



# CHEMISTRY

**BOOKS - VGS PUBLICATION-BRILLIANT**

**THE p-BLOCK ELEMENTS-GROUP 14**

## Very Short Answer Questions

1. Discuss the variation of oxidation states in the group - 14 elements.



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2. How the following compounds behave with water ?



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3. How the following compounds behave with water ?



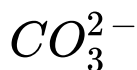
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4. Are  $BCl_3$  and  $SiCl_4$  electron deficient compounds ? Explain.



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5. Give the hybridization of carbon in



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**6.** Give the hybridization of carbon in diamond



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**7.** Give the hybridization of carbon in Graphite



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**8.** Give the hybridization of carbon in

Fullerene



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**9.** Why is carbon monoxide poisonous ?



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**10.** What is allotropy ? Give the crystalline allotropes of carbon.



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11. Classify the following oxides as neutral, acidic, basic or amphoteric.

$CO$ ,  $B_2O_3$ ,  $SiO_2$ ,  $CO_2$ ,  $Al_2O_3$ ,  $PbO_2$ ,  $Tl_2O_3$



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12. Name any two man-made silicates.



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**13.** Write the outer electron configuration of group - 14 elements.



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**14.** How does graphite function as a lubricant ?



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**15.** Graphite is a good conductor - explain.



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**16.** Explain the structure of silica.



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**17.** What is 'synthesis gas' ?



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**18.** What is 'producer gas' ?



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19. Diamond has high melting point - Explain.



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20. Give the use of  $CO_2$  in photosynthesis.



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21. How does  $CO_2$  increase the greenhouse effect ?





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22. What are silicones ?



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23. Give the uses of silicones.



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24. What is effect of water on tin ?





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25. Write an account of  $SiCl_4$  .



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26.  $SiO_2$  is a solid while  $CO_2$  is a gas - explain.



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27. Write the use of ZSM-5.





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28. What is the use of dry ice ?



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29. How is water gas prepared ?



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30. How is producer gas prepared ?





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**31.** C - C bond length in graphite is shorter than C - C bond length in diamond - Explain.



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**32.** Diamond is used as precious stone - explain.



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**33.** Carbon never shows coordination number greater than four while other members of carbon family show coordination number as high as six - explain.



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**34.** Producer gas is less efficient fuel than water gas - explain.



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35.  $SiF_6^{2-}$  is known while  $SiCl_6^{2-}$  is not - explain.



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## Short Answer Questions

1. Explain the differences in properties of diamond and graphite on the basis of their structures.



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2. Explain the following.

$PbCl_2$  reacts with  $Cl_2$  to give  $PbCl_4$ .



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3. Explain the following.

$PbCl_4$  is unstable to heat.



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4. Explain the following.

Lead is not known to form  $Pbl_4$ .



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5. Explain the following.

Silicon is heated with methyl chloride at high temperature in the presence of copper.



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6. Explain the following.

$SiO_2$  is treated with HF



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7. Explain the following.

Graphite is a lubricant



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**8.** Explain the following.

Diamond is an abrasive



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**9.** What do you understand by

Allotropy



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**10.** What do you understand by

Inert pair effect



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**11.** What do you understand by

Catenation



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**12.** If the starting material for the manufacture of silicones is  $RSiSCl_3$ , write the structure of the product formed.



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**13.** Write a short note on zeolites.



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**14.** Write a short note on silicates.



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**15.** What are silicones ? How are they obtained?



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**16.** Write a short note on fullerene.



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17. Why  $SiO_2$  does not dissolve in water ?



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18. Why is diamond hard ?



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19. What happens when the following are heated ?





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20. What happens when the following are heated ?

$CaCO_3$  and  $SiO_2$



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21. What happens when the following are heated ?

$CaCO_3$  and excess of coke.







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22. Why does  $Na_2CO_3$  solution turn into a suspension, when saturated with  $CO_2$  gas ?



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23. What happen when

$CO_2$  is passed through slaked lime



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24. What happen when

$CaC_2$  is heated with  $N_2$ .



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25. Write a note on the anomalous behaviour of carbon in the group-14.



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**Long Answer Questions**

1. What are silicons ? How are they prepared ?

Give one example. What are their uses ?



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2. Explain the structure of silica. How does it react with

NaOH.



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3. Explain the structure of silica. How does it react with HF?



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4. Write a note on the allotropy of carbon.



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5. Write a short note on silicates.



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**6. Write a short note on zeolites.**



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**7. Write a short note on fullerene.**



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