



CHEMISTRY

BOOKS - UNITED BOOK HOUSE

HIGHER SECONDARY EXAMINATION
2018

Example

1. State the structure and name of monomer unit of natural rubber.

A.



B.



C.



D.

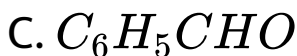
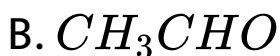
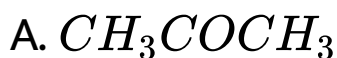


Answer:



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2. Which one of the following compounds is most reactive towards nucleophilic addition?



Answer:



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3. On reaction with aqueous bromine at room temperature phenol forms which of the following?

- A. meta-bromophenol
- B. 2,6-Dibromophenol
- C. 2,4,6-Tribromophenol
- D. 3,5-Dibromophenol

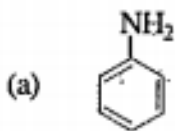
Answer:



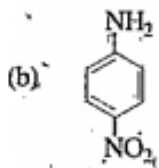
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4. Which of the following compounds is the most basic?

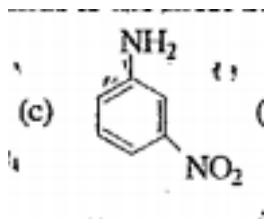
A.



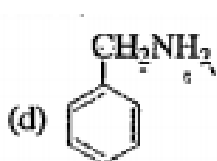
B.



C.



D.



Answer:



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5. For the compounds CH_3Cl , CH_3I , CH_3I , CH_3Br and $-Cl$ which of the following is the correct order of C-halogen bond length?

A.



B.



C.



D.



Answer:



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6. What is the oxidation number of the central metal in $[Cr(NH_3)_4(NO_2)Cl]^+$? (Atomic No. of Cr=24)

A. 0

B. + 1

C. + 3

D. + 2

Answer:



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7. Which of the following titanium compounds cannot be prepared?

A. TiO

B. TiO_2

C. K_2TiO_4

D. $TiCl_2$

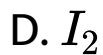
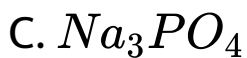
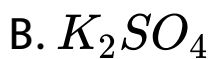
Answer:



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8. Which one has the highest coagulating power for ferric hydroxide sol?

A. KCl



Answer:



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9. The unit of cell constant is

A. cm

B. cm^{-1}

C. cm^2

D. $mollit^{-1}$

Answer:



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10. The number of chloride ions that surrounds the central Na^+ ion in NaCl crystal is _____ .

A. 3

B. 4

C. 8

D. 6

Answer:



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11. What is the purpose of adding a food preservative to a packaged food?



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12. Which of the following is most acidic in character?



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13. What is the oxidation number of Mn in K_2MnO_4 ?



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14. What are the dispersed phase and dispersion medium in soap lather?



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15. How many faraday of electricity is required to liberate 1 mole of copper from a copper sulphate solution ?



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16. Arrange K^+ , Zn^{2+} , H^+ , Cu^{2+} ions in order of their tendency to be liberated at cathode.

$$\left[E_{Cu^{2+}|Cu}^{\circ} = +0.34V, E_{2H^+|H_2}^{\circ} = 0.00V, \right. \\ \left. E_{Zn^{2+}|Zn}^{\circ} = -0.76V, E_{K^+|K}^{\circ} = -2.93V \right]$$



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17. At a constant pressure, the solubility of a gas in a liquid, solvent changes when

temperature is increases. State what change occurs and explain why it happens.



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18. Why the vapour pressure is lowered when urea is dissolved in water under ordinary condition?



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19. The particles of a true solution can pass through a semi-permeable membrane, but those of a colloidal solution cannot. Explain why.



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20. What is chemisorption? Explain with an example.



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21. Write with balanced chemical equation, what happens when chlorine gas is passed into aqueous solution of sulphur dioxide.



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22. Write with balanced chemical equation, What happens when white phosphorus is boiled with caustic soda solution.



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23. How many isomers are possible for $[Co(NH_3)_4Cl_2]$? Draw their structures.



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24. What is condensation polymerisation?

Write with an example.



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25. What is the total number of voids in cubic close packed lattice?



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26. Metallic gold (Au) crystallises in face-centred cubic lattice. What is the number of unit cells in 2.0g of gold? [Ae=197]



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27. What is a p-type semiconductor?



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28. A cubic solid is made of two elements P and Q. Atoms of Q are at the corners of the cube and P at the body centre. What is the formula of the compound? What are the coordination number of P and Q?



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29. The concentration of a solution is 0.4M. What does it mean?



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30. How many gram of glucose when dissolved in 2 litre of water will be isotonic with blood at $37^{\circ}C$? [$\pi_{blood} = 7.65 \text{ atm}$, Molar mass of glucose = 180 g mol^{-1} , $R = 0.082 \text{ L atm K}^{-1} \text{ mol}^{-1}$]



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31. The standard electrode potential of $Cu^{2+} | Cu$ half cell is $+0.34V$. What does it mean?



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32. In a conductivity cell, the distance between the two Pt electrodes is 2.0 cm and each electrode has cross-sectional area of 4.0cm^2 . When the cell is filled with a 0.4 molar solution of an electrolyte, the resistance of the cell is 25Ω . Calculate the molar conductivity of the solution.



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33. Write balanced chemical equations for the preparation of pure alumina from bauxite by Bayer process.



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34. Write the balanced chemical equations how zinc blende is converted to zinc oxide.



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35. The general electronic configuration of d-block elements is



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36. Why is $TiCl_2$ paramagnetic but TiO_2 is diamagnetic? (Atomic number of Ti is 22)



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37. Write the structure of product(s) of the following reaction.



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38. In which of the following two compounds S_N2 reaction is faster? Give reason.

$CH_3CH_2CH_2Cl$ and $CH_3CH_2CH_2I$



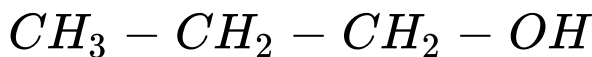
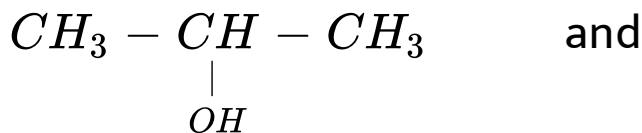
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39. Write one harmful environmental effect of freons.



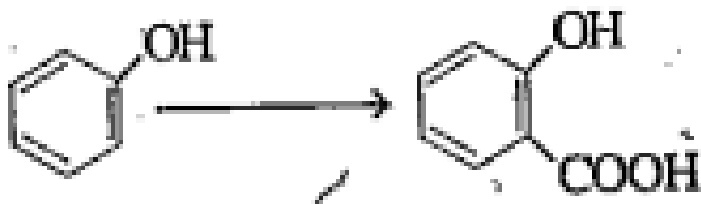
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40. How would you distinguish between the following pair of compounds by a chemical reaction?



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41. How would you convert?



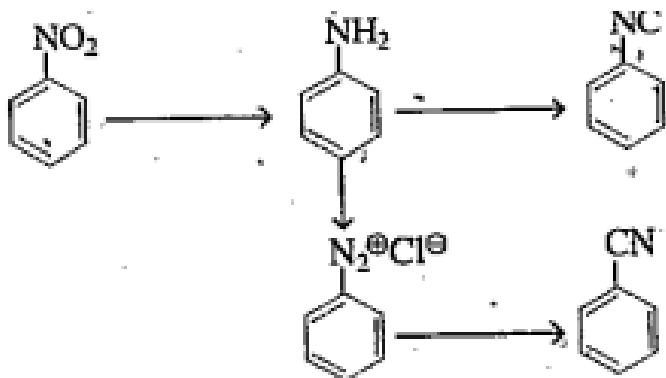
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42. Write down the products of the following



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43. Write the reagents for the following conversions:



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44. Distinguish between the following two compounds by a chemical reaction:



What is

meant by primary structure of a protein?

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45. Distinguish between the following two compounds by a chemical reaction:



Show

that sucrose is a disaccharide.

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46. What is meant by instantaneous reaction rate?



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47. What is activation energy ?



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48. For a first order reaction , show that time required for 99% completion is twice the time required for the completion of 90% of reaction.



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49. Establish the integrated rate equation for a first order reaction involving a single reactant.



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50. The half-life of a zero order reaction is x second. If the reaction takes t_1 second to complete, calculate t_1 in terms of x .



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51. Why helium does not form any compound?



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52. Give one example of mixed oxide. Why is it called mixed oxide?



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53. Draw the structure of H_2SO_3 .



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54. Benzoic acid on reaction with $SOCl_2$ gives

(A).(A) on reduction with $Pd - BaSO_4, H_2$ in

presence of quinoline affords (B), (B) reacts with (C), (C) on reaction with PCl_5 gives (D).

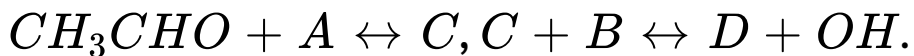
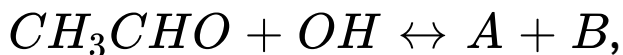
Write the structures of (A), (B), (C) and (D).

What is the role of CH_3COONa in the conversion of (B) to (C)?



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55. Identify A, B, C and D in the following steps of the reaction of acetaldehyde with dilute aqueous solution of NaOH:



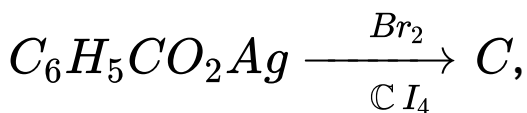
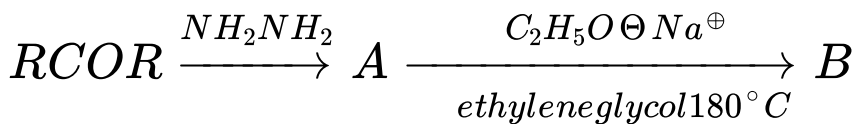
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56. An organic compound produces acetic acid and ethanol on acid hydrolysis. Write the structural formula of the compound. How can you prepare the compound from acetaldehyde in one step?



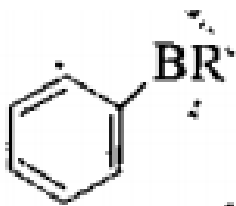
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57. Write the structures of A to D in the following reactions:



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58. How would you convert?





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