

Total No. of Questions – 21

Regd.

Total No. of Printed Pages - 3

No.

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Part – III
CHEMISTRY, Paper-I
(English Version)

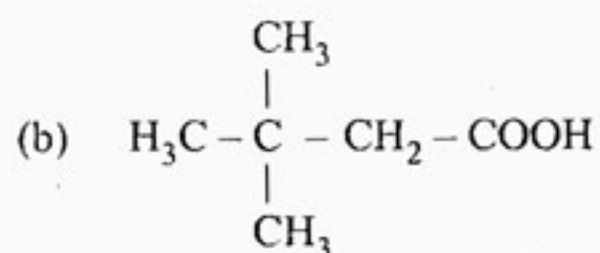
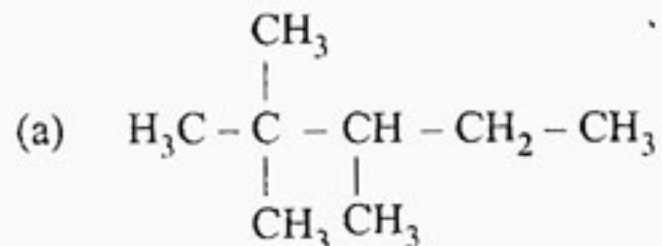
Time : 3 Hours]**[Max. Marks : 60****Note :** Read the following instructions carefully :

- (i) Answer **all** the questions of Section – A. Answer any **six** questions of Section – B and any **two** questions of Section – C.
- (ii) In Section – A, questions from Sr. Nos. **1 to 10** are of Very Short Answer Type. Each question carries **two** marks. Every answer may be limited to **two** or **three** sentences. Answer all these questions at one place in the same order.
- (iii) In Section – B, questions from Sr. Nos. **11 to 18** are of Short Answer Type. Each question carries **four** marks. Every answer may be limited to **75** words.
- (iv) In Section – C, questions from Sr. Nos. **19 to 21** are of Long Answer Type. Each question carries **eight** marks. Every answer may be limited to **300** words.
- (v) Draw labelled diagrams wherever necessary for questions in Section – B and Section – C.

SECTION – A**10 × 2 = 20****Note :** Answer **all** the questions.

1. Write the biological importance of Mg and Ca.
2. Write any two uses of caustic soda.
3. Write two crystalline allotropes of carbon and mention the hybridisation present in them.
4. Why Diamond is hard ?
5. What is Green House Effect ?
6. What are the effects of Acid Rains ?

7. Calculate kinetic energy of 3 moles of CO_2 gas at 27°C .
8. The Empirical Formula of a compound is CH_2O . Its molecular weight is 90. Find the molecular formula of the compound.
9. Concentration of Hydrogen ion is 3.8×10^{-3} M. What is its pH ?
10. Write IUPAC names of the following :

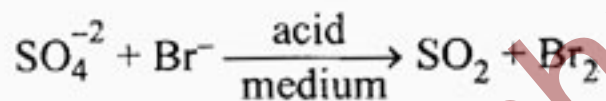


SECTION - B

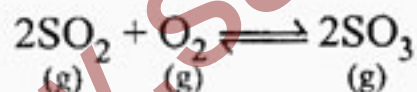
6 × 4 = 24

Note : Answer any six questions.

11. Derive Charles' law and Graham's law of diffusion from kinetic gas equation.
12. Balance the following Redox Reaction by ion electron method or Half cell Reaction Method.



13. State and explain Hess's Law of Constant Heat Summation. Give example.
14. Derive the relation between K_p and K_C for the equilibrium reaction



15. What is hardness of water ? Write Calgon's method for the removal of permanent hardness of water.
16. Explain the structure of Diborane.
17. Write two methods of preparation of Ethylene. Give the equations.
18. How the following are obtained from Benzene ?
 - (a) Nitro Benzene
 - (b) Methyl Benzene
 Give the equations.

Note : Answer any **two** questions.

19. What are Quantum Numbers ? Explain the significance of Quantum Numbers.
20. What is First and Second Ionisation Potential ? Why $I_2 > I_1$? Explain four factors influencing Ionisation Potential.
21. (a) Explain Coordinate Covalent Bond with example.
(b) What is Hybridisation ? Explain sp^3d Hybridisation with example.