



# CHEMISTRY

## BOOKS - V PUBLICATION

### ENVIRONMENTAL CHEMISTRY

#### Question Bank

1. Define environmental chemistry.



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2. Explain tropospheric pollution.



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3. Carbon monoxide gas is more dangerous than carbon dioxide gas. Why?



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4. Which gases are responsible for greenhouse effect? List some of them.



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5. Statues and monuments in India such as Tajmahal are affected by acid rain. How?



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6. a) Write any two differences between classical smog and photochemical smog.



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7. Write the mechanism of formation of photochemical smog.



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8. What are the harmful effects of photochemical smog and how can they be controlled?



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9. Ozone in the stratosphere is produced by the help of uv radiations. It protects us from harmful uv radiations.

Explain with chemical equation, the destruction of ozone by chlorofluorocarbons causing ozone hole



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10. What do you mean by ozone hole ?What are its consequences ?





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**11.** What are the major causes of water pollution? Explain.



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**12.** Have you ever observed any water pollution in your area? What measures would you suggest to control it?



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**13.** What is meant by BOD?



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**14.** Do you observe any soil pollution in your neighbourhood? What efforts will you make for controlling the soil pollution?



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**15.** What are pesticides and herbicides ?

Explain using examples.



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**16.** What do you mean by green chemistry?

How will it help decrease environmental pollution?



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**17.** What would have happened if green house gases were totally missing in the atmosphere ?



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**18.** A large number of fish are suddenly found floating dead on a lake. There is no evidence of toxic dumping but you find an abundance of phytoplankton. Suggest a reason for the fish kill.





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**19.** How can domestic waste be used as manure?



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**20.** For your agriculture field or garden, you have developed a compost producing pit. Discuss the process in the light of bad odour, flies and recycling of wastes for a good produce.



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21. CO<sub>2</sub> is inert and harmless gas, yet it is thought to be a serious pollutant. Explain



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22. Write the name of gas produced in Mathura refineries which can damage the great historical monument "Taj Mahal".



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**23.** Explain giving reasons: "The presence of carbon monoxide reduces the amount of haemoglobin available in the blood for carrying oxygen to the body cells". .



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**24.** A project study of students indicates that majority of people nearby a fertilizer factory, suffer from respiratory problems.

a. Find the reasons for this problem.

b. Find similar problems associated with water and soil.

c. Suggest ways to minimise such problems.



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**25.** "Ozone layer acts as an umbrella to the Biosphere".

a. Justify the statement.

b. Suggest the ways to reduce the ozone layer depletion.



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**26.** List the harmful effects of:

i. Radioactive fallout

ii. Smog

iii.  $SO_2$



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**27.** Two Important oxides of carbon are carbon monoxide and carbon dioxide. Why is CO called a poisonous gas?



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**28.** Oxygen play a key role in the troposphere while ozone in the stratosphere.



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**29.** What is the most important sink of CO pollutant?



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**30.** What is the compound formed when CO combines with blood?



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**31.** What is anoxia or asphyxiation?



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**32.** How are 'NO' and 'NO<sub>2</sub>' formed in the atmosphere?





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**33.** How are flue gases from industries freed from oxides of nitrogen and sulphur?



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**34.** What is chlorosis?



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**35.** What is the size range of particulates?



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**36.** What is the role of dichloroethane and dibromoethane when added to gasoline along with tetraethyl lead?



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**37.** What type of aromatic compounds are present as particulates in the air?



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**38.** What are 'asbestosis' and 'silicosis'?



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**39.** Who are the people who usually suffer from 'black lung disease' and who are those

who suffer from 'white lung disease'?



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40. How particulates help in the cloud formation?



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41. Which zone is called ozonosphere?



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**42.** .Name two compounds that can cause depletion of the ozone layer in the upper atmosphere



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**43.** What gaseous species are present in the mesosphere and thermosphere?



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**44.** Which disease is caused due to hole in the ozone layer and why?



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**45.** What is the composition of 'London smog'?



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**46.** In which season and what time of the day, there is 'London smog'?



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**47.** What is the nature of London smog?



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**48.** Why 'photochemical smog' is so called?



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**49.** Explain giving reasons "The presence of CO reduces the amount of haemoglobin available in the blood for carrying oxygen to the body cells".



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**50.** What is the composition of 'photochemical smog'?



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51. Give two examples in which green chemistry has been applied.



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52. What do you mean by greenhouse effect?



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53. a) What is meant by the green house effect?

b) Explain what is meant by green house gases.



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54. a) What is smog?



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55. Atmospheric pollution increases the global average temperature and the phenomenon is called global average and the phenomenon is

called global warming.

What are the major gases which contribute towards global warming ?



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**56.** Pollution is : removal of top soil., release of toxic/undesirable materials in environment., conservation of energy., All of the above

A. removal of top soil.

B. release of toxic/undesirable materials in environment.

C. conservation of energy.

D. All of the above

**Answer: B**



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**57.** Green house effect is caused by: (a)NO<sub>2</sub>  
(b)CO (c)NO (d)CO<sub>2</sub>

A. NO<sub>2</sub>'

B. CO'

C. NQ'

D. CO<sub>2</sub>'

**Answer: D**



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**58.** Assertion London smog is oxidising in nature. Reason London smog contains 'O<sub>3</sub>, NO<sub>2</sub>' and hydrocarbons .(i)Both Assertion and

Reason are true and Reason is the correct explanation of Assertion. (ii)Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (iii)Assertion is true but Reason is false. (iv)Both Assertion and Reason are false.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation of

Assertion.

C. Assertion is true but Reason is false.

D. Both Assertion and Reason are false.

**Answer: D**



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59. The green house gas is :  $CO_2$   $SO_2$   $N_2$   $H_2S$

A.  $CO_2$

B.  $SO_2$

C. N<sub>2</sub>'

D. H<sub>2</sub> ~S'

**Answer: A**



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**60.** Photochemical smog is due to the presence of : oxides of sulphur, oxides of nitrogen, lead, chlorofluorocarbons

A. oxides of sulphur



B. oxides of nitrogen

C. lead

D. chlorofluorocarbons

**Answer: B**



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**61.** The chemical entities present in thermosphere of the atmosphere :  $O_2^+$ ,  $O^+$ ,  $NO^+$ ;  $O_3$ ;  $N_2$ ,  $O_2$ ,  $CO_2$ ,  $H_2O$ ;  $O_3$ ,  $O_2^+$ ,  $O_2$

A.  $O_2^+$ ,  $O^+$ ,  $NO^+$

B.  $O_3$

C.  $N_2$ ,  $O_2$ ,  $CO_2$ ,  $H_2O$

D.  $O_3$ ,  $O_2^+$ ,  $O_2$

**Answer: A**



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**62.** The process of 'eutrophication' is due to :  
increase in concentration of insecticide in  
water, increase in concentration of fluoride ion

in water, The reduction in concentration of the dissolved oxygen in water due to phosphate pollution in water, attack of younger leaves of a plant by peroxyacetyl nitrate.

A. increase in concentration of insecticide in water

B. increase in concentration of fluoride ion in water.

C. The reduction in concentration of the dissolved oxygen in water due to phosphate pollution in water

D. attack of younger leaves of a plant by peroxyacetyl nitrate.

**Answer: C**



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**63.** 5 L aqueous solution is kept in the presence of oxygen and suitable microorganisms for five days at  $20^{\circ}C$ . If the  $O_2$  consumed is 0.2g, the *BOD* value of the

sample is. : 4ppm,  $0.4\text{mgL}^{-1}$ , 40 ppm,  
 $20\text{mgL}^{-1}$

A. 4.ppm

B.  $0.4 \text{ mg L}^{-1}$

C. 40 ppm

D.  $20 \text{ mg L}^{-1}$

**Answer: C**



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64. Which one of the following compounds helps in achieving equilibrium between  $O_2$  and  $CO_2$  in atmosphere? Chlorophyll, Vitamin-B (12), Porphyrin, Acetyl salicylic acid

A. Chlorophyll

B. Vitamin-B '(12)'

C. Porphyrin

D. Acetyl salicylic acid

**Answer: A**



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65. The smog is essentially caused by the presence of

A. 'O<sub>2</sub>' and 'O<sub>3</sub>'

B. O<sub>2</sub>' and 'N<sub>2</sub>'

C. oxides of sulphur and nitrogen

D. O<sub>3</sub>' and 'N<sub>2</sub>'

**Answer: C**



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66. Which of the following is not an air pollutant?

A. CO'

B. SO\_2'

C. NO'

D. N\_2'

**Answer: D**



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67. Which of the following is secondary pollutant?  $CO_2$   $N_2O$  PAN  $SO_2$

A.  $CO_2$

B.  $N_2O$

C. PAN

D.  $SO_2$

**Answer: C**



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68. The basic component of the smog is : PAN

PBN  $NO_2$  All of these

A. PAN

B. PBN'

C.  $NO_2$ '

D. All of these

**Answer: D**



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**69.** In which part of atmosphere, ozone layer is present? (1)Stratosphere (2)Troposphere (3)Mesosphere (4)Thermosphere

A. Stratosphere

B. Trophosphere

C. Mesosphere

D. Thermosphere

**Answer: A**



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**70.** Assertion: Photochemical smog is produced by nitrogen oxides. Reason: Vehicular pollution is a major source of nitrogen oxides.

(1) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(2) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (3) Assertion is true but Reason is

false. (4) Both Assertion and Reason are false.

A. Both Assertion and Reason are true and Reason is the correct explanation of

Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

C. Assertion is true but Reason is false.

D. Both Assertion and Reason are false.

**Answer: B**



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71. Ozone is formed in the upper atmosphere from oxygen by the action of ultraviolet rays cosmic rays free radicals nitrogen oxides

- A. ultraviolet rays
- B. cosmic rays
- C. free radicals
- D. nitrogen oxides

**Answer: A**



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72. UV radiations brings about

- A. skin cancer
- B. mouth cancer
- C. lungs cancer
- D. liver cancer

**Answer: A**



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73. Gas released during Bhopal tragedy was

- A. methyl isocyanate
- B. potassium isothiocyanate
- C. sodium isothiocyanate
- D. ethyl isothiocyanate

**Answer: A**



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74. Antidote for carbon monoxide is

A. caborundum

B. carbogen

C. carbonic acid

D. pure oxygen

**Answer: B**



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**75.** Green chemistry means such reactions which (1) Produce colour during reactions. (2) Reduce the use and production of hazardous chemicals. (3) Are related to the depletion of ozone layer (4) Study the reactions in plant

A. produce colour during reactions.

B. reduce the use and production of hazardous chemicals.

C. are related to the depletion of ozone layer

D. study the reactions in plants.

**Answer: B**



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**76.** When rain is accompanied by a thunderstorm, the collected rain water will have a pH value (1)Slightly lower than that of rain water without thunderstorm. (2)Slightly

higher than that when the thunderstorm is not there. (3)Uninfluenced by occurrence of thunderstorm. (4)Which depends on the amount of dust in air

A. slightly lower than that of rain water without thunderstorm.

B. slightly higher than that when the thunderstorm is not there.

C. uninfluenced by occurrence of thunderstorm.

D. which depends on the amount of dust in

air.

**Answer: A**



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**77.** .Name two compounds that can cause depletion of the ozone layer in the upper atmosphere

**A. Polyhalogens**

B. Ferrocenes

C. Fullerenes

D. Freons

**Answer: D**



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**78.** The brown haze of photochemical smog is largely attributable to NO, NO<sub>2</sub>, CH<sub>3</sub>COONO<sub>2</sub>, CH<sub>2</sub>=CHCHO

A. NO

B. NO<sub>2</sub>

C. CH<sub>3</sub>COONO<sub>2</sub>

D. CH<sub>2</sub>=CHCHO

**Answer: B**



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**79.** Which of the following is not a greenhouse gas?

A. CO<sub>2</sub>'

B. CH<sub>4</sub>'

C. O<sub>3</sub>'

D. N<sub>2</sub>'

**Answer: D**



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**80.** Use of chlorofluoro carbons is not encouraged because (1)They are harmful to the eyes of people that use this. (2)They



damage the refrigerators and air conditioners.

(3)They eat away the ozone in the atmosphere.

(4)They destroy the oxygen layer.

A. they are harmful to the eyes of people

that use 16

B. they damage the refrigerators and air

conditioners.

C. they eat away the ozone in the

atmosphere.

D. they destroy the oxygen layer.

**Answer: C**



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**81.** Match the Column I and Column II and pick the correct matching from the codes, given below:

'(##VPU\_HSS\_CHE\_XI\_C14\_E05\_010\_Q01##)'

(a) A-3,B-4,C-1,D-5,E-2

(b) A-1,B-2,C-3,D-4,E-5

(c) A-3,B-5,C-1,D-2,E-4

(d)A-5,B-3,C-1,D-2,E-4

(e)A-2,B-3,C-5,D-4,E-1

A. 34152

B. 12345

C. 35124

D. 53124

**Answer: A**



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82. Ozone in stratosphere is depleted by

A.  $\text{CF}_2\text{Cl}_2$

B.  $\text{C}_7\text{F}_{16}$

C.  $\text{C}_6\text{H}_6\text{Cl}_6$

D.  $\text{C}_6\text{F}_6$

**Answer: A**



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**83.** Which of the following statements is false?

(1) Photochemical smog causes irritation in eyes. (2) London smog is a mixture of smoke and fog. (3) Photochemical smog results in the formation of PAN. (4) London smog is oxidising in nature

A. Photochemical smog causes irritation in eyes.

B. London smog is a mixture of smoke and fog.

C. Photochemical smog results in the formation of PAN.

D. London smog is oxidising in nature.

**Answer: D**



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**84.** An important product in the ozone depletion by chlorofluoro carbons is  $\text{Cl}_2\text{OCl}$   
 $\text{COF}_2$   $\text{O}_2\text{F}_2$

A.  $\text{Cl}_2$

B.  $\text{OCl}$

C.  $\text{COF}_2$

D.  $\text{O}_2\text{F}_2$

**Answer: B**



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**85.** Which one of the following statement is not true? Oxides of sulphur, nitrogen and carbon are the most widespread air pollutant.,,

pH' of drinking water should be between 5.5 – 9.5,, Concentration of *DO* below 6 ppm is good for the growth of fish,, Clean water would have a BOD value of less than 5 ppm

A. Oxides of sulphur, nitrogen and carbon are the most widespread air pollutant.

B. pH' of drinking water should be between '5.5-9.5 .'

C. Concentration of 'DO' below '6 ppm' is good for the growth of fish.



D. Clean water would have a BOD value of  
less than '5 ppm '

**Answer: C**



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**86.** Excess of nitrate ions in drinking water  
causes.

A. methemoglobinemia

B. kidney damage

C. liver damage

D. laxative effect

**Answer: A**



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**87.** The water pollutants mainly responsible for eutrophication are

A. Cd, Pb' and 'Hg' present in industrial waste.

B. heavy metals present in mining waste.

C. detergents and fertilisers containing phosphate anion.

D. polychlorinated biphenyls.

**Answer: C**



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**88.** The hardness of water is estimated by

A. EDTA method

B. Titrimetric method

C. Conductivity method

D. Distillation method

**Answer: A**



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**89.** Surface water contains

A. suspended impurities

B. organic compound

C. salt

D. salt and organic compound

**Answer: A**



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**90.** The reagent commonly used to determine hardness of water titrimetrically is?

A. oxalic acid

B. disodium salt of EDT A

C. sodium citrate

D. sodium thiosulphate 'k'

**Answer: B**



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**91.** Water softening by clarke's process uses

A. calcium bicarbonate

B. sodium bicarbonate

C. potash alum

D. Calcium hydroxide

**Answer: D**



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**92.** What is the reagent used for testing fluoride ion in water? Alizarin-S, Quinalizarin, Phenolphthalein, Benzene

A. Alizarin-S

B. Quinalizarin

C. Phenolphthalein

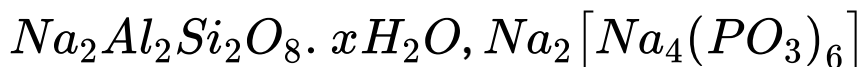
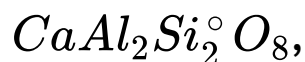
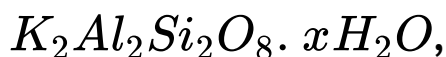
D. Benzene

**Answer: A**

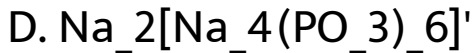
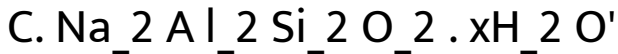
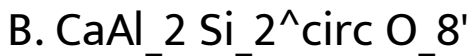


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**93.** The chemical formula of zeolite is :







**Answer: C**



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**94.** Which of the following organisation is engaged in the promotion and construction of bio-gas plants in India? KBIC, GVD, KVIC, All of these

A. KBIC

B. GVD.

C. KVIC

D. All of these

**Answer: C**



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**95.** Which of the following waste materials can be used for producing bio-gas? Thermocoal, glass bottle, Tin cans, Paper scrap

A. Thermocoal

B. glass bottle

C. Tin cans

D. Paper scrap

**Answer: D**



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