Ravi Maths Tuition

Our Environment

10th Standard

Science

Multiple Choice Question 59 x 1 = 59

1) Which of the following groups contain only biodegradable items?

(a) Grass, flowers and leather (b) Grass, wood and plastic (c) Fruit-peels, cake and lime-juice

(d) Cake, wood and grass

2) Which of the following constitute a food-chain?

(a) Grass, wheat and mango (b) Grass, goat and human (c) Goat, cow and elephant

(d) Grass, fish and goat

3) Which of the following are environment-friendly practices?

(a) Carrying cloth-bags to put purchases in while shopping

(b) Switching off unnecessary lights and fans

(c) Walking to school instead of getting your mother to drop you on her scooter (d) All of the above

4) Which one of the following is an artificial ecosystem?

(a) Pond (b) Crop field (c) Lake (d) Forest

5) In a food chain, the third trophic level is always occupied by

(a) Carnivores (b) Herbivores (c) Decomposers (d) Producers

6) An ecosystem includes

(a) All living organisms (b) Non-living objects (c) Both living organisms and non-living objects

(d) Sometimes living organisms and sometimes non-living objects

7) In the given food chain, suppose the amount of energy at fourth trophic level is 5 kJ, what will be the energy available at the producer level?

$\text{Grass} \longrightarrow \text{Grasshopper} \longrightarrow \text{Frog} \longrightarrow \text{Snake} \longrightarrow \text{Hawk}$

(a) 5 kJ (b) 50 kJ (c) 500 kJ (d) 5000 kJ

8) Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as

(a) eutrophication (b) pollution (c) biomagnification (d) accumulation

9) Depletion of ozone is mainly due to

(a) Chlorofluorocarbon compounds (b) Carbon monoxide (c) Methane (d) Pesticides

10) Organisms which synthesize carbohydrates from inorganic compounds using radiant energy are called

(a) Decomposers (b) Producers (c) Herbivores (d) Carnivores

11) In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of

(a) Heat energy (b) Light energy (c) Chemical energy (d) Mechanical energy

12) Organisms of a higher trophic level which feed on several types of organisms belonging to a lower trophic level constitute the

(a) Food web (b) Ecological pyramid (c) Ecosystem (d) Food chain

13) Flow of energy in an ecosystem is always

(a) Unidirectional (b) Bidirectional (c) Multi directional (d) No specific direction

14) Excessive exposure of humans to U-V rays result in
(i) damage to immune system
(ii) damage to lungs
(iii) Multi directional
(iv) peptic ulcers

(a) (i) and (iv) (b) (ii) and (iv) (c) (i) and (iii) (d) (iii) and (iv)

15) In the following groups of materials, which group(s) contains only non-biodegradable items?
(1) Wood, paper, leather
(2) Polythene, detergent, PVC
(3) Plastic, detergent, grass
(4) Plastic, Bakelite, DDT

(a) 3 (b) 4 (c) 1 and 3 (d) 2 and 4

16) Which of the following limits the numbers of trophic levels in a food chain?

(a) Decrease in energy at higher trophic levels (b) Deficient food supply (c) Polluted air (d) Water

17) Which of the statement is incorrect?

(a) All green plants and blue green algae are producers

(b) Green plants get their food from organic compounds

(c) Producers prepare their own food from inorganic compounds

(d) Plants convert solar energy into chemical energy

18) Which group of organisms are not constituents of a food chain?
(i) Grass, lion, rabbit, wolf
(ii) Plankton, man, fish, grasshopper
(iii) Wolf, grass, snake, tiger
(iv) Frog, snake, eagle, grass, grasshopper

(a) (i) and (iii) (b) (iii) and (iv) (c) (ii) and (iii) (d) (i) and (iv)

19) The percentage of solar radiation absorbed by all the green plants for the process of photosynthesis is about

(a) 1 % (b) 5 % (c) 8 % (d) 10 %

20) What will happen if deer is missing in the food chain given below?
Grass $\rightarrow$ Deer $\rightarrow$Tiger

(a) The pollution of tiger increases (b) The pollution of grass decreases

(c) Tiger will start eating grass

(d) The pollution of tiger decreases and the pollution of grass increases

21) The decomposers in an ecosystem

(a) Convert inorganic material, to simpler forms (b) Convert organic material to inorganic forms

(c) Convert inorganic materials into organic compounds (d) Do not breakdown organic compounds

22) If a grasshopper is eaten by a frog, then the energy transfer will be from

(a) Producer to decomposer (b) Producer to primary consumer

(c) Primary consumer to secondary consumer (d) Secondary consumer to primary consumer

23) Disposable plastic plates should not be used because

(a) They are made of materials with light weight (b) They are made of toxic materials

(c) They are made of biodegradable materials (d) They are made of non-biodegradable materials

24) Name the thing in our body which helps us to digest food?

(a) hormone (b) enzymes (c) stomach (d) mouth

25) Which human-made material cannot be broken down by the action of bacteria?

(a) human flesh (b) flesh of dead animal (c) vegetable peels (d) plastic

26) Which of the following is an example of biodegradable substance?

(a) Glass (b) Plants (c) Plastics (d) Polythene

27) Which of the following is an example of non-biodegradable substance?

(a) Virgin plastic (b) Plastic (c) Plants (d) Plant products

28) Which of the following actions may not affect the environment adversely

(a) Plastic bags buried inside the earth (b) Planting of trees

(c) Excessive use of non-biodegradable pesticides (d) Burning of plastic bags.

29) Which of the following constituents do not form ecosystem?

(a) Biotic constituents (b) Plastic bags (c) Abiotic constituents (d) All of these

30) Which of the following is an example of human made ecosystem?

(a) Aquarium (b) Sunlight (c) Wind (d) Water

31) Which of the following is a functional unit of environment?

(a) Ecosystem (b) Nitrogen (c) Carbon (d) Oxygen

32) Which of the following is an example of producers?

(a) Plastic pens (b) Plastic cans (c) Polythene (d) Green plants

33) Which of the following is an example of herbivores

(a) Cow (b) Shark (c) Lion (d) Tiger

34) Which of the following is the full form of CFC?

(a) Chlorofluorine carbon (b) Carbonchlorofluorine (c) Chlorinfluid carbon

(d) Chlorofluorocarbons

35) Which of the following is not an example of abiotic factors?

(a) Light (b) Plants (c) Heat (d) Temperature

36) Which of the following is the full form of UNEP?

(a) Unique National English Programme (b) United National Energy Programme

(c) United Nations Environment Programme (d) Union of Non-Environmental Plan

37) Which of the following is not a biodegradable pollutant?

(a) Paper (b) Cotton cloth (c) Cotton (d) DDT

38) Which of the following is terrestrial ecosystem?

(a) A natural forest (b) A lake (c) A pond (d) An aquarium

39) Which of the following belong to same trophic level?

(a) Cockroach and spider (b) Lizard and spider (c) Hawk and spider (d) Lizard and hawk

40) By which way autotrophs convert energy of food?

(a) Solar energy to chemical energy (b) Bio-gas to chemical energy (c) solar energy to bio-gas

(d) Chemical energy to solar energy

41) Which of the following is omnivore?

(a) Lion (b) Hawks (c) Jackal (d) Man

42) Which of the following is proper sequence of trophic levels?

(a) Producers, Herbivores, Top carnivores, Carnivores

(b) Top Carnivores, Carnivores, Herbivores, Producers

(c) Carnivores, Top Carnivores, Producers, Herbivores

(d) Herbivores, Carnivores, Producers, Top Carnivores

43) Which of the following is an example of food chain?

(a) Grass $\longrightarrow$ Deer $\longrightarrow$ Lion (b) Algae $\longrightarrow$ Diatoms $\longrightarrow$ Fish (c) Fish $\longrightarrow$ Deer $\longrightarrow$ Algae

(d) Grass $\longrightarrow$ Frog $\longrightarrow$ Birds

44) Which of the following is the formula of ozone

(a) O_3 (b) O_2 (c) O_4 (d) O_6

45) How many atoms of oxygen are there in ozone?

(a) 3 (b) 3 (c) 2 (d) 1

46) what is the nature of ozone?

(a) It is deadly poisonous (b) It is fragrant (c) It is smooth (d) It causes purple smoke

47) It which of the following devices CFCs are not produced?

(a) Refrigerators (b) Fire extinguishers (c) Pressurized cans (d) Pencil

48) Which of the following in not an effect of ultraviolet radiations?

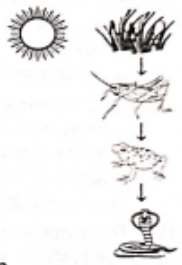
(a) Causes skin cancer (b) Causes sun bum (c) Causes eye disease (d) Causes typhoid

49) Which statement shows Interaction of an a biotic component with a biotic component in an ecosystem?

(a) A mouse fighting with another mouse for food (b) A grasshopper feeding on a leaf

(c) An earthworm making a burrow in the soil (d) Rainwater running down into the lake

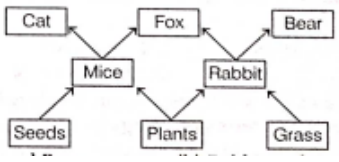
50) What will happen If the population of snakes is Increased drastically in the food chain given alongside?



(a) Population of green plants will decrease (b) Population of frog will decrease

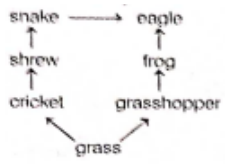
(c) Population of snakes will decrease (d) Population of hawk will decrease

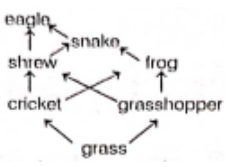
51) Study the given figure of a food web and identify the primary consumer in the food web.

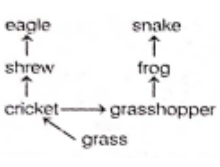


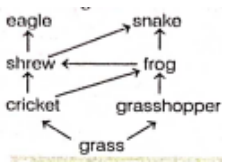
(a) Mice and Bear (b) Rabbit and Cat (c) Rabbit and Fox (d) Mice and Rabbit

52) Which of the following options correctly represents the food web present in the nature?

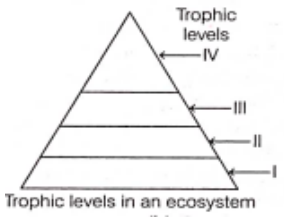
(a) 

(b) 

(c) 

(d) 

53) The diagram shows different trophic levels in an ecosystem, which of the following correctly represent the third trophic level in the below diagram.



Trophic levels in an ecosystem

(a) Herbivores (b) Carnivores (c) Top carnivores (d) Producers

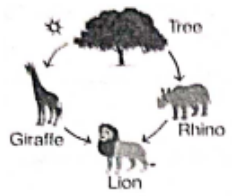
54) A food chain will be more advantageous in terms of energy if it has

(a) 2 trophic levels (b) 3 trophic levels (c) 4 trophic levels (d) 5 trophic levels

55) List of some organisms along with their source of energy is tabulated below.

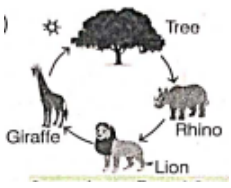
Organisms	How the organism gets energy
Tree	Sunlight
Lion	Giraffe, Rhino
Rhino	Tree
Giraffe	Tree

Choose the correct model based on the table?

(a) 

(b) 

(c) 

(d) 

56) Consider the following statements about ozone.

(A) Ozone is a poisonous gas.

(B) Ozone shield the earth surface from the infrared radiations in the Sun.

(C) Ozone is a product of UV radiation acting on oxygen molecules.

(D) At the lower level of the earth atmosphere ozone performs most essential function.

The correct statements are

(a) (A) and (B) (b) (A) and (C) (c) (B) and (C) (d) (B) and (D)

57) United Nations Environment Programme forged an agreement to

(a) control CO_2 emissions in the environment (b) conserve biodiversity (c) control water pollution

(d) reduce CFC production

58) Given below is the list of some waste materials. Some of these changed and some remain unchanged when buried in the soil.
Plastic box, Bubble wrap, Vegetable peels, Rubber tyre, Empty carton
Choose the correct option representing the classification of these waste materials into biodegradable and non-biodegradable substances.

(a)

Biodegradable	**Non-Biodegradable**
Plastic box, vegetable peel, empty carton	Bubble wrap, rubber tyre

(b)

Biodegradable	**Non-Biodegradable**
Vegetable peel, empty carton.	bubble wrap, plastic box, rubber tyre

(c)

Biodegradable	**Non-Biodegradable**
Bubble wrap, vegetable peel	Empty carton, rubber tyre plastic box.

(d)

Biodegradable	**Non-Biodegradable**
Plastic box, rubber tyre, bubble wrap	vegetable peel, empty carton.

59) A food chain will be more advantageous in terms of energy if it has

(a) 2 trophic levels (b) 3 trophic levels (c) 4 trophic levels (d) 5 trophic levels

Assertion and reason 29 x 1 = 29

60) **Assertion**: Green plants are eaten by primary consumers, a great deal of energy is lost as heat to the environment.
Reason: 10% of energy is lost in the transfer from one trophic level to the other.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

61) **Assertion:** The flow of energy in food chain is unidirectional.
Reason: The energy that flows from grass to deer cannot get back to grass.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

62) **Assertion:** Harmful chemicals enter our bodies through the food chain.
Reason: The highest member in the food chain has the least amount of chemical.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

63) **Assertion:** Ozone, is a deadly poison at the ground level.

Reason: Ozone at the higher levels of the atmosphere is protective in nature.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

64) **Assertion:** The waste we generate is biodegradable.

Reason: Plastic cups used for drinking tea and other drinks are all recyclable.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

65) **Assertion:** Living organisms form biotic component of environment

Reason: Non living part of environment are air, water, soil, etc.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

66) **Assertion**: A small food chain is better than the longer one.

Reason: The producers produce more energy in small food chain.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false

67) **Assertion:** Plastic, glass and metal wastes keep accumulating in our surrounding and their amount never reduces with time

Reason: Plastic, glass and metal wastes are non-biodegradable and they cannot be decomposed by microorganisms.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true.

68) **Assertion:** DDT can pass along food chain from crops to man or other animals and harm them

Reason: DDT is non-biodegradable and cannot be metabolised within bodies of living organisms and accumulates in their bodies.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true.

69) **Assertion:** Using jute bags while shopping is more environment friendly as compared to polythene bags.

Reason: Jute is biodegradable whereas polythene bag is non-biodegradable.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true.

70) **Assertion:** An ecosystem consists of living biological community and its non-living environment.
Reason: Ecosystem functions as self sufficient or independent unit in nature.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true.

71) **Assertion:** A food chain comprises of producers and consumers.
Reason: Consumers can be herbivores, carnivores and omnivores.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

72) **Assertion:** Decomposers help in recycling of nutrients between living and non-living components of ecosystem.
Reason: Decomposers help in decomposing dead bodies of organisms and return various nutrient elements to their source via soil, water and air.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

73) **Assertion:** The second trophic level of a food chain operating in a grassland is mostly occupied by a carnivore.
Reason: Carnivores feed upon herbivores and are secondary consumers
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

74) **Assertion:** A food chain can have maximum of three trophic levels.
Reason: Energy available at each trophic level keeps on decreasing as we move higher up the food chain.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

75) **Assertion:** The flow of energy in a food chain operating in an ecosystem is always unidirectional.
Reason: Lots of energy is lost as heat from living organisms at each trophic level of a food chain.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

76) **Assertion:** The energy available to deer in a food chain is more as compared to that available to lion.
Reason : Deer occupies second trophic level whereas lion occupies first trophic level in a food chain operating in grassland ecosystem.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

77) **Assertion**: If pesticide is present in water bodies then fish eating birds accumulate maximum amount of DDT in their bodies.

Reason: Pesticides are not metabolised within bodies of living organisms and get concentrated at each trophic level leading to bioaccumulation

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true

78) **Assertion**: Gases used in cooling devices can lead to depletion of ozone layer of atmosphere.

Reason: Carbon monoxide which is widely used as coolant in refrigerator reacts with ozone and destroys it

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true

79) **Assertion**: The burning of substances at higher temperature to form ash is called incineration.

Reason: Incineration greatly reduces the volume of waste.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true

80) **Assertion**: Recycling is the way of managing plastic waste.

Reason: Broken plastic articles are sent to plastic processing units where they are melted and remoulded to make new plastic articles.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true

81) **Assertion** : Food waste can be converted to compost by burying in a pit dug into ground and used as manure.

Reason: Non-biodegradable wastes like fruit and vegetable peels, tea leaves, broken glass jar are ideal for composting

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true

82) **Assertion**: Hospital wastes like used syringes, urine bags, etc. can be incinerated.

Reason: Incineration burns the waste at very high temperature and converts it to ashes.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true

83) **Assertion**: Paper cups are better option than plastic cups for serving tea. Reason: Paper cups are biodegradable and can even be disposed of by burning.
Reason: Paper cups are biodegradable and can even be disposed of by burning.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

84) **Assertion:** Most of the solid waste in urban areas is disposed off in landfills. Reason: Landfills are high lying areas of the ground.
Reason: Landfills are high lying areas of the ground.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

85) **Assertion**: Ozone depletion can be reduced by limiting the use of air conditioners and refrigerators.
Reason : Air conditioner and refrigerators release chlorofluorocarbons in the atmosphere that destroy ozone.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

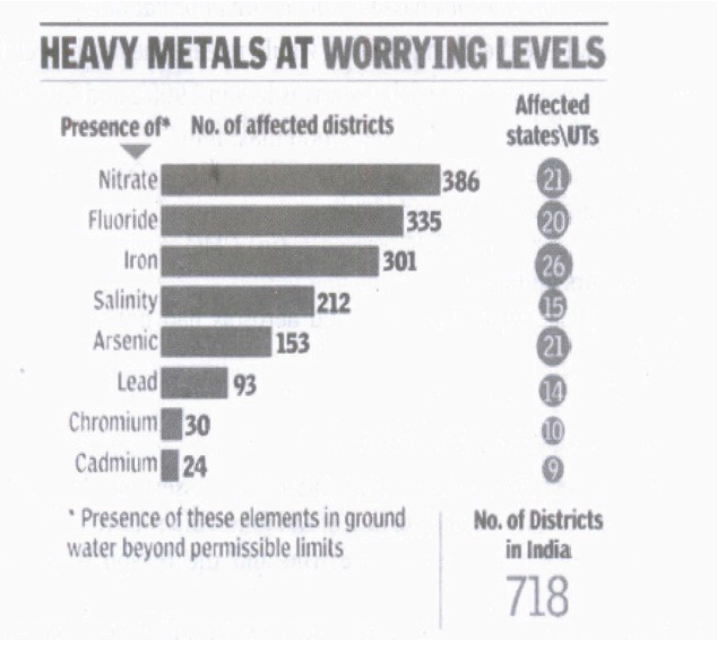
86) **Assertion**: Ozone is very important layer of atmosphere.
Reason: Ozone protects the living organisms from harmful UV radiations of sun.
Codes
(a) Both A and R are true and R is correct explanation of the assertion.
(b) Both A and R are true but R is not the correct explanation of the assertion.
(c) A is true but R is false.
(d) A is false but R is true

87) **Assertion (A)** The waste we generate daily may be biodegradable or non-biodegradable.
Reason (R) The waste generated, if not disposed off properly may cause serious environmental problems
(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true and R is not the correct explanation of A
(c) A is true, but R is false
(d) A is false, but R is true

88) **Assertion (A)** Producers are capable of using light energy from the sun to make food available in an ecosystem.
Reason (R) All food chains in an ecosystem start with a producer.
(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true, but R is not the correct explanation of A
(c) A is true, but R is false
(d) A is false, but R is true

Data Based Questions 2 x 1 = 2

89) According to WHO, nitrate in drinking water can cause methemoglobinaemia or the decreased ability of blood to carry vital oxygen around the body.



Answer the following questions based on the above information

(a) Name anyone source through which water gets contaminated by nitrate.

(b) River water contains large amount of detergents as pollutant, what would be the pH of such water.

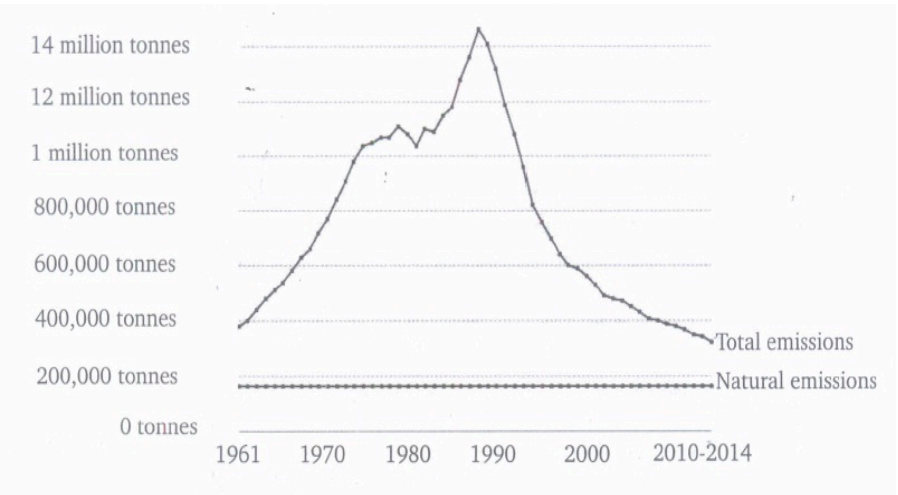
(c) Which one of the following is a heavy metal

(i) Nitrate (ii) fluorite (iii) iron (iv) cadmium

(d) Lead enters water mainly through:

(i) Newspaper (ii) Battery (iii) Toys (iv) All of these

90) The curve shows the amount of emission of chemicals in the air that depletes ozone layer from the year 1961 to 2014.



Answer the following questions based on the above information

(a) Where do we use the chemicals that would release the harmful chemicals in the air?

(b) Why the emission of harmful gases was less in 1960's and 2010 onwards?

(c) In which year was the ozone depletion maximum?

(i) 1970-1972 (ii) 1979-1980 (iii) 1988-1990 (iv) 1998-2000

(d) Chemical that depletes ozone layer is

(i) CFC (ii) CNC (iii) CMC (iv) CLC

2 Marks 147 x 2 = 294

91) Why are some substances biodegradable and some non-biodegradable?

92) What is the role of decomposers in the ecosystem?

93) Will the impact of removing all the organisms in a trophic level be different for different trophic levels? Can the organisms of any trophic level be removed without causing any damage to the ecosystem?

94) What are the problems caused by the non-biodegradable wastes that we generate?

95) If all the waste we generate is biodegradable, will this have no impact on the environment?

96) Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

97) Why is improper disposal of waste a curse to environment?

98) Write the common food chain of a pond ecosystem.

99) What are the advantages of cloth bags over plastic bags during shopping?

100) Why are crop fields known as artificial ecosystems?

101) Differentiate between biodegradable and non-biodegradable substances. Cite examples.

102) Suggest one word for each of the following statements/definitions.
(a) The physical and biological world where we live in
(b) Each level of food chain where transfer of energy takes place.
(c) The physical factors like temperature, rainfall, wind and soil of an ecosystem.
(d) Organisms which depend on the producers either directly or indirectly for food.

103) Explain the role of decomposers in the environment?

104) Select the mis-matched pair in the following and correct it.
(a) Biomagnification - Accumulation of chemicals at the successive trophic levels of a food chain
(b) Ecosystem - Biotic components of environment
(c) Aquarium - A man-made ecosystem
(d) Parasites - Organisms which obtain food from other living organisms

105) We do not clean ponds or lakes, but an aquarium needs to be cleaned. Why?

106) Suggest any four activities in daily life which are eco-friendly.

107) What are the by-products of fertiliser industries? How do they affect the environment?

108) Mention one negative effect of our affluent life, style on the environment.

109) Which class of chemicals is linked to the decrease in the amount of ozone in the upper atmosphere of the earth?

110) Which compound are responsible for the depletion of ozone layer?

111) Depletion of ozone in the ozone layer is a cause for our worry. Why?

112) What is the function of ozone in the upper atmosphere?

113) List two biotic components of a biosphere.

114) How is the increase in demand for energy affecting our environment adversely?

115) Why is ozone layer getting depleted at the higher levels of the atmosphere?

116) Name any two abiotic components of an environment.

117) What are the two main components of our environment?

118) Why are green plants called 'producers'?

119) Which disease is caused in human beings due to depletion of ozone layer in the atmosphere?

120) Why did United Nations act to control the production of chlorofluorocarbons (CFCs) used in refrigerators?

121) Define 'trophic level'

122) What are the various steps in a food chain called?

123) What is the important function of presence of ozone in earth's atmosphere?

124) Give an example to illustrate that indiscriminate use of pesticides may result in the degradation of the environment.

125) Why is it necessary to conserve our environment?

126) What is meant by a biodegradable waste?

127) What step is being taken to limit the damage to the ozone layer?

128) Why are some substances non-biodegradable?

129) Name two decomposers operating in our ecosystem.

130) Select two non-biodegradable substances from the following waste generated in a kitchen: spoilt food, paper bags, milk bags, vegetable peels, tin cans, used tea leaves.

131) What happens when higher energy ultraviolet radiations act on the oxygen at the higher level of the atmosphere?

132) In a food chain, 10,000 joules of energy is available to the producer. How much energy will be available to the secondary consumer to transfer it to the tertiary consumer?

133) Write the name and formula of a molecule made up of three atoms of oxygen

134) List two man-made ecosystems.

135) How will accumulation of bio degradable waste effect our environment?

136) Consider the following food chain which occurs in a forest: Grass→Deer→Lion if 10000 J of solar energy is available to the grass, how much energy would be available to the deer to transfer it to the lion?

137) DDT has entered food chain. Which food habit is safer - vegetarian or non - vegetarian?

138) Which of the following belong to the first trophic level of a food chain? Grass, Grasshopper, plants, Rat, Tiger

139) Why is plastic not degrade by bacteria?

140) Name the phenomenon in which non-biodegradable chemicals get accumulated progressively at each trophic level of a food chain.

141) Using kulhads as disposable cups to serve tea in trains, proved to be a bad idea. Why?

142) What is the harm of clay cups?

143) What limits the number of trophic levels in a food chain?

144) State one reason to justify the position of man at the apex of most of the food chains?

145) Which food chains are advantageous in terms of energy?

146) Construct a food chain composing the following Snake, Hawk, Rats, Plants.

147) Name the process that is a direct outcome of excessive burning of fossil fuels?

148) If all the wastes we generate is biodegradable what impact may this have on the environment?

149) Which of the following will have the maximum concentration of harmful chemicals in its body? Peacock, Frog, Grass, Snake, Grasshopper.

150) Are plants actually producers of energy.

151) Why energy of herbivores never come back to the autotrophs?

152) Write the harmful effect of ozone depletion.

153) Why food chains consists of three or four steps only?

154) Aquarium requires regular cleaning whereas lakes normally do not. Why?

155) Why are bacteria and fungi called decomposers? List any two advantages of decomposers to the environment.

156) How is ozone formed in the upper atmosphere? Why is the damage of ozone layer a cause of concern to us? State a cause of this damage.

157) State two problems caused by the non-biodegradable waste that we generate in our daily life.

158) What are biodegradable and non-biodegradable substances? Select two biodegradable pollutants from the following: Agricultural waste, glass, plastic, sewage, DDT.

159) Construct an aquatic food chain showing four trophic levels.

160) Explain 'biological magnification' with the help of an example.

161) Describe how decomposers facilitate recycling of matter in order to maintain balance in the ecosystem.

162) Explain the phenomenon of "biological magnification" How does it affect organisms belonging to different trophic levels particularly the tertiary consumers?

163) "Damage to the ozone layer is a cause for concern". Justify this statement. Suggest any two steps to limit this damage.

164) Why some substances are degraded and others not?

165) What will happen if all the carnivores are removed from the earth?

166) What will happen to grasslands if all the grazers are removed from there?

167) The number of malaria patients in a village increase tremendously. When a large number of frogs were exported from the village. What could be the cause for it? Explain the help of food chain?

168) What are the functions of producers?

169) Mention the significance of food web.

170) Define food web.

171) Give an example of food chain of a pond ecosystem.

172) How does waste disposal affect our environment?

173) Mention the role of decomposers in biotic environment.

174) What are the different methods of waste disposal?

175) Explain ozone layer and its importance.

176) Explain the different trophic level in an ecosystem by giving examples in pond and grassland.

177) Is it necessary to conserve our environment? Why?

178) Comment on "Green plants are called producers".

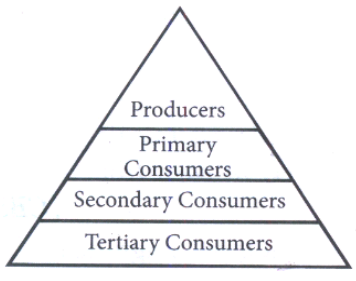
179) Define global warming.

180) Define biological magnification with an example.

181) Explain food chain in a terrestrial ecosystem and in aquatic ecosystem with an example.

182) Give any one example of:
(a) Three step food chain
(b) Five step food chain
(c) Four step food chain.

183) Give the correct sequence of various trophic levels in a food chain



184) If a harmful chemical enters a food chain consisting of snacks, grasshoppers, plants and frogs, which one of the organisms is likely to have a maximum concentration of harmful chemicals in its body?

185) A food chain consisting of Peacock, Frog, Snake, Grasshopper. Which organisms do you think will have high level of pesticides? What is the phenomenon called? Arrange the food chain.

186) In comparing two ecosystems 'X' and 'Y', i is observed that 'X' has only first and second order consumers, while 'Y' has third, fourth and fifth order consumers. Which of the two would be more stable?

187) In the food chain given below:
Grass $\longrightarrow$ Grasshopper $\longrightarrow$ Frog $\longrightarrow$ Snake $\longrightarrow$ Peacock
What will happen if all the frogs are removed?

188) A non-biodegradable toxic chemical has entered into the food chain. Which type of food habit will you suggest, vegetarian or non-vegetarian? Why?

189) Name any two groups of producers.

190) Write the two raw materials for making food, used by living organisms of first tropic level

191) Which component of sunlight is used for the formation of ozone?

192) Name 4 abiotic components of any ecosystem.

193) Name two natural ecosystem

194) Name two artificial ecosystem.

195) What are consumers in the food chain?

196) Name the natural cleansing agent in an ecosystem

197) Expand UNEP

198) Define biological magnification.

199) What is bad Ozone?

200) What will be the amount of energy available to the organisms of the 2nd trophic level of a food chain, if the energy available at the first trophic level is 10,000 joules

201) List two natural ecosystems.

202) We often use the word environment. What does it mean?

203) The depletion of ozone layer is a cause of concern. Why?

204) Why is plastic bag called non-biodegradable while paper is not?

205) Differentiate between natural and artificial ecosystem

206) Pesticides are useful to farmers yet considered as pollutants. Give reasons.

207) Describe the ozone layer presence in stratosphere.

208) Why decomposers are necessary in environment?

209) Give one advantage and one disadvantage of Ozone

210) Give one example of grassland ecosystem and one example of pond ecosystem

211) Energy flow in a food chain is unidirectional. Explain

212) State different types of consumers in an ecosystem.

213) Differentiate between biodegradable and non biodegradable substances

214) Define an ecosystem. Explain in detail about its various components.

215) What is a food chain? List its characteristic features.

216) What is biological magnification?

217) How is ozone layer important to us?

218) What is causing the damage to ozone layer?

219) Why is damage to ozone layer a cause for concern? What steps are being taken to limit this damage

220) Burning of fossil fuels results in global warming". Give reasons to justify this statement

221) The following organisms form a food chain. Which of these will have the highest concentration of non-biodegradable chemicals? Name the phenomenon associated with it. Insects, Hawk, Grass, Snake, Frog

222) (a) Distinguish between producers and decomposers.
(b) Classify the following as producers and decomposers. Green plants, bacteria, fungi, blue-green algae.

223) Explain the interlink of biotic and abiotic factors in any ecosystem

224) What are decomposers? How are they important for the ecosystem?

225) Name two decomposers.

226) " Although gardens are created by man, but they are considered to be an ecosystem." Justify this statement.

227) State one ill-effect of the absence of decomposers from a natural ecosystem.

228) Which group of organisms form the first trophic level of all food chains. Why are they called so?

229) Why are the human beings most adversely affected by bio-magnification?

230) How ozone is formed in the upper layers of the Earth's atmosphere?

231) How does ozone affect our ecosystem?

232) (i) State the essential function performed by ozone at the higher levels of the atmosphere.
(ii) Why was there a sharp drop in the amount of ozone in the atmosphere in 1980's.

233) A lot of waste is generated in neighborhood. However, almost all of it is biodegradable. What impact will it have on the environment or human health?

234) Why should biodegradable and non-biodegradable wastes be discarded in two separate dustbins?

235) State two reasons why human-made materials like 20 plastics persist for a long time in the environment?

236) Define the terms biodegradable and non-biodegradable substance. Classify the following items into these two categories: Newspapers, Glass bottles, Polythene bags, Vegetable peels.

237) Give reasons for the following:
(a) Food web is more stable than a food chain in an ecosystem.
(b) A food chain should not have more than four to five trophic levels.

Activity Based Questions 9 x 2 = 18

238) 1. Collect waste material from your homes. This could include all the waste generated during a day, like kitchen waste (spoilt food, vegetable peels, used tea leaves, milk packets and empty cartons), waste paper, empty medicine bottles/strips/bubble packs, old and torn clothes and broken footwear.
2. Bury this material in a pit in the school garden or if there is no space available, you can collect the material in an old bucket/ flower pot and cover with at least 15 cm of soil.
3. Keep this material moist and observe at 15-day intervals.
4. What are the materials that remain unchanged over long periods of time?
5. What are the materials which change their form and structure over time?
6. Of these materials that are changed, which ones change the fastest?

239) 1. Use the library or internet to find out more about biodegradable and non-biodegradable substances.
2. How long are various non-biodegradable substances expected to last in our environment?
3. These days, new types of plastics which are said to be biodegradable are available. Find out more about such materials and whether they do or do not harm the environment.

240) 1. You might have seen an aquarium. Let us try to design one.
2. What are the things that we need to keep in mind when we create an aquarium? The fish would need a free space for swimming (it could be a large jar), water, oxygen and food.
3. We can provide oxygen through an oxygen pump (aerator) and fish food which is available in the market.
4. If we add a few aquatic plants and animals it can become a self- sustaining system. Can you think how this happens? An aquarium is an example of a human-made ecosystem.
5. Can we leave the aquarium as such after we set it up? Why does it have to be cleaned once in a while? Do we have to clean ponds or lakes in the same manner? Why or why not?

241) 1. While creating an aquarium did you take care not to put an aquatic animal which would eat others? What would have happened otherwise?
2. Make groups and discuss how each of the above groups of organisms are dependent on each other.
3. Write the aquatic organisms in order of who eats whom and form a chain of at least three steps.

4. Would you consider any one group of organisms to be of primary importance? Why or why not?

242) 1. Newspaper reports about pesticide levels in ready-made food items are often seen these days and some states have banned these products. Debate in groups the need for such bans.
2. What do you think would be the source of pesticides in these food items? Could pesticides get into our bodies from this source through other food products too?
3. Discuss what methods could be applied to reduce our intake of pesticides.

243) 1. Find out from the library, internet or newspaper reports, which chemicals are responsible for the depletion of the ozone layer.
2. Find out if the regulations put in place to control the emission of these chemicals have succeeded in reducing the damage to the ozone layer. Has the size of the hole in the ozone layer changed in recent years?

244) 1. Find out what happens to the waste generated at home. Is there a system in place to collect this waste?
2. Find out how the local body (panchayat, municipal corporation, resident welfare association) deals with the waste. Are there mechanisms in place to treat the biodegradable and nonbiodegradable wastes separately?
3. Calculate how much waste is generated at home in a day.
4. How much of this waste is biodegradable?
5. Calculate how much waste is generated in the classroom in a day.
6. How much of this waste is biodegradable?
7. Suggest ways of dealing with this waste.

245) 1. Find out how the sewage in your locality is treated. Are there mechanisms in place to ensure that local water bodies are not polluted by untreated sewage.
2. Find out how the local industries in your locality treat their wastes.
Are there mechanisms in place to ensure that the soil and water are not polluted by this waste?

246) 1. Search the internet or library to find out what hazardous materials have to be dealt with while disposing of electronic items. How would these materials affect the environment?
2. Find out how plastics are recycled. Does the recycling process have any impact on the environment?

3 Marks 39 x 3 = 117

247) Give any two ways in which biodegradable substances would affect the environment.

248) Give any two ways in which non-biodegradable substances would affect the environment.

249) What are trophic levels? Give an example of a food chain and state the different trophic levels in it.

250) What is ozone and how does it affect any ecosystem?

251) How can you help in reducing the problem of waste disposal? Give any two methods.

252) What will happen if we kill all the organisms in one trophic level?

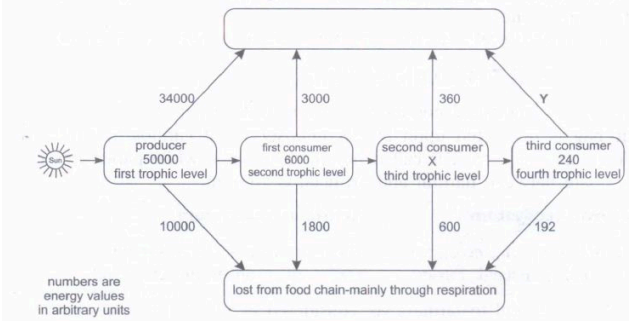
253) What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

254) Give reason to justify the following:
(i) The existence of decomposers in essential in a biosphere.
(ii) Flow of energy in a food chain is unidirectional.

255) Explain how the energy transfer takes place through a food chain

256) Discuss the role of UNEP in controlling the level of CFC release

257) Study the given flow chart and answer the below given questions.



(a) (i) Which form of the Sun's energy is trapped by the producer?
(ii) Into which energy form is the Sun's energy converted when it is trapped by the producer?
(b) (i) Calculate X in the flow chart. (ii) Calculate Y on the flow chart.
(c) Label the above box on flow chart.

258) Today it is very important to conserve our environment and the species. Discuss the need for conserving species.

259) Discuss the need and ways for conserving the habitat for the organisms

260) Why are forests considered "biodiversity hot spots"? List two ways in which an individual can contribute effectively to the management of forests and wildlife.

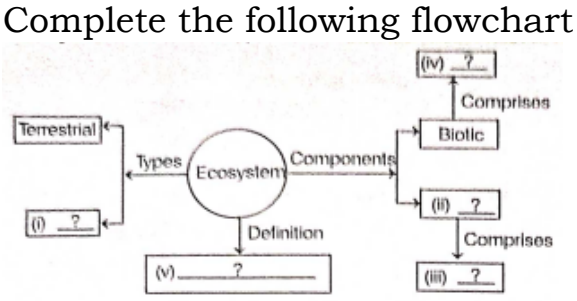
261) What is ozone? How and where is it formed in the atmosphere? Explain how does it affect an ecosystem.

262) Explain the formation of ozone layer and its importance.

263) What is biological magnification? Explain giving one example.

264) What is the importance of ozone in the environment? Why is it depleting? What precautions are taken to preserve it?

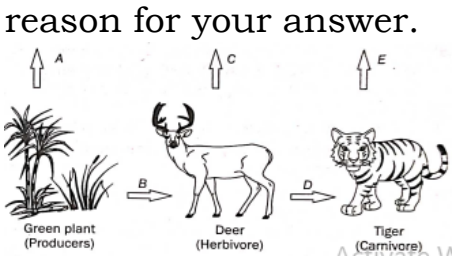
265) Complete the following flowchart based on ecosystem and its components.



266) (i) Define ecosystem.
(ii) Autotrophs are at the first level of food chain. Give reason.
(iii) In a food chain of frogs, grass, insects and snakes assign trophic level of frogs. To which category of consumers do they belong to?

267) What is meant by trophic level in a food chain? Construct a terrestrial food chain with four trophic levels. The energy flow In a food chain is always unidirectional. Why?

268) In the following food chain, vertical arrows indicate the energy lost to the environment and horizontal arrows indicate energy transferred to the next trophic level. Which one of the three vertical arrows (A, C and E) and which one of the two horizontal arrows (B and D) will represent more energy transfer? Give reason for your answer.



269) Which group of organisms form the first trophic level of all food chains. Why are they called so?

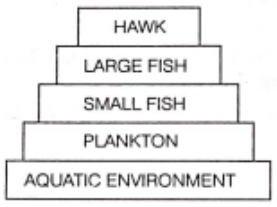
270) Select the ones that belongs to the first trophic level?
Grasshopper, rose plant, cockroach, vulture, neem plant

271) Define an ecosystem. Draw block diagram to show the flow of energy in an ecosystem.

272) In the following food chain, only 2J of energy was available to the peacocks.
How much energy would have been present in Grass? Justify your answer.
Grass → Grass hopper → Frog → Snake → Peacock

273) Explain how some harmful chemicals enter our bodies through the food chain? Why is the concentration of these harmful chemicals found to be maximum in human beings?

274) DDT was sprayed in a lake to regulate breeding of mosquitoes. How would it affect the trophic levels In the following food chain associated with a lake? Justify your answer.



275) Our food grains, such as wheat and rice, the vegetables and fruits and even meat are found to contain varying amounts of pesticide residues. State the reason to explain how and why it happens?

276) How is ozone formed in the higher levels of the atmosphere? "Damage to the ozone layer is a cause of concern." Justify this statement.

277) Gas A, found in the upper layer of the atmosphere, is a deadly poison, but is essential for all living beings.
The amount of this gas started declining sharply in the 1980s.
(i) ldentify gas A. How Is it formed at higher levels of the atmosphere?
(ii) Why is it essential for all living beings? State the cause for the depletion of this gas

278) How is ozone formed in the upper atmosphere? State its importance. What is responsible for its depletion? Write one harmful effect of ozone depletion.

279) Why is damage to the ozone layer a cause for concern? What are its causes and what steps are being taken to limit this damage.

280) Why is ozone layer getting depleted at the higher levels of the atmosphere? Mention one harmful effect caused by its depletion.

281) Write one difference between biodegradable and non-biodegradable wastes. List two impacts of each type of the accumulated waste on environment if not disposed off properly.

282) What is the difference between biodegradable and non-biodegradable substances? List two methods of safe disposal of biodegradable domestic waste.

283) (i) What is meant by garbage? List two classes into which garbage is classified.
(ii) What do we actually mean when we say that "the enzymes are specific in their reaction"?

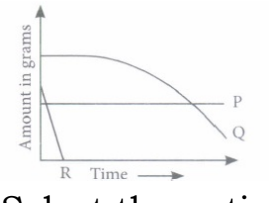
284) How can we help in reducing the problem of waste disposal? Suggest any three methods.

285) Write the name and location of a hormone which helps a person to respond when chased by a dog. Mention the responses in the body which help him to deal with the situation.

Case Study Questions 16 x 4 = 64

286) Advancement of the technology has resulted in improvement of our lifestyle and has also changed our attitude. When the human population was low and technology was in its infancy, the various kinds of solid wastes generated due to human activities were easily degraded by decomposers present in nature and it did not create any Significant harmful effect on the environment. In the recent times, however human population has increased tremendously and the technology has become greatly advanced. These two factors have contributed Significantly in the deterioration of our environment due to addition of number of wastes.

(i) Samaira took three different types of solid wastes P,Q, R and buried them under the soil in a pot, as she wanted to study their rate of decomposition. Her findings are shown in the given graph



Select the option that correctly identifies P, Q and R

	P	Q	R
(a)	**Polythene bag**	**Leather bag**	**Fruit peel**
(b)	**Used syringes**	**Broken glass**	**Leather purse**
(c)	**Cardboard**	**Cow dung**	**Rubber mat**
(d)	**Human excreta**	**Paper cup**	**Cow dung**

(ii) Which of the following statements regarding solid wastes is correct?

(a) Change in the packaging technology has resulted in generation of lot of solid wastes.

(b) Dumping of solid wastes could reduce the fertility of the soil leading to reduction in crop yield.

(c) Accumulation of solid waste could cause increased incidents of disease in a locality.

(d) All of these

(iii) Teacher kept few solid wastes in her class as given

Jute bag (I), Tube light (II), Aluminium (oil (III), Paper cup (IV), Fruits (V), Glass tumbler (VI), Hedge trimming (VII), Plastic bag (VIII), Metal keys (IX), DDT (X)

She asked students to arrange them in group A (Biodegradable) and group B (Non-biodegradable). Select the student that has grouped the items correctly.

(a) Tarun -	**Group A: I, IV, V,VII,**	**Group B : II, III, VI, VIII, IX, X**
(b) Shivani -	**Group A : I, III, V,VII, X**	**Group B : II, IV, VI, VIII, IX**
(c) Neha -	**Group A: II, III, IV, V, IX**	**Group A: II, III, IV, V, IX**
(d) Advait -	**Group A : I, III, IV, V,X**	**Group B : II, VI, VII, VIII, IX**

(iv) Select the option that incorrectly matches the type of solid waste and its correct disposal system

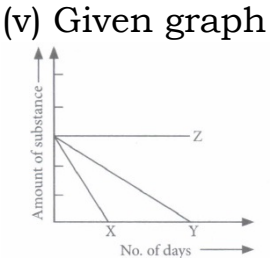
(a) Plastic bottle - Send for recycling

(b) Used tea leaves and kitchen waste - Collect in a pit to form compost

(c) Used syringes and needle - Wash and reused

(d) Municipal solid waste and fecal sludge - Buried in low lying areas to level uneven surface of land

(v) Given graph shows time taken by different types of materials to decompose.



Which of the following substances could be anon-biodegradable material?

(a) X (b) Y (c) Z (d) None of these

287) In any given ecosystem, all living organisms are linked in a systematic chain with respect to their mode of manufacturing food/feeding habits. This sequential interlinking of organisms involving transfer of food energy from producers through a series of organisms with repeated eating and being eaten is called the food chain. A food chain may have 3-4 trophic levels.

(i) Which of the following statements regarding food chain is incorrect?

(a) It is a single straight pathway through which food energy travels in the ecosystem.

(b) It adds adaptability and competitiveness to the organisms.

(c) Presence of isolated food chains adds to instability of the ecosystem.

(d) Food chain binds up inorganic nutrients of the ecosystem.

(ii) Consider the following food chain.

Grass $\longrightarrow$A $\longrightarrow$Frog $\longrightarrow$ Snake$\longrightarrow$Eagle

Which of the following can be placed at A?

(a)	**(b)**	**(c)**	**(d)**
Grasshopper	**Rabbit**	**Phytoplankton**	**Rat**

(iii) Select the correct food chain.

(a) Aquatic plants $\longrightarrow$ Tadpole $\longrightarrow$Water beetle$\longrightarrow$Pike$\longrightarrow$Perch

(b) Grass$\longrightarrow$Grasshopper$\longrightarrow$Snake$\longrightarrow$ Frog$\longrightarrow$ Eagle

(c) Grass$\longrightarrow$ Rabbit$\longrightarrow$ Wild cat$\longrightarrow$ Tiger

(d) Zooplankton $\longrightarrow$ Phytoplankton $\longrightarrow$Small fish$\longrightarrow$Fish

(iv) Food chains are sustained by producers and _____.

(a)	**(b)**	**(c)**	**(d)**
herbivores	**carnivores**	**omnivores**	**decomposers**

(v) Select the incorrect statement.

(a) Food chain may terminate at level of herbivore

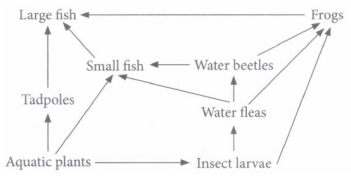
(b) Food chain is always straight

(c) Food chain may have 3-5 trophic levels

(d) In a food chain, 80 to 90% of potential energy is lost as heat, at each transfer

288) Alternatives are always available in nature which results in a sort of interlocking pattern or food web. For instance, if a particular species of producers get destroyed by a disease in an ecosystem, herbivores of that area can feed on other species. Also in a food web, any given species may operate simultaneously at more than one trophic level

(i) Refer to the given food web.



What will be the effect on the food web if population of water fleas get eliminated?

(a) Population of water beetles will increase.

(b) Population of insect larvae will remain unaffected.

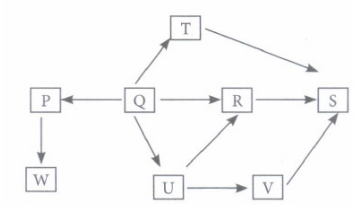
(c) Population of small fish will decrease.

(d) Population of frog will increase.

(ii) In the given food web, which organism operates at both primary and tertiary consumer level?

(a) Small fish (b) Frog (c) Water fleas (d) Tadpole

(iii) Refer to the given food web.



Which of the following statement the given food web is correct?

(a) When population of U decreases, population of R ants regarding nd V will increase.

(b) When population of Q decreases, population of R, T and U will increase.

(c) When population of R increases, population of S will increase.

(d) When population of S increases, population of R, T and U will also increase.

(iv) Which of the following statements is correct?

(a) Food webs provide alternative pathways of food availability.

(b) Greater alternatives available in a food web make the ecosystem more stable.

(c) Food webs also help in ecosystem development.

(d) All of these

(v) Food webs make a natural ecosystem _____ than an man-made ecosystem

(a) unstable (b) stable (c) variable (d) inconsistent

289) Some harmful non-biodegradable chemicals, i.e., pesticides (e.g., DDT) and heavy metals (e.g., mercury, arsenic cadmium, etc.) enter the bodies of organism through the food chain and go on concentrating at each trophic level. This phenomenon is called bio-magnification or biological magnification.

(i) Refer to the given food chain

Phytoplankton ⟶ Zooplankton ⟶Small fish ⟶ Large fish⟶Fish eating birds

If concentration of DDT in small fish is estimated to be 0.5 ppm, then amount of DDT in zooplankton and large fish would respectively be

(a) 0.04 ppm, 2ppm **(b) 2 ppm, 0.04 ppm** **(c) 0.04 ppm, 0.04 ppm** **(d) 2 ppm, 0.5 ppm.**

(ii) Refer to the given table.

Organism	Amount of cadmium
A	0.5 ppm
B	25ppm
C	0.003 ppb
D	2ppm
E	0.04ppm

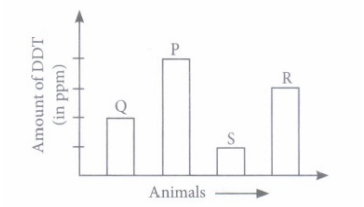
According to the given data. The correct order in a food chain will be

(a) E⟶C⟶D⟶A⟶B **(b) B⟶D⟶A⟶E⟶C**

(c) C⟶E⟶A⟶D⟶B **(d) C⟶E⟶A⟶B⟶D**

(iii) A group of scientists analysed samples of five different animals from a river for possible accumulation of DDT in their body due to bio-magnification. The result obtained is shown in the given graph.

The correct order of the food chain operating in a river is



(a) S⟶P⟶Q⟶R **(b) S⟶Q⟶R⟶P**

(c) P⟶R⟶Q⟶S **(d) P⟶Q⟶S⟶R**

(iv) Higher amount of DDT disturb calcium metabolism of birds. This results in

(a) thickening of their egg shells **(b) premature breaking of eggs**

(c) death of their embryos **(d) both (b) and (c)**

(v) When animals are sprayed with poisons, they may die immediately, but their bodies still contain the poison. The poison in their bodies will then be passed on to the animals which eat them. What would be the consequence of a mass poisoning of the rabbit population in a grazing food chain and why?

(a) Plants would die quickly as they are eaten by rabbits

(b) Grasshopper would die quickly as all the animals in the food web would be affected

(c) Western rattlesnakes would quickly become poisoned as they eat rabbits

(d) Hawk would become poisoned as they feed on rabbits

290) Ozone layer is present in the earth's atmosphere. It is in the form of a protective shield. It contains three oxygen atoms (O_3) which are formed as a consequence of photochemical reactions in the environment. Ozone absorbs harmful ultraviolet radiations of the sun. In this way, it protects all living beings on the earth. The thinning of ozone layer due to various human activities allows more UV radiations to pass through it which leads to harmful effects on man, animals and plants.

(i) Ozone layer is present in which layer of the atmosphere?

(a) Troposphere **(b) Mesosphere** **(c) Stratosphere** **(d) Thermosphere**

(ii) Enhanced UV-radiations would affect humans and other animals causing

(a) skin cancer

(b) blindness and increased chances of cataract in eyes

(c) malfunctioning of the immune system

(d) all of these

(iii) Read the given statements regarding ozone.

I. Ozone hole was first discovered over Montreal in 1976.

II. Ozone is a result of photochemical reactions in which starting molecule is oxygen.

III. Harmful chemicals produce active chlorine in presence of UV radiations, that destroys ozone layers.

IV. Ozone absorbs UV-radiations in the range of 800 - 1100 A.

Select the option that correctly identifies them as true (T) and false (F).

	I	II	III	IV
(a)	**F**	**T**	**T**	**F**
(a)	**F**	**F**	**T**	**T**
(c)	**T**	**T**	**F**	**F**
(d)	**T**	**F**	**T**	**T**

(iv) Which of the following are related to depletion of ozone layer?

(a) Chlorofluorocarbons **(b) Halons**

(c) Carbon tetrachloride **(d) All of these**

(v) Refer to the given events regarding thinning of ozone layer and arrange them in a sequence.

I. Active chlorine is produced in presence of UV radiations.

II. CFCs are released in the air.

III. Ozone layer in the stratosphere become thin.

IV. CFCs enter from troposphere into stratosphere.

V. Use of CFCs in refrigerators and air conditioners as coolants.

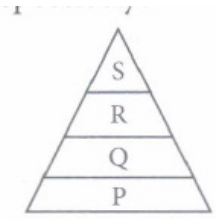
VI. Active chlorine destroy ozone by converting it into oxygen.

(a) V → II → I → VI→ IV → III **(b) V → II → IV →I → VI → III**

(c) V→ I → II → III→VI → IV **(d) V → IV→ II →I → III → VI**

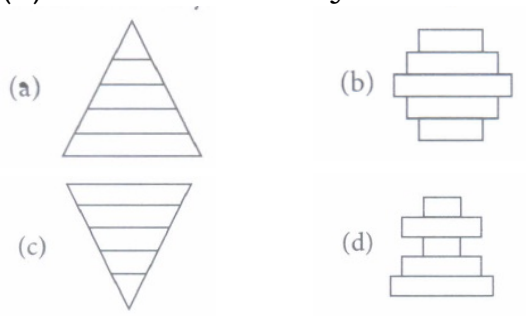
291) Various steps of a food chain can be represented sequence wise with producers at base, herbivores above them, followed by primary carnivores and finally the top carnivore at the top. This graphic representation of ecological parameters like number, biomass, energy at different trophic levels is called ecological pyramid. Different types of pyramids are pyramid of energy, pyramid of biomass and pyramid of number.

(i) Refer to the given figure where various trophic levels are represented as P, Q, Rand S. At which level is maximum and minimum energy available respectively?

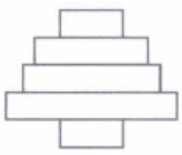


(a) P, S **(b) S, P** **(c) P, R** **(d) Q, S**

(ii) On the basis of your knowledge, select the pyramid of biomass operating in a grassland ecosystem



(iii) Which of the following food chains is most likely represented by the given pyramid of number?



(a) Tree → Aphid → Lady bug - Bird → Hawk

(b) Cyanobacteria → Shrim→ Small fish → Fish eating bird - Snake

(c) Plant→Rat →Snake → Meerkat→Lion

(d) Phytoplankton → Zooplankton →Shellfish→Fish →Shark

(iv) Which of the following pyramids is always upright?

(a) Pyramid of number **(b) Pyramid of biomass**

(c) Pyramid of energy **(d) Both (a) and (c)**

(v) Refer to the given table

Trophic level	**Number of organisms**	**Energy in trophic level (arbitrary units)**
W	**100**	**10,000**
X	**1**	**100**
Y	**1000**	**100,000**
Z	**10**	**1000**

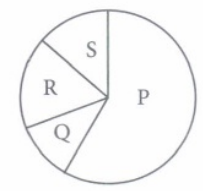
Which of the following food chains is correct regarding the given data?

(a) W → X→ Y → Z **(b) Y→ W → Z→ X**

(c) W →Z →X→ Y **(d) Y→X→ Z→W**

292) Various components of an ecosystem maintain a balance in nature. Disturbance in any component of the environment cause an imbalance. One of the main environmental problem caused by human activities is global warming. Global warming is a phenomenon caused by the increasing concentration of greenhouse gases in the atmosphere resulting due to enhanced greenhouse effect.

(i) Refer to the given pie chart showing the contribution of different gases to global warming.



Identify gases P, Q, Rand S and select the incorrect statement regarding them.

(a) P could be a gas that increases in atmosphere due to excessive use of fossil fuel.

(b) Q could be a gas produced by complete combustion of biomass.

(c) R could be synthetic gaseous compounds used as refrigerants in air conditioners and refrigerators.

(d) S could be a gas produced by combustion of nitrogen rich fuel.

(ii) What could not be a source of gas Q given in the above pie chart?

(a) Flooded paddy field **(b) Cattle**

(c) Jet fuel **(d) Marshes**

(iii) If there is no CO_2 in the atmosphere, then what will be the most likely consequence of this on the temperature of earth?

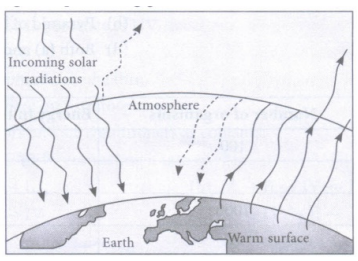
(a) The temperature remain unchanged as it depends upon the oxygen content of the atmosphere.

(b) The temperature would increase as less greenhouse gases will be absorbed by CO_2

(c) The temperature would decrease as CO_2 is the principal greenhouse gas.

(d) None of these

(iv) Study carefully the following figure representing greenhouse effect.



Select the correct statement regarding this.

(a) Much of the long wavelength infrared radiations re-radiated by the earth's surface are absorbed by the atmospheric greenhouse gases.

(b) CO_2 , CH_4 , CFCs and N_2O are the gases which are responsible for greenhouse effect.

(c) The atmosphere is transparent to the incoming short-wavelength radiations and is translucent to the long-wavelength infra-red radiations.

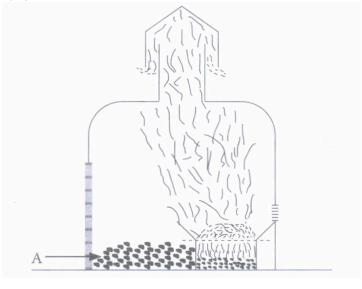
(d) All of these (v) Greenhouse effect is due to

(a) accumulation of O_3 and depletion of CO_2 **(b) accumulation of both O_3 and CO_2**

(c) accumulation of CO_2 and depletion of O_3 **(d) presence of green plants on the earth**

293) Disposal of waste should be done scientifically. Solid wastes, i.e., paper, plastics, metals, etc., can be recycled by sending them to respective recycling units. For instance, paper is sent for recycling into special paper mills; broken plastics, plastic bags, buckets, bowls, dishes, mugs, disks, etc.) are sent to plastic processing factories where these are melted and then remoulded; waste metals are sent to specific metal industries for recycling. Industrial wastes are treated in special plants where valuable wastes are recycled. Certain wastes are mixed to generate useful materials. For instance, molten plastic is mixed with asphalt and the material is used for making roads. Household waste, chemical waste and hospital waste are generally disposed off by an incineration process

(i) What does A represent in the given figure showing an incinerator?



(a) Solid waste (b) Fire (c) Ash (d) None of these

(ii) Which of the following statements regarding incineration is incorrect?

(a) It is the process of waste disposable by keeping waste at low temperature to stop enzymatic activity.

(b) Household waste, chemical waste and hospital waste are generally disposed by this method.

(c) Disposing waste by using this method generates carbon dioxide and water vapour.

(d) It involves aerobic burning of the combustible waste at high temperature

(iii) In the following groups of material which group contains only recyclable materials?

I. Wood, paper, fruit pulp

II. Plastic bottle, used aluminium foil, glass jug

III. Paper, metal key, plastic mug

(a) I and II only **(c) III only**

(b) II and III only **(d) I, II and III**

(iv) Incineration and pyrolysis are two methods of waste disposal done at high temperature. The two differs from each other as in later

(a) aerobic burning occurs

(b) chemical energy and chemical constituents are the end products

(c) ashes are the end products

(d) medical wastes are burnt with clinkers as the end product.

(v) The committee members of Robin's society placed two bins-green coloured and blue coloured in their premises for collection of garbage.

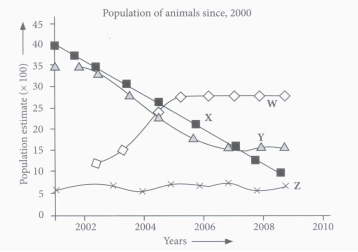
Given is the list of few solid wastes generated in his society

Paper cup, credit card, fruit and vegetables peels, cardboard, metal rod, aluminium foil, plastic key chain, pencil, glass sheet

Segregate the wastes in their respective bins and select the correct option.

Green bin	**Blue bin**
(a) Paper cup, credit card, pencil	**Fruit and vegetable peels, cardboard, metal rod, aluminium foil, plastic key chain, glass sheet**
(b) Paper cup, fruits and vegetables peels, cardboard, pencil	**Credit card, metal rod, aluminium foil, plastic key chain, glass sheet**
(c) Fruit and vegetables peels, cardboard, glass sheet,paper cup	**Credit card, metal rod, aluminium foil, plastic key chain, pencil**
(d) Credit card, metal rod, aluminium foil, glass sheet	**Paper cup, fruits and vegetables peels, cardboard, plastic key chain, pencil**

294) A group of ecologists studied and monitored the change in population of three animal species X, Y and Z over a period of ten years. During their research, they found that a new animal species W appeared in the area and its population was also monitored.



(I) Which animal species will unlikely to be alive in 10 years without some intervention?

a) W **(b) X**

(c) Y **(d) Z**

(ii) Which of the following species is most likely be the food source of W?

(a) X **(b) Y**

(c) Z **(d) Both X and Z**

(iii) What will be the likely consequence if population of X completely declines?

(a) Populations of W, Y and Z also declines **(b) Population of Y declines only.**

(c) Population of Z remains unchanged. **(d) Population of Z increases.**

(iv) What would be the most probable reason for the constant population of Z?

(a) There is plenty of food available for Z.

(b) There is no predator of Z in the community.

(c) Ratio of death rate and birth rate is nearly equal in the population of Z.

(d) There is more number of preys for Z in the community.

(v) What could be the reason for declining of X?

(a) There could be more than one predator of X prevailing in the community.

(b) There is food scarcity for X.

(c) More number of prey species are present in the community for X.

(d) Both (a) and (b)

295) Food web is a network of food chains which become interconnected at various trophic levels so as to form a number of feeding connections amongst different organisms of a biotic community. Different food webs operate in different ecosystems. One such food web operating in an ecosystem is given ahead. Study it carefully and answer the following.

(i) What is the primary energy input in this food web?

(a) Oak tree **(b) Oak blossoms** **(c) Sunlight** **(d) Oak leaves**

(ii) How many food chains are operating in the given food web?

(a) 10 **(b) 12** **(c) 16** **(d) 14**

(iii) When a new species 'X' was introduced into the community, the population of toads rose and population of skunks fell over the subsequent two weeks. Species 'X' is most likely to be

(a) another herbivore like toad **(b) a predator of insects only**

(b) a predator of insects only **(d) a predator of skunks and prey of the toad**

(iv) Which of the following organisms in the food web passes most of its energy to the subsequent trophic levels?

(a) Bear **(b) Wolf** **(c) Bee** **(d) Oak tree**

(v) Which organisms would be most affected if the oak tree fails to flower?

(a) Mice and insects **(b) Birds and bees**

(c) Deer and mice **(d) Insects and wolves**

296) Energy flow is the key function of an ecosystem. It is determined by the two basic laws of thermodynamics. Flow of energy in our ecosystem is unidirectional. Green plants capture approximately about 1% of the solar energy incident on the earth to carry out the process of photosynthesis. In an ecosystem, transfer of energy follows 10 percent law, i.e., only 10% energy is transferred from one trophic level to another and remaining 90% of energy is lost in respiration.

(i) Read the given statements and select the incorrect one(s).

I. At each trophic level organisms utilise energy in respiration.

II. Only 10 percent of the solar radiations that fall on earth is used by green plants.

III. Green plants are the ultimate source of entire energy as most of the food chain begin with them.

IV. A food chain usually consist of 3-4 trophic levels.

(a) I and II only **(b) II and III only** **(c) IV only** **(d) I and III only**

(ii) Refer to the given flow chart.

Plants → Rat → Snake

20 units 2 units 0.2 unit

The given flow chart states that

(a) flow of energy in an ecosystem is unidirectional

(b) as we move along in a food chain the number of individuals at each trophic level decreases

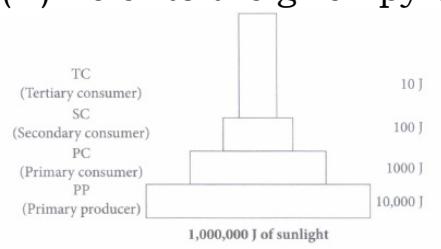
(c) only 10% of the total energy becomes available to next trophic level

(d) both (a) and (c).

(iii) Nearly 90% of the energy is wasted while moving from one trophic level to other. This energy is used in

(a) digestion of food **(b) respiration** **(c) overcoming entropy** **(d) all of these.**

(iv) Refer to the given pyramid.



Which of the following best explains the phenomenon?

(a) First law of thermodynamics **(b) Second law of thermodynamics**

(c) Third law of thermodynamics **(d) Both (a) and (b)**

(v) Which of the following correctly states the processes involved in energy transfer between the trophic levels?

Between the sun and producer	**Between producer and primary consumers**	**Between primary and secondary consumers**
Feeding	**Photosynthesis**	**Feeding**
Feeding	**Feeding**	**Decomposition**
Photosynthesis	**Feeding**	**Feeding**
Photosynthesis	**Feeding**	**Decomposition**

297) An ecosystem may be defined as a structural and functional unit of the biosphere comprising living organisms and their non-living environment which interact by means of food chains and biogeochemical cycles resulting in energy-flow, biotic diversity and material cycling to form a stable, self-supporting system.

(i) The two basic processes involved in an ecosystem are

(a) cycling of materials and food chains
(b) energy flow and self-sustainability
(c) carbon cycle and biotic diversity
(d) cycling of materials and flow of energy.

(ii) Which among the following is not an artificial ecosystem?

a) Orchard (b) Lake (c) Aquarium (d) Cropland

(iii) The role of fungi and bacteria in an ecosystem is to

(a) increase the supply of nutrients
(b) increase the supply of energy
(c) release nutrients from dead organic matter
(d) increase the amount of CO_2 in the atmosphere.

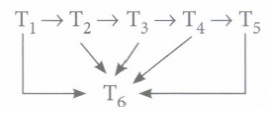
(iv) What would one of the likely result if all decomposers in a particular ecosystem were wiped out?

(a) The atmospheric reservoir of carbon dioxide would decline.
(b) More food would be available for other consumers in the ecosystem.
(c) The other organisms in the ecosystem would experience lower death rates.
(d) There would be no significant impact, as dead organic matters would spontaneously decompose.

(v) Which of the following holds true for an ecosystem?

(a) Primary consumers are least dependent upon producers.
(b) Primary consumers most of the time out number producers.
(c) Organic substances such as carbon, nitrogen and oxygen constitute the main abiotic components.
(d) Permanent ecosystems are self-supporting natural ecosystems that maintain themselves for relatively long duration.

298) The various steps, representing organisms in a food chain, at which the transfer of food and energy takes place are called trophic levels. Trophic levels are mainly occupied by producers and consumers. Producers belong to the first trophic level while consumers occupy various trophic levels in a food chain. Consumers are heterotrophic organisms, that are of three types - herbivores, carnivores and decomposers. A simplified version of a food chain showing various trophic levels is represented as follows.



(i) T_6 in the food chain is

(a) decomposer **(b) carnivore**

(c) herbivore **(d) omnivore**

(ii) If T_2 is occupied by grasshopper in a particular food chain, then T_3 and T_4 will most probably be

(a) bird, cow **(b) man, elephant**

(c) frog, snake **(d) snake, frog**

(iii) In an ecosystem, trophic levels are formed by

(a) herbivores only **(b) carnivores only**

(c) omnivores **(d) organisms linked in a food chain**

(iv) Which of the following limits the number of trophic levels in a food chain?

(a) Decrease in energy at higher trophic levels **(b) Deficient food supply**

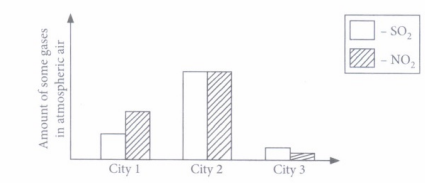
(c) Polluted air **(d) Water**

(v) Nitesh went to a garden. There he saw some sparrows eating worms from the green grass. After sometime suddenly an eagle attacked the bird and killed it. Which one among these organisms belong to trophic level 2 and 3 respectively in the food chain operating there?

(a) Worms, Sparrow **(b) Sparrow, Eagle**

(c) Grass, Worms **(d) Worms, Eagle**

299) All living things need air to breathe. Contamination of air with particles, gases and chemicals that have the potential to adversely affect health of humans and animals, vegetation and human assets is called air pollution. Major air pollutants are S02, nitrogen oxides, CO, CFCs, etc. Refer to the given graph showing air quality of three cities



(i) What can be inferred from the given graph?

(a) Air of city 1,2 and 3 is free from pollution.