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 :

$$CH_2 = CH - CH = CH_2$$

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11. Write IUPAC names of the following structures :

$$\begin{array}{l} \quad CH_3 \\ \quad | \\ CH_3 - C = CH - CH_3 \end{array}$$

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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.

$N_2(g) + 3H_2(g) \Leftrightarrow 2NH_3(g)$

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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 quantam numbers n, l and m arrived at ? Explain the significance of these quantam 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 than effect IE of an element.

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

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