



# CHEMISTRY

**BOOKS - VGS PUBLICATION-BRILLIANT**

**TS MARCH-2019 I.P.E. PAPER**

## Section A

**1. What is Biochemical Oxygen Demand (BOD) ?**



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2. What is a Bronsted base? Give one example.



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3. Why is gypsum added to cement?



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4. Calculate kinetic energy of 5 moles of Nitrogen at  $27^{\circ}C$ .



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5. A solution is prepared by adding 2 g of a substance A to 18 g of water. Calculate the mass per cent of the solute.



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6. Mention the important uses of Mg metals.



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7. Write the use of ZSM-5.



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8. How does graphite function as a lubricant ?



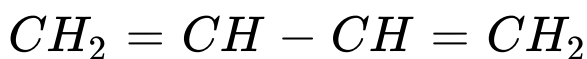
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9. Which oxides cause acid rain ?



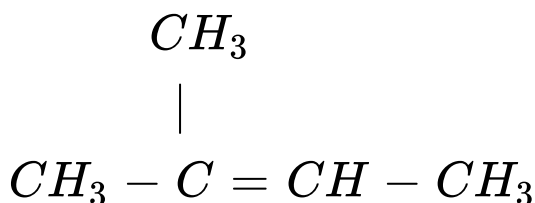
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10. Write IUPAC names of the following structures :



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11. Write IUPAC names of the following structures :



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## Section B

1. Derive ideal gas equation.



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2. A compound contains 4.07% hydrogen, 24.27% carbon and 71.65% chlorine. Its molar mass is 98.96 g. What are its empirical and molecular formulas ?



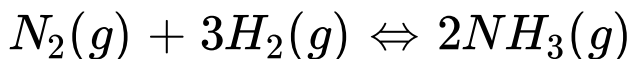
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3. State and explain the Hess's law of constant heat summation.



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4. Derive the relation between  $K_p$  and  $K_c$  for the equilibrium reaction.



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5. Explain the terms hard water and soft water.

Write a note on the

(ii) Calgon method for the removal of hardness of water.



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6. Explain Borax bead test with suitable example.



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7. Explain the hybridisation involved is  $SF_6$ .



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8. Give the Molecular Orbital Diagram of  $N_2$ .

Calculate the bond order of  $N_2$ .



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**Section C**

1. How are the quantum numbers  $n$ ,  $l$  and  $m$  arrived at ? Explain the significance of these quantum numbers.



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2. Define  $IE_1$  and  $IE_2$ . Why is  $IE_2 > IE_1$  for a given atom? Discuss the factors that effect IE of an element.



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3. Write any two methods of preparation of benzene with corresponding equations. How methyl benzene and acetophenone are prepared from benzene?



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