CHEMISTRY

BOOKS - JEEVITH PUBLICATIONS CHEMISTRY (KANNADA ENGLISH)

P-BLOCK ELEMENTS

One Mark Questions And Answers

1. Why does carbon show maximum catenation among group 14 elements ?

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2. What is the general electronic configuration of p - block elements ?

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3. What is the general electronic configuration of group 13 elements ?

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4. What type of hybridization does carbon undergo in diamond and graphite ?

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5. What is the formula of borax ?

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6. What is catenation ?

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7. What is called as inorganic benzene ?

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8. Write the structure of inorganic benzene.

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9. Write the general electronic configuration of group 14 elements.

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10. Define silicones.

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11. What is the composition of water gas ?

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12. Graphite is soft and slippery. Give reason.

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13. Which oxide of carbon is an anhydride of carbonic acid ?

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14. Why does boron form stable electron deficient compounds ?

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15. Why is boric acid (H_3BO_3) a monobasic acid ?

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16. What type of glass is obtained when borax is added that ?

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17. What is the use of diborane ? Why BH_3 exists in the form of diborane ?

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18. Give the structure of diborane.

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19. Why do boron halides form addition compounds with ammonia and amines ?

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20. In which pure form does corbon exist in nature ?

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21. Give the structure of CO_2 .

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22. What name is give to the compounds formed by more electropositive elements with

carbon ?

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23. Is carbon dioxide poisonous or not ?

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24. What is producer gas ?

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25. Buckminster fullerene is a crystalline allotrope of which element ?

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26. What is the state of hybridisation of C in CO_3^{2-} ?

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27. How does BF_3 act as a catalyst in industrial processes ?

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28. Why is BF_3 a weaker Lewis acid than BCI_3 ?

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29. Why does boric acid act as Lewis acid ?

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30. Why does boron form electron deficient compounds?

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31. What is inert pair effect?

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32. What are silicates ?

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33. Explain the following statement with reason . Fullerene is considered as the allotrope of carbon.

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34. Mention the nature of an aqueous solution of borax.

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35. Boric acid is polymeric. Why ?

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36. Mention the type of hybridisation of boron in diborane.

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Two Mark Questions And Answers

1. Explain the variation of atomic radii in group 13 elements.

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2. How does ionisation enthalpy varies among group 13 elements .

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3. Explain electronegativity of group 13 elements.

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4. How does aluminium react with air?

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5. Expain the reaction of aluminium towards acid.

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6. How does aluminium react with sodium hydroxide ?

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7. How does borax react with water?

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8. C and Si are always tetravalent but Ge, Sn , Pb show divalency . Why ?

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9. Which of the following is acidic and why : $SiO_2, AI_2, PbO_2, SiO_2$?

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10. As we move down in group 13 elements increase in atomic size is comparatively very less. Explain.

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11. Explain the reaction of borax on heating .

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12. Orthoboric acid acts as a Lewis acid . Why ?

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13. What is the action of heat on orthoboric acid ?

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14. Explain the structure of orthoboric acid .

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15. How to prepare diborane in laboratory ?

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16. What happens when diborane reacts with air ?

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17. How does diborane react with water ?

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18. How does ammonia react with diborane ?

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19. Write any two uses of boron.

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20. Write any two uses of aluminium.

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21. Explain ionisation enthalpy of group 14 elements .

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22. Explain electronegativity of group 14 elements .

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23. Discuss oxidation states in group 14 elements .

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24. Mention the anomalous behaviour of carbon.

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25. How to prepare carbon monoxide from formic acid ?

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26. Explain the reaction of CO_2 on photosynthesis.

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27. Give two uses of carbon dioxide .

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28. Explain the structure of (SiO_2) silicon dioxide .

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29. Write any two uses of silicon dioxide.

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30. How to prepare silicones through polymerisation.

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31. Write any two uses of silicones .

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32. Briefly explain about zeolites .

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33. Write any two uses of zeolites .

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Three Mark Questions And Answers

1. What is allotropy ? Mention about the allotropic forms of Pb, Ge , Si.

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2. Write the anomalous behaviours of boron.

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3. What happens when group 14 elements react with oxygen and water ?

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4. How does silicon dioxide react with NaOH and HF ?

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5. Discuss the basic unit and structure of silicates.

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6. How does metallic character vary among group 14 elements ? How is it related to ionisation energy ?

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7. Write a note on the structure of Fullerene. Mention any two of its applications .

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8. Explain the structure of graphite giving the reason for its softness as well as its electrical conductivity.

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9. Explain the structure of diamond giving the reason for its harness as well as non conductivity of electricity.

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10. Give is the difference in the structure of the following pair of comounds : CO_2 and SiO_2 .

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11. Explain the formation of (i) water gas (ii) producer gas. Give their uses.

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12. What happens when CO_2 is passed through lime water (i) for a short duration (ii) for a long duration ?

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13. What is dry ice ? Why is it called so ? How to prepare a pure sample of CO (Carbon monoxide) ?

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14. What happens when ? (i) Quick lime is heated with coke ? (ii) Carbon monoxide reacts with CI_5 (iii) Plants absorb CO_2 ?

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15. Give a comparative account of the chemistry of carbon and silicon with regard to their (i) property of catenation and (ii) stability of hydrides and oxides .

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16. A certain salt X gives the following results (i) Its aqueous solution shows alkaline to litmus paper (ii) It swells up to a hot glassy material Y on strong heating (iii) When conc. H_2SO_4 is added to a solution of X white

crystal of an acid Z separates out. Write equation for all the above reactions and identify X,Y and Z.

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17. (a) Carbon dioxide is non -polar while water is polar. What conclusion do you draw about their structure from for this fact ?

(b) Classify the following compounds into acidic basic and amphoteric oxides . AI_2O_3, CI_2O_7 .

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18. A white crystalline solid A dissolves in water to give an alkaline solution . On heating A first loses water molecules and swells up . On further heating it turns into a transparent liquid which solidifies into a glossy bead . Name it.

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19. Mention three important uses of borax.

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20. What is allotropy ? Give examples of allotropes.

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21. Give three uses each of the different allotropic forms of carbon.

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22. How is boron obtained from borax ? Give chemical equations with reaction conditions and its reaction with HCI.

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23. What is inorganic benzene ? Why is it so called ? How will you get it from diborane ?

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24. State with equations what happens when borax is heated on a plantium wire loop and then to the resulting transparent mass a minute amount of CuO is added and the mixture is again heated first in an oxidising flame and then in the reducing flame of a Bunsen Burner .

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