



CHEMISTRY

BOOKS - BITSAT GUIDE

QUESTION-PAPERS-2017

Chemistry

1. Which of the following can be repeatedly soften on heating?

(i) Polystyrene

(ii) Melamine

(iii) Polyesters

(iv) Polyethylene

(v) Neoprene

A. (i) and (iii)

B. (i) and (iv)

C. (iii), (iv) and (v)

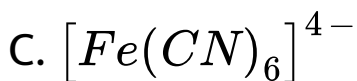
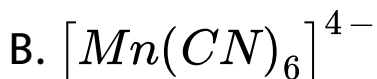
D. (ii) and (iv)

Answer: B



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2. Which of the following complex is an outer orbital complex?



Answer: D



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3. For the reaction



experimental data suggested that

$$r = k[H_2][Br_2]^{1/2}$$

The molecularity and order of the reaction are respectively:

A. $2\frac{3}{2}$

B. $\frac{3}{2}, \frac{3}{2}$

C. 1, 1

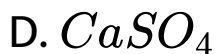
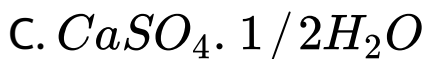
D. $1, \frac{1}{2}$

Answer: A



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4. Dead burnt plaster is _____.



Answer: D



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5. Stronger the oxidising agent , greater is the
:

A. standard reduction potential of that
species

B. the tendency to get it self oxidised

C. the tendency to lose electrons by that
species

D. standard oxidation potential of that species

Answer: A



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6. Which of the following relation represents correct relation between standard electrode potential and equilibrium constant?

I. $\log K = \frac{nFE^\circ}{2.303RT}$

II. $K = e^{\frac{nFE}{RT}}$

$$\text{III. } \log K = \frac{-nFE^\circ}{2.303RT}$$

$$\text{IV. } \log K = 0.4342 \frac{-nFE^\circ}{RT}$$

Choose the correct statement(s).

A. I, II and III are correct

B. II and III are correct

C. I, II and IV are correct

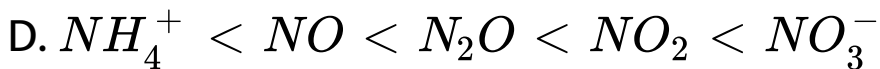
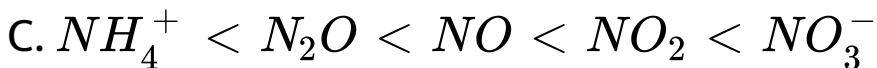
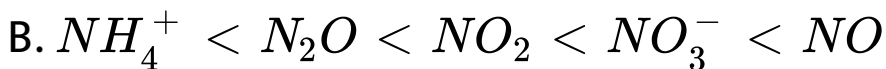
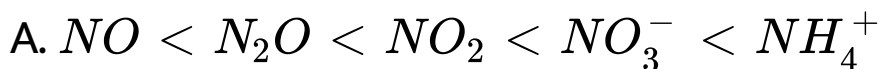
D. I and IV are correct

Answer: C



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7. Which of the following shows nitrogen with its increasing order of oxidation number.



Answer: C



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8. Vapour pressure##Raoult law##Raoult law
as special case of Henry law

A. $K_H = p_1^\circ$

B. $K_H > p_1^\circ$

C. $K_H < p_1^\circ$

D. $K_H \geq p_1^\circ$

Answer: A



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9. E° for the electrochemical cell



is 1.10 V at 25°C . The equilibrium constant for the cell reaction,



Will be :

A. 10^{-37}

B. 10^{37}

C. 10^{-17}

D. 10^{17}

Answer: B



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10. Which of the following represents Gay Lussac's law ?

I. $\frac{P}{T} = \text{constant}$

II. $P_1 T_2 = P_2 T_1$

III. $P_1 V_1 = P_2 V_2$

Choose the correct option .

A. I, II and III

B. II and III

C. I and III

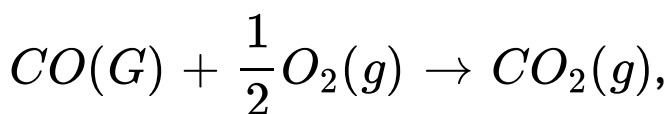
D. I and II

Answer: D



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11. At constant T and P , Which of the following statements is correct for the reaction,



A. $\Delta H = \Delta E$

B. $\Delta H < \Delta E$

C. $\Delta H > \Delta E$

D. ΔH is independent of physical state of
the reactants

Answer: B



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12. The energy of an electron in second Bohr orbit of hydrogen atom is :

A. $-5.44 \times 10^{-19} eV$

B. $-5.44 \times 10^{-19} cal$

C. $-5.44 \times 10^{-19} KJ$

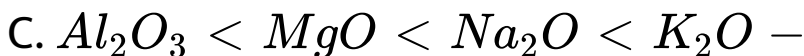
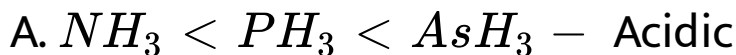
D. $-5.44 \times 10^{-19} J$

Answer: D

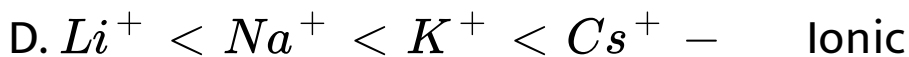


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13. Which of the following order is wrong-



Basic



radius

Answer: B



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14. Which of the following is not involved in the formation of photochemical smog?

A. Hydrocarbon

B. NO

C. SO_2

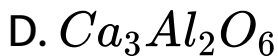
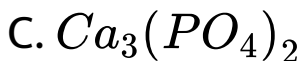
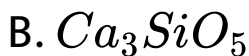
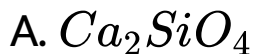
D. O_3

Answer: C



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15. Which of the following is not contained by Portland cement?

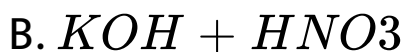
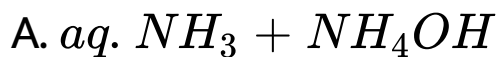


Answer: C



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16. Which of the following can form buffer solution?

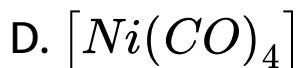
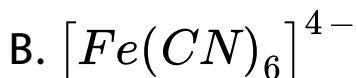
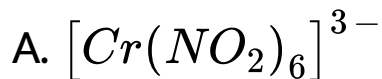


Answer: A



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17. Which of the following complex shows sp^3d^2 hybridization?



Answer: C



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18. Which has glycosidic linkage?

A. amylopectin

B. amylase

C. cellulose

D. all of these

Answer: D



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19. Which of the following represents SchottenBaumann reaction?

A. formation of amides from amines and acid chlorides/ NaOH

B. formation of amines from amides and LiAlH_4

C. formation of amines from amides and Br_2/NaOH

D. formation of amides from oxime and

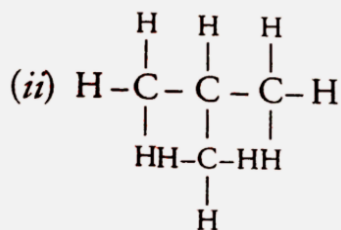
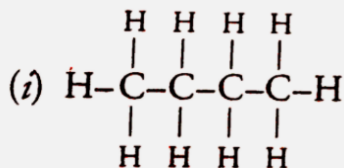


Answer: A

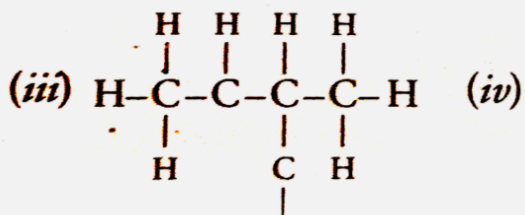


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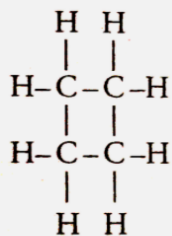
20. Which of the following are correct chain isomers of butane ?



(i)



(iv)



A. 1 and 4

B. 2 and 3

C. 1 and 2

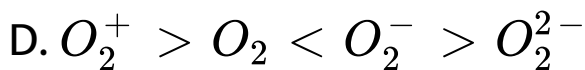
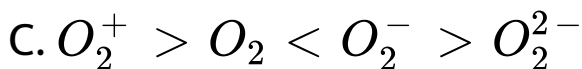
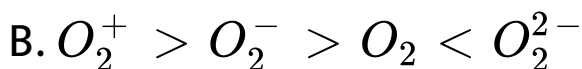
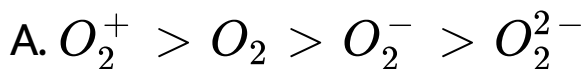
D. 1 and 3

Answer: C



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21. Which of the following shows correct order of bond length?



Answer: B



22. The numbers of radial nodes of $3s$ and $2p$ orbitals are respectively:

A. 2, 0

B. 0, 2

C. 1, 2

D. 2, 2

Answer: A



23. If a 25.0 mL sample of sulfuric acid is titrated with 50.0 mL of 0.025 M sodium hydroxide to a phenolphthalein endpoint, what is the molarity of the acid?

A. $0.020M$

B. $0.100M$

C. $0.025M$

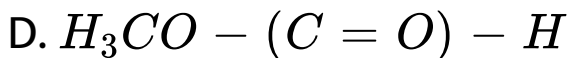
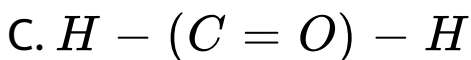
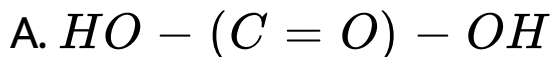
D. $0.050M$

Answer: C



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24. Find which of the following compound can have mass ratios of C:H:O as 6:1:24



Answer: A



25. The number of atoms per unit cell in bcc lattice is

A. 1

B. 2

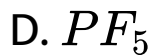
C. 4

D. 6

Answer: B



26. Which of these doesn't exist?



Answer: B



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27. Which of these compounds are directional?



Answer: B



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28. For a given reaction, $\Delta H = 35.5 \text{ kJ mol}^{-1}$ and $\Delta S = 83.6 \text{ J K}^{-1} \text{ mol}^{-1}$. The reaction is spontaneous at : (Assume that ΔH and ΔS do not vary with temperature)

A. $R > 425 \text{ K}$

B. All temperatures

C. $T > 298 \text{ K}$

D. $T < 425 \text{ K}$

Answer: A



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29. Specific conductance of 0.1 MHA is $3.75 \times 10^{-4} \text{ ohm}^{-1} \text{ cm}^{-1}$. If λ^∞ of HA is $250 \text{ ohm}^{-1} \text{ cm}^2 \text{ mol}^{-1}$, then dissociation constant K_a of HA is

A. 1.0×10^{-5}

B. 2.25×10^{-4}

C. 2.25×10^{-5}

D. 2.25×10^{-3}

Answer: C



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30. The rate of reaction between two reactants A and B increases by a factor of 4 if the concentration of reactant B is doubled. The order of this reaction with respect to reactant B is

A. 2

B. -2

C. 1

D. -1

Answer: B



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31. A compound with molecular formula C_7H_{16} shows optical isomerism, the compound will be

A. 2, 3-Dimethylpentane

B. 2,2-Dimethylbutane

C. 3-Methylhexane

D. None of the above

Answer: A



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32. Which of the following compounds does not contain the plane of symmetry?

A. trans-1,3 dichloro cyclohexane

B. trans-1,2 dichloro cyclohexane

C. cis-1,2 dichloro cyclohexane

D. trans-1,3 cyclopentane

Answer: C



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33. Cadmium and Boron rods are used in a nuclear reactor to

A. absorbing neutrons

B. cooling

C. release neutrons

D. increase energy

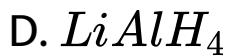
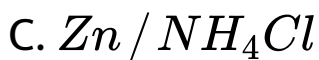
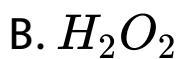
Answer: A



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34. Which reagent converts nitrobenzene to Nphenyl hydroxyamine?

A. Zn / HCl

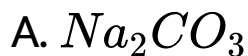


Answer: C



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35. Which of the following can act as both Bronsted acid and Bronsted base?



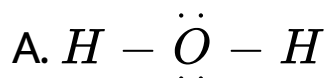


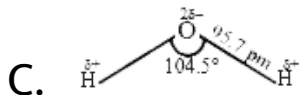
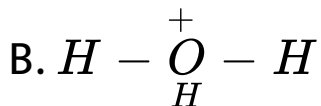
Answer: C



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36. Which of the following can act as both Bronsted acid and Bronsted base?





D. None of these

Answer: C



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37. Electrometallurgical process is used to extract

A. Fe

B. Pb

C. Na

D. Ag

Answer: C



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38. Match the following columns

Column A

15. Changing a term from one side of an equation to the other side
16. Coefficient of the subject of a formula
17. In a formula, a variable which is expressed in terms of other variables
18. The circumference (C) of a circle is π times its diameter (d).

Column B

- (a) Subject
- (b) Transposition
- (c) $C = \pi d$
- (d) 1

A. A and B are identical

B. A and B are diastereomers

C. A and C are enantiomers

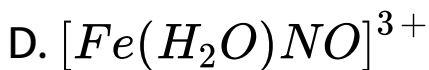
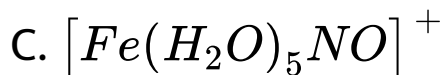
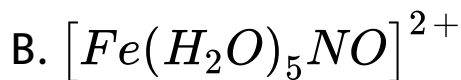
D. A and B are enantiomers

Answer: D



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39. Correct formula of the complex formed in the brown ring test for nitrates is



Answer: B



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40. Which of the following is an amine hormone ?

A. Thyroxine

B. Oxypurin

C. Insulin

D. Progesterone

Answer: A



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