



CHEMISTRY

BOOKS - UNITED BOOK HOUSE

QUESTION PAPERS 2016

Exercise

1. Number of total electrons in n-th orbit of an an atom is-

A. n

B. n^2

C. $2n^2$

D. $n - 1$

Answer:



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2. The bond order of He^{2+} ion is-

- A. 0
- B. 0.5
- C. 1
- D. 1.5

Answer:

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3. Which is not paramagnetic of the following?

- A. N_2^+
- B. CO
- C. O_2^-

D. NO

Answer:



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4. Surface tension of water with increase of temprature may-

A. increase

B. decrease

C. remain same

D. shows irregular behaviour

Answer:



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5. Which one off the following relation shows spontaneity?

A. $\Delta H = T\Delta S$

B. $\Delta H > T\Delta S$

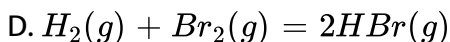
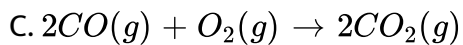
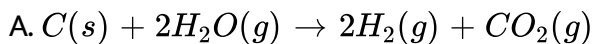
C. $\Delta H < T\Delta S$

D. $\Delta H \neq T\Delta S$

Answer:

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6. For which of the following chemical equation has $\Delta H = \Delta U$?



Answer:

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7. $\text{PCl}_5 (\text{g}) \rightleftharpoons \text{PCl}_3 (\text{g}) + \text{Cl}_2 (\text{g})$. For this reaction at the chemical equilibrium condition Which of the following relation is correct?

A. $K_p = K_c$

B. $1K_c = K_p \times RT$

C. $K_p = K_c \times RT$

D. $K_p = \frac{1}{K_c}$

Answer:



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8. Cause of different colour of the flame in flame test is-

A. low ionisation potential

B. low melting point

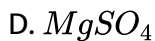
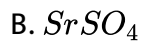
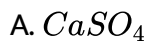
C. malleability

D. presence one electron in the outermost orbit.

Answer:

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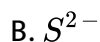
9. Which of the following alkaline earth metal sulphate is most soluble in water?



Answer:

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10. If in an organic compound both N and S elements are present, in Lassaigne's test which ion may be found?

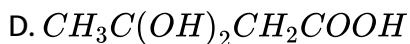
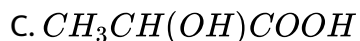
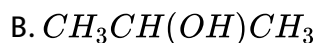
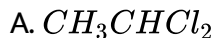


Answer:



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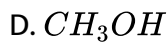
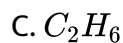
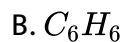
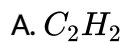
11. In which of the following compound Chiral C-atom is present?



Answer:

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12. Which one is most acidic among the given compounds?



Answer:

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13. The compound produce after the ozonolysis of benzene is-



B. Methanal

C. Ethanal

D. Hexanal

Answer:



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14. Which one of the following is not a Greenhouse gas?

A. C.F.C

B. Ammonia

C. Carbon dioxide

D. Methane.

Answer:



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15. How many electrons are present in 1 millimole of methane?

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16. 1.25 gm of a metal process 62.4 ml H_2 at NTP, Calculate the equivalent weight of the metal.

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17. Determine the position of an element in long form of periodic table if its electronic configuration is $[_{18}Ar]3d^{10}4s^2$.

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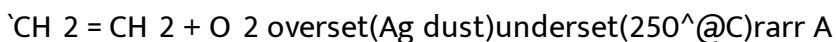
18. Mention the name and position of two elements one of which is most electronegative and other is most electropositive in periodic table.

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19. Write the definition of entropy.

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20. Write the name and structural formula of A in the following reaction



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21. In two compounds of hydrogen and oxygen hydrogen present is 42.9% and 27.3% respectively. Show that the data support the law of multiple proportions.

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22. Mention Heisenberg's uncertainty principle. Calculate the uncertainty of velocity of an electron which has an uncertainty in position of 1 Å.



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23. If the energy of first Bohr's orbit is - 13.58 eV of a hydrogen atom calculate the energy of third Bohr's orbit of that atom.



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24. Explain with reason : $SnCl_2$ is a solid ionic compounds whereas $SnCl_4$ is a covalent liquid.



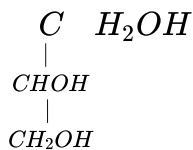
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25. Explain the phenomenon : "When phenolphthaleine is added to aqueous solution of Borax the colour of the solution changed to pink which is again turn colourless if glycerol is added to it



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26. Name IUPAC name of the following :



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27. Name IUPAC name of the following :



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28. What is BOD? Write on harmful effect of it.

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29. State and explain with a suitable example the Hund's rule of maximum spin multiplicity.

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30. ${}_{26}\text{Fe}^{3+}$ is more stable than Fe^{2+} . Explain why? Which is more paramagnetic?

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31. Which of the following two elements have a diagonal relationship? Li, Be, Al and Si

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32. Between ${}_{29}\text{Cu}$ and ${}_{19}\text{K}$ which one has higher ionisation enthalpy and why?

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33. Why the electron affinity of chlorine is higher than that fluorine?



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34. Arrange the following oxides according to their increase acidity-

LiO , BeO , B_2O_3 and CO_2



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35. Arrange the following compounds according to their increase of melting point :

$NaCl$, $MgCl_2$ and $AlCl_3$



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36. Which one is more polar NF_3 or NH_3 ? Explain



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37. Explain :

NCl_5 does not exist but PCl_5 exists.

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38. How would you explain BaO is soluble but $BaSO_4$ is insoluble in water.

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39. Why the falling liquid drop is spherical in nature?

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40. In a 10 litre volumetric flask contains 1 gram He and 6.4 gram O_2 at $27^\circ C$ temperature. If that total pressure of the mixture is 1.107 atmosphere then what is the partial pressure of He and O_2 ?

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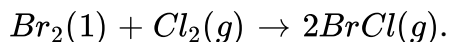
41. If the standard formation enthalpy of CS_2 , CO_2 and SO_2 are 117 kJ mol^{-1} , -393 kJ mol^{-1} and -297 kJ mol^{-1} respectively, calculate ΔH° for the reaction $CS_2 + 3O_2 \rightarrow CO_2 + 2SO_2$.

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42. Write Hess's law.

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43. Judge the spontaneity of the following reaction at 298 K temperature and at a particular pressure:



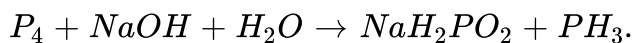
Given : $\Delta H = 29.3 \text{ kJ mol}^{-1}$ and $\Delta S = 104.1 \text{ JK}^{-1} \text{ mol}^{-1}$

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44. Mention the oxidation number of two chlorine atoms in $\text{Ca}(\text{OCl})\text{Cl}$ molecule.

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45. Balance by oxidation number method

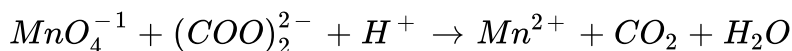


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46. What is the oxidation number of N atom in NaN_3 molecule?

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47. Balance the following chemical equation by ion electron method :



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48. A water sample contains 1 millimole of Mg^{2+} ion per litre. Calculate the hardness of water sample in ppm unit.

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49. What do you understand by "Trailing of Mercury?"

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50. What do most of the lithium salts present as hydrate one?

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51. Which of the alkaline earth metal hydroxides are amphoteric in nature.

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52. What is hydrohlith?

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53. Why does BF_3 behave as Lewis acid?

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54. Write with equation what happens when? Water is added to calcium carbide.

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55. Write with equation what happens when? Enthyl alcohol is heated with concentrate H_2SO_4 at $180^\circ C$ temperature.

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56. By which property the stability of $(CH_3)_3C^+$ ion could be explained?

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57. Why methane could not be prepared by Wurtz reaction?

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58. State law of mass action.

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59. For the reaction $N_2 + 3H_2 \leftrightarrow \frac{1}{2}N_2 + \frac{3}{2}H_2$ is K_2 . Then calculate the relation between K_1 and K_2

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60. Calculate the pH of 0.01 M CH_3COOH at 25°C . (Given dissociation constant of $\text{CH}_3\text{COOH} = 1.75 \times 10^{-5}$)

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61. What is a buffer solution? Give one example of an acidic buffer. In which case of an acidic buffer $\text{pH} = \text{pK}_a$.

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62. Why is the dissociation rate of H_2S decreased in the presence of HCl in an aqueous solution?

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63. What is inorganic benzene? How is it prepared? State the conditions and the equation?

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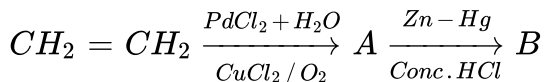
64. Dimond is non conductor of electricity but Graphatite is a conductor of electricity explain.

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65. Why Friedel-Crafts asylation of benzene is favourable than that of Friedel-Crafts alkylation?

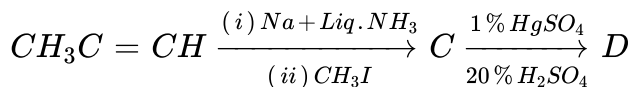
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66. Write the structural formula of the compounds of A to F :



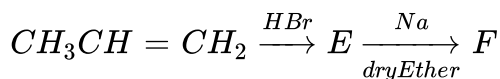
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67. Write the structural formula of the compounds of A to F :



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68. Write the structural formula of the compounds of A to F :



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69. Do the following conversions:

Ethanol from Ethelene

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70. Do the following conversions:

Acetelene from Methane



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71. Do the following conversions:

Toluene from Benzene.



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