



CHEMISTRY

BOOKS - UNITED BOOK HOUSE

HIGHER SECONDARY EXAMINATION

2016

Exercise

1. Which of the following is an antibiotic?

A. Aspirin

B. Chloram-phenicol

C. Veronal

D. Forsital

Answer:



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2. Which of the following bases is not present in DNA?

A. Uracil

B. Themine

C. Guanine

D. Cytosine

Answer:



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3. Which of the following compounds is obtained when calcium acetate is dry distilled?

A. formic acid

B. Formaldehyde

C. acetone

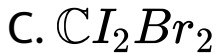
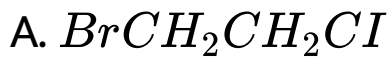
D. Butanone

Answer:



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4. Which of the following is an example of freon?



Answer:



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5. Which of the following free gaseous ions of 3d elements has the highest paramagnetic

moment ? (The atomic numbers of Mn ,Fe, Ni, and Cu are 25, 26 ,28 and 29 respectively)



Answer:



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6. Which of the following colloidal systems does correctly represent fog?

A. Gas dispersed in a liquid

B. Gas dispersed in a gas

C. Solid dispersed in a gas

D. Liquid dispersed in a gas

Answer:



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7. What is the number of particles per unit cell in the face centered cubic lattice?

A. 1

B. 2

C. 3

D. 4

Answer:



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8. Which of the following is a natural polymer?

A. Polyethylene

B. Nylon

C. Protein

D. Terylene

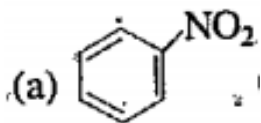
Answer:



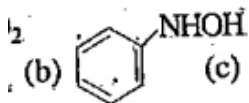
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9. Which of the following compounds will be formed when aniline reacts with H_2SO_5 ?

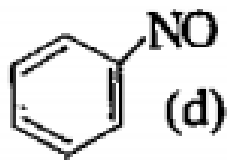
A.



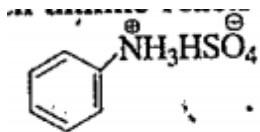
B.



C.



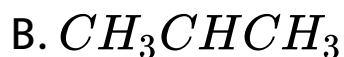
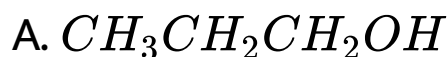
D.

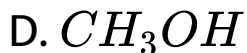


Answer: NA

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10. Which of the following compounds will respond to iodoform test ?





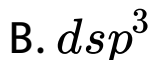
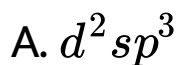
Answer:

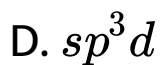
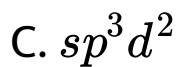


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11. What is the state of hybridisation of Fe in

$[FeF_6]^{3-}$ ion?





Answer:



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12. Which of the following gases has odour but no colour?



C. N_2

D. Cl_2

Answer:



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13. Which one is the SI unit of molar conductivity?

A. Sm^2mol^{-1}

B. Sm^{-1}

C. $\text{Scm}^2\text{mol}^{-1}$

D. Scmmol^{-1}

Answer:



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14. By what type of reaction do the common antacids destroy the excess acid of the stomach?



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15. Between Ed and Ce which one exhibits +2 oxidation state?



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16. Write down the name and formula of an oxide of a transition metal which acts as a catalyst.



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17. Explain what is observed when a beam of light is passed through a colloidal sol.



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18. Write down the relation among the conductance and specific conductance of an electrolyte solution and the cell constant of the conductivity cell.



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19. Write down the relation between the emf of a galvanic cell and the Gibbs energy change for the chemical reaction occurring in the cell.



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20. Two solutions are isotonic. What is meant by the statement?



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21. When a little amount of common salt is dissolved in water the boiling point increases.

Explain why.



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22. Write two differences between physisorption and chemisorption.



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23. Explain why the solid catalyst is used in a finely divided form in case of heterogeneous catalysis.



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24. First ionisation enthalpies of Group 15 elements are, in general, greater than those of group 16 elements-Explain.



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25. State, with equations, what happens when SO_3 gas is passed through conc. H_2SO_4 .



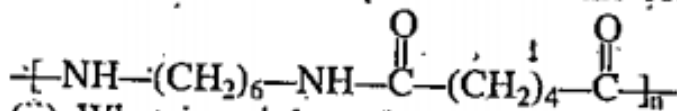
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26. An aqueous solution of a complex compound of formula $Co(NH_3)_5Br(SO_4)$ reacts readily with aqueous $AgNO_3$ to give a yellowish white precipitate. Write down the structural formula of the complex and mention the reaction involved.



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27. Identify the two monomers in the following polymer:



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28. What is condensation polymerisation reaction?



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29. Silver crystallises in face centered cubic lattice. If edge length of the unit cell is 4.07×10^{-8} cm and density of silver is 10.48 g cm^{-3} determine the relative atomic mass of silver.



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30. What is Schottky defect ? Find out the packing efficiency in a simple cubic lattice ?



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31. What is meant by the molality of a solution?



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32. What is meant by the molarity of a solution ? What would be the osmotic pressure of a 0.02 molar aqueous solution of urea at $27^{\circ}C$? ($R = 0.082L \cdot atm \cdot K^{-1} \cdot Mol^{-1}$)



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33. Arrange the following solutions in order of decreasing specific conductance:

(i) 0.01 M NaCl

(ii) 0.05 M NaCl

(iii) 0.1 M NaCl

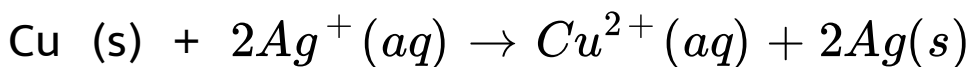
(iv) 0.5 M NaCl

Resistance of a conductivity cell filled with 0.1 M KCl solution is 80 ohm. The conductivity cell has a cell constant of 1.0 cm^{-1} . Find out the molar conductance of the KCl solution.



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34. Determine ΔG° and the value of the equilibrium constant for the following reaction occurring in an electrochemical cell at $25^\circ C$.



Given that $E_{\text{Cu}^{2+} / \text{Cu}}^\circ = 0.34\text{V}$ and $E_{\text{Ag}^+ / \text{Ag}}^\circ = 0.80\text{V}$



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35. Why is the zinc blende ore roasted before carbon reduction? Answer with balanced chemical equation.



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36. What is Malachite? Write down its formula.



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37. Explain why Cu^{+} ion is not stable in aqueous solution.



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38. State what happens when a solid mixture of KCl and $K_2Cr_2O_7$ is heated with conc. Sulphuric acid. Give balanced chemical equation.



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39. Write the number of unpaired electron (s) present in $Na_2[FeO_4]$ [Atomic number of Fe is 26.



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40. Explain the cause of chemical similarity between the compounds of Nb and Ta.



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41. What will happen when bromomethane reacts with an aqueous solution of sodium hydroxide? Write the mechanism of the reaction.



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42. What will happen when bromomethane reacts with an aqueous solution of sodium hydroxide? Write the mechanism of the reaction.



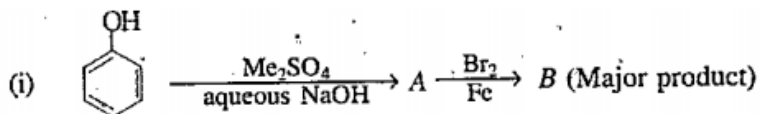
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43. What will happen when chlorobenzene reacts with a mixture of conc. HNO_3 and H_2SO_4 ?



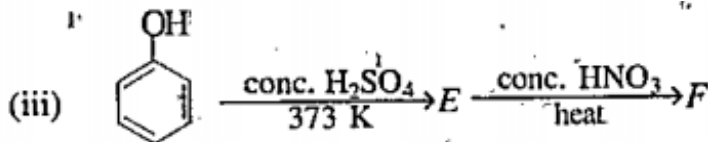
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44. Identify A, B, C, D, E and F in the following reactions.



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45. Identify A, B, C, D, E and F in the following reactions.



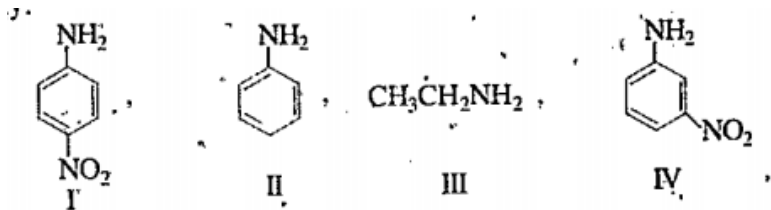
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46. An organic compound $A(C_2H_6O)$ reacts with sodium to form compound B and hydrogen gas. When heated with conc. H_2SO_4 at 413 K, A produces $C(C_4H_{10}O)$. C on reaction with conc. HI at 373 K forms D. C is also obtained when B is heated with D. Identify A, B, C and D and write chemical equations for the formation of B from A and the formation of C from B and D.



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47. Arrange the following compounds in decreasing order of their basicity:

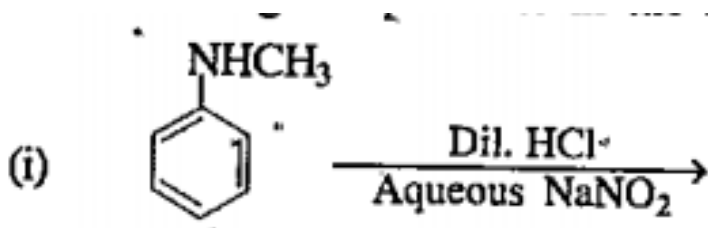


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48. Write the arrow-head equation for the following reactions: Aniline is refluxed with glacial acetic acid.

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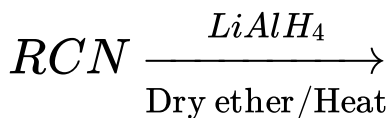
49. Write the organic products in the following reactions:



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50. Write the organic products in the reaction

:





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51. What is the polysaccharide? Explain with and example



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52. What is meant by primary structure of a protein?



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53. What is meant by zero order reaction ?

What is the rate constant of such a reaction ?



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54. Write down the Arrhenius equation relating the rate constant of reaction with temperature , mentioning what the terms indicate.

If k_1 and k_2 be the rate constant of a reaction at temperature $t_1^\circ C$ and $t_2^\circ C$, respectively, find out the relation between

k_1, k_2 and t_1 and t_2 . Given that the activation energy (E_a) of the reaction remains unchanged within the temperature range mentioned.

The rate constant of a reaction at 400K and 500K are $0.02s^{-1}$ and $0.08s^{-1}$ respectively .

Determine the activation energy (E_a) of the reaction.



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55. Explain why moist chlorine can bleach dry coloured articles but dry chlorine cannot.



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56. Write down the structure of SO_2 and state with reason whether it is polar or non-polar.



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57. Write down the name and formula of the stable paramagnetic allotrope among the allotropes of oxygen and sulphur.



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58. Give examples of the following reactions:
Gattermann-Koch reaction. Give examples of the following reactions: Kolbe-Schmidt reaction.



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59. Give examples of the following reactions:

(m) Gattermann-Koch reaction

(n) Koble-Schmidt reaction.

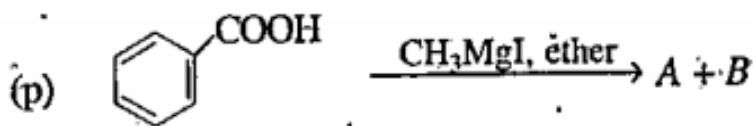
(o) Wolff-Kishner reduction



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60. Identify A, B, C and D in the following

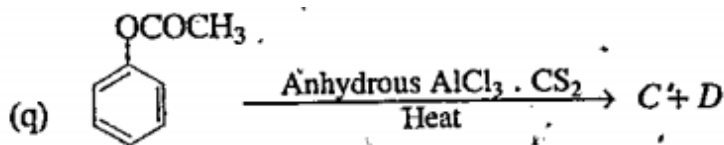
reactions:





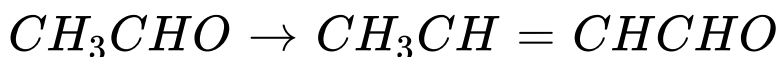
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61. Identify A, B, C and D in the following reactions:



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62. How would you convert?



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