentation
b) Biomagnification
c) Bioaccumulation
d) Bioventing

Matching type questions (No. 131 to 140); all questions carry equal marks. Choose the correct answer (*a, b, c, d* or *e*) for each sub-question (*i, ii, iii, iv* and *v*) and enter your choice in the circle (by shading with a pencil) on the OMR - answer sheet as per the instructions given on the answer sheet.

131.

i) William Gaud	a) Indian ecologist
ii) Verghese Kurien	b) Artificial synthesis of organic compound
iii) T.H. Morgan	c) Father of White Revolution in India
iv) Vandana Shiva	d) Coined the term Green Revolution
v) Stanley Miller	e) Linear arrangement of genus an chromosome

132. Match the terms with related features

i) MIC	a) Resembles DDT in a GC chromatogram
ii) PCB	b) A pollution control strategy
iii) ODS	c) A highly toxic gas
iv) BMP	d) Agent of smog
v) PAN	e) Hazardous environmental pollutant

133.

i) Centre for Environment Education	a) Kunti river
ii) National park	b) Nagpur
iii) Silent Valley	c) Narmada
iv) Sardar Sarovar Project	d) Corbett
v) NEERI	e) Ahmedabad

134.

i) Colour development	a) Fluorescence spectrophotometer
ii) Photomultiplier tubes	b) 510 nm
iii) Lead	c) 475 nm
iv) Mercury	d) Redox methods
v) Silica and glass	e) Spectrophotometer

135.

i) Small particle size and large surface areas	a) Sulphanilic acid
ii) Partition coefficients and absorption isotherms	b) Partition chromatography
iii) Siloxanes	c) HPLC
iv) Nitrogen dioxide	d) Diphenylcarbabide
v) Hexanalent chromium	e) Gas chromatography

136.

i) Loktak	a) Gujarat
ii) West Bengal Fishery Act	b) Fresh Water
iii) Anabaena variabilis	c) Vibrio cholerae
iv) Nalsaronar	d) Wet land
v) Tularemia	e) Biowarfare

137.

i) CO_2	a) SO_2
ii) O_2	b) 385 ppmV
iii) Fluorides	c) 20.95%
iv) Lichens	d) 0.001-0.10 ppm
v) NO_X	e) Tomato

138. Match the following atmospheric layers with their distances from the surface of the earth

i) Troposphere	a) 30-50 km
ii) Thermosphere	b) 0-15 km
iii) Ozone layer	c) 15-50 km
iv) Stratosphere	d) 100-140 km
v) Mesosphere	e) 50-100 km

139. Match the ecological group of plants with their growing condition

i) Oxylophytes	a) Acid soil
ii) Halophytes	b) Sand
iii) Psammophytes	c) Saline soil
iv) Lithophytes	d) Rock crevices
v) Chasmophytes	e) Rock surfaces

140.

i) Mutualism	a) Neither population affects other
ii) Neutralism	b) Host is not affected but the organism is benefited
iii) Commensalism	c) Favourable to both and obligatory
iv) Protocooperation	d) Inhibition to both species
v) Competition	e) Favourable to both but not obligatory

Short questions (No. 141 to 146); each question carries FIVE marks. Write answers, including computation / mathematical calculations if any, in the space provided for each question on the question paper itself.

141. Many mammal species worldwide are deemed to be endangered. Give at least three reasons for this.

142. 'Green Audit' is a prerequisite for environmental management. Explain why is it required?

143. What is the literal meaning of the term 'El Nino'? Why has it been in news in recent past?

144. Discuss the major environmental laws in India.

145. Discuss the impact of climate change on the loss of agro-biodiversity in India.

146. What are the main pathways of destruction of stratospheric ozone?