

GUESS PAPER - 3

JR. CHEMISTRY

SECTION - A

I. Answer ALL questions :

[10 x 2 = 20]

1. Which oxides causes acid rain? and What is its pH value?
2. Define Green house effect. Which gases are the cause for it?
3. What is Boltzman's Constant? Give its value.
4. Calculate the volume of O₂ at STP required to completely burn 100ml of acetylene.
5. Calculate the pH of 0.05 M NaOH solution.
6. Write the important uses of Caustic Soda.
7. Why gypsum is added to cement.
8. Why is diamond hard?
9. What is Synthesis gas?
10. Give the structural formulae of the following compounds.

(a) 2, 3-dimethyl butane

(b) 2-methyl but-1-ene

SECTION - B

II. Answer any SIX of the following Questions :

[6 x 4 = 24]

11. Derive the ideal gas equation from gas laws.
12. Balance the following redox equation in acidic medium by ion-electron method.

$$\text{Fe}^{2+}_{(aq)} + \text{Cr}_2\text{O}_7^{2-}_{(g)} \rightarrow \text{Fe}^{3+}_{(aq)} + \text{Cr}^{3+}_{(aq)}$$
13. Give the mathematical formulation of first law of thermodynamics.
14. Explain Lewis acid base theory with example.
15. Write a few lines on the utility of hydrogen as a fuel.
16. What are electron deficient compounds? Is BCl₃ an electron deficient species? Explain.
17. Explain the structure of Ethylene.
18. Write notes on the following (a) Distillation (b) Chromatography

SECTION - C

III. Answer any Two of the following Questions :

[2 x 8 = 16]

19. Define atomic orbital. Explain the shapes of s,p,d orbitals with the help of diagrams.
20. Write an essay on s,p,d and f block elements.
21. What is hybridisation? Explain different types of hybridisation involving s and p orbitals.

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