



CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2017

Chemistry

1. The correct statement regarding defect in solids is

A. Schottky defect has no effect on the physical properties of solids

B. Frenkel defect is a dislocation defect

C. Frenkel defect is usually favoured by a very small difference in the sizes of cations and anions

D. trapping of proton in the lattice leads to the formation of f-centers.

Answer: B



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2. Which of the following structures of a molecule is expected to have three bond pairs and one lone pair

of electrons?

A. Trigonal Planar

B. Tetrahedral

C. Octahedral

D. Pyramidal

Answer: D



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3. Which of the following statements is wrong regarding Lanthanoids?

A. Ln(III) compounds are predominantly ionic in character.

B. Ln(III) hydroxides are mainly basic in nature

C. The ionic size of Ln(III) ions decreases with increasing atomic number

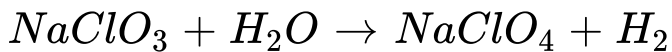
D. Ln(III) compounds are generally colourless.

Answer: D



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4. By passing electric current, $NaClO_3$, is converted into $NaClO_4$, according to the following equation:



How many moles of NaClO_4 , will be formed when three Faradays of charge is passed through NaClO_3 ?

A. 0.75

B. 3

C. 1.5

D. 1

Answer: C



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5. Extraction of chlorine from brine solution is based on

A. aciditication

B. reduction

C. oxidation

D. chlorination.

Answer: C



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6. Pick the correct statement

- A. Sodium dodecylbenzene sulphonate used in toothpaste is a cationic detergent
- B. Sodium lauryl sulphate forms an insoluble scum with hard water.
- C. Cetyltrimethyl ammonium bromide is a popular cationic detergent used in hair conditioner.
- D. Non-ionic detergents are formed when polyethylene glycol reacts with adipic acid.

Answer: C



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7. Which of the following is not a favourable condition for physical adsorption:

- A. High pressure
- B. Low temperature
- C. High temperature
- D. Higher critical temperature of adsorbate

Answer: C

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8. Toluene reacts with halogen in presence of Iron (III) chloride giving ortho and para halo compounds. The

reaction is

- A. free radical addition reaction
- B. electrophilic elimination reaction
- C. nucleophilic substitution reaction
- D. electrophilic substitution reaction.

Answer: D



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9. Identify the correct statement in the following:

- A. Dimethyl ether and ethanol are chain isomers.

B. Ethanoic acid and methyl methanoate are position isomers.

C. n-butane and isobutane are functional isomers.

D. Propan-1-ol and propan-2-ol are position isomers.

Answer: D



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10. For a reaction $1/2A \rightarrow 2B$ rate of disappearance of A is related to rate of appearance of B by the expression

$$\text{A. } -\frac{d[A]}{dt} = \frac{1}{4} \frac{d[B]}{dt}$$

$$\text{B. } -\frac{d[A]}{dt} = (4) \frac{d[B]}{dt}$$

$$\text{C. } -\frac{d[A]}{dt} = \frac{1}{2} \frac{d[B]}{dt}$$

$$\text{D. } -\frac{d[A]}{dt} = \frac{d[B]}{dt}$$

Answer: A



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11. The monomers used in Novolac, a polymer used in paints,

A. butadiene and styrene

B. butadiene and acrylonitrile

C. phenol and formaldehyde

D. melamine and formaldehyde

Answer: C



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12. In the manufacture of hydrogen from water gas ($CO + H_2$), which of the following is correct statement?

A. CO is oxidized to CO_2 with steam in the presence of a catalyst followed by absorption

of CO_2 in alkali.

B. H_2 is removed by occlusion with Pd.

C. Hydrogen is isolated by diffusion.

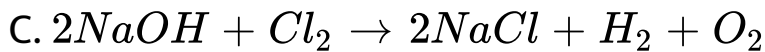
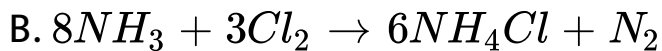
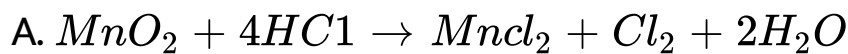
D. CO and H_2 are separated based on difference in their densities.

Answer: A

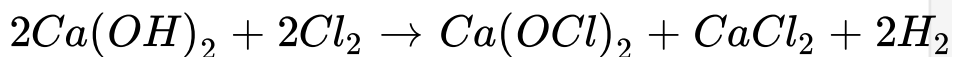


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13. Select the wrong chemical reaction among the following:



D.



Answer: C



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14. $3ClO^- (aq) \rightarrow ClO_3^- + 2Cl^-$ is an example of

A. oxidation reaction

B. reduction reaction

C. disproportionation reaction

D. decomposition reaction.

Answer: B



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15. Which of the following is not a biodegradable polymer?

A. Glyptal

B. Polyhydroxybutyrate - co- β hydroxyvalerate

C. PHBV

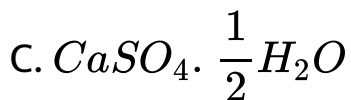
D. Nylon-2-Nylon-6

Answer: A



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16. Plaster of Paris is represented as



Answer: C



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17. The process which is responsible for the formation of delta at a place where rivers meet the sea is

- A. peptization
- B. colloidal formatio
- C. emulsification
- D. coagulation.

Answer: D



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18. If 3.01×10^{28} molecules are removed from 98 mg of H_2SO_4 , then number of moles of H_2SO_4 left are

A. 0.5×10^{-3} mol

B. 0.1×10^{-3} mol

C. 9.95×10^{-2} mol

D. 1.66×10^{-3} mol

Answer: A

19. Which of the following aqueous solutions has highest freezing point?

A. 0.1 molal $Al_2(SO_4)$

B. 0.1 molal $BaCl_2$

C. 0.1 molal $AlCl_3$

D. 0.1 molal NH_4Cl

Answer: D



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20. Gabriel phthalimide synthesis is used in the preparation of primary amine from phthalimide.

Which of the following reagents is not used during the process?

A. NaOH

B. HCl

C. KOH

D. Alkyl Halides

Answer:



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21. Lower members of aliphatic carboxylic acid are soluble in water. This is due to

A. formation of hydrogen bonds with water

B. London forces

C. water is non-electrolyte

D. van der-Waals' interaction with water molecules.

Answer: A



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22. Which of the following orders is true regarding the acidic nature of phenol?

A. Phenol $>$ o-cresol $>$ o – nitrophenol

B. o-cresol $<$ Phenol $<$ o – nitrophenol

C. Phenol $<$ o-cresol $>$ o – nitrophenol

D. Phenol $<$ o-cresol $<$ o – nitrophenol

Answer: B



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23. Reduction of ketones cannot be carried out with which of the following reagents?

- A. Hydrogen in presence of palladium in barium sulphate and quinoline
- B. Sodium borohydride or lithium aluminium hydride
- C. Zinc amalgam and concentrated HCl
- D. Hydrazine and KOH in ethylene glycol

Answer: A



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24. Which one of the following metallic oxides exhibits amphoteric nature?

A. BaO

B. Al_2O_3

C. Na_2O

D. CaO

Answer: B



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25. The co-ordination number and the oxidation state of the element .M. in the complex $[M(en)_2(C_2O_4)]NO_2$ {where (en) is ethan-1, 2-diamine} are respectively

A. 6 and 2

B. 4 and 2

C. 6 and 3

D. 4 and 3

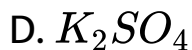
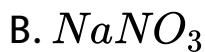
Answer: C



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26. Which of the following crystals has unit cell such that $a \neq b \neq c$ and $\alpha \neq \beta \neq \gamma \neq 90^\circ$?

A. $K_2Cr_2O_7$



Answer: A



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27. Square planar complex of the type $MAXBL$ (where A, B, X and L are unidentate ligands) shows following set of isomers

A. two cis and one trans

B. two trans and one cis

C. two cis and two trans

D. three cis and one trans

Answer: A



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28. Which of the following statements is in accordance with the Arrhenius equation?

A. Rate of a reaction increases with increase in temperature.

B. Rate of reaction does not change with increase in activation energy.

C. Rate constant decreases exponentially with increase in temperature.

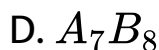
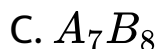
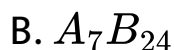
D. Rate of a reaction increases with decrease in activation energy

Answer: A::D

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29. In a face centred cubic arrangement of A and B atoms in which 'A' atoms are at the corners of the

unit cell and .B. atoms are at the face centers, one of the 'A' atoms is missing from one corner in the unit cell. The simplest formula of the compound is

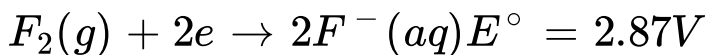
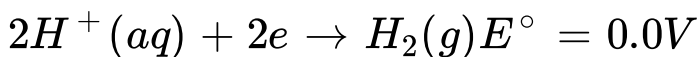
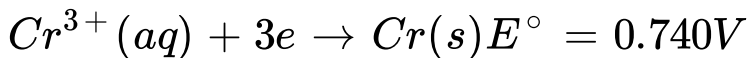
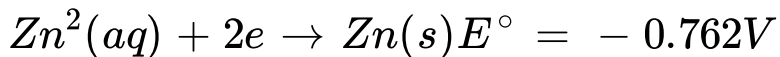


Answer: B

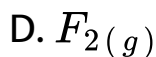
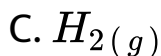


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30. The standard reduction potential at 298 K for the following half cell reaction are



Which of the following is strongest reducing agent ?



Answer: B



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31. Which of the following reagents cannot be used to oxidize primary alcohols to aldehydes?

- A. CrO_3 in anhydrous medium
- B. Pyridinium chlorochromate
- C. KMnO_4 in acidic medium
- D. Heating in presence of Cu at 573 K

Answer: C

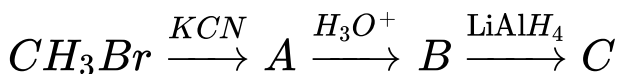


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32. In the following sequence of reactions



the end product C is

- A. methane
- B. ethyl alcohol
- C. acetone
- D. acetaldehyde

Answer: B



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33. When the pure solvent diffuses out of the solution through the semi-permeable membrane then the process is called

A. sorption

B. dialysis

C. osmosis

D. reverse osmosis

Answer: D



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34. The metal extracted by leaching with a cyanide

A. Cu

B. Al

C. Na

D. Ag

Answer: D



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35. On addition of mineral acid to an aqueous solution of Borax, the following compound is formed

- A. Boron hydride
- B. Pyroboric acid
- C. Metaboric acid
- D. Orthoboric acid

Answer: D



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36. According to crystal field theory, the M-L bond in a complex is

- A. purely ionic

B. purely coordinate

C. purely covalent

D. partially covalent

Answer: A



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37. Which of the following statements is incorrect?

A. Molecularity is only applicable for elementary reaction.

B. The rate law for any reaction cannot be determined experimentally.

C. Bimolecular reactions involve simultaneous collision between two species

D. Complex reactions have fractional order

Answer: B



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38. The Glycosidic linkage present in sucrose is between

A. C - 1 of α -glucose and C - 2 Of β -fructose

B. C 1 of β -galactose and C 4 of α -glucose

C. C - 1 of α -glucose and C 4 of α -glucose

D. C - 1 of α -glucose and C 4 of β -fructose.

Answer: A



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39. Pick the wrong statement from the following:

A. Consumption of citrus fruits and green leafy vegetables in food prevents scurvy

B. Deficiency of vitamin B_6 (pyridoxine) results in convulsions.

C. Sources of vitamin B_1 are yeast, milk, green vegetables and cereals

D. Deficiency of vitamin D causes xerophthalmia

Answer: D



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40. Which of the following elements forms $p_\pi - p_\pi$ bond with itself?

A. N

B. Te

C. P

D. Se

Answer: A



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41. Which one of the following noble gases has an unusual property of diffusing through the materials such as rubber, glass or plastic?

A. He

B. Ne

C. Kr

D. Ar

Answer: A



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42. The Van't Hoff factor (i) accounts for

A. extent of dissolution of solute

B. extent of dissociation of solute

C. extent of mobility of solut

D. extent of solubility of solute

Answer: B



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43. The pressure of real gases is less than that of ideal gas because of

- A. increase in the kinetic energy of the molecules
- B. intermolecular attraction
- C. finite size of particles
- D. increase in the number of collisions.

Answer: B



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44. The reaction quotient 'Q' is useful in predicting the direction of the reaction. Which of the following is incorrect?

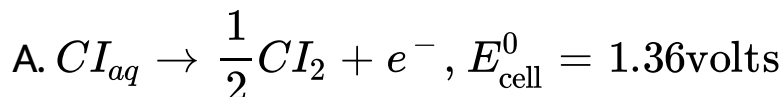
- A. If $Q_C > K_c$, the reverse reaction is favoured
- B. If $Q_C < K_c$ the forward reaction is favoured.
- C. If $Q_C > K_c$ forward reaction is favoured.
- D. If $Q_c = K_c$, no reaction occur.

Answer: C

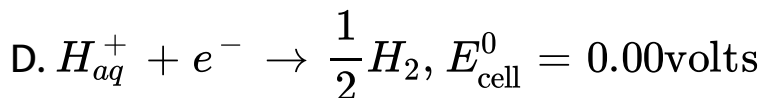
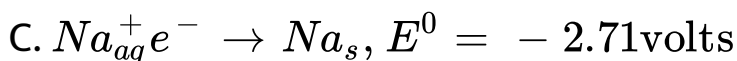
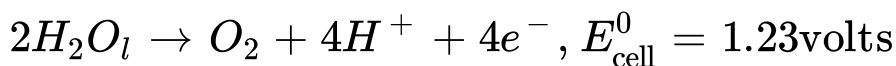


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45. In the electrolysis of aqueous sodium chloride solution, which of the half cell reactions will occur at anode?



B.

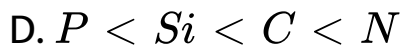
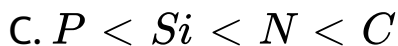


Answer: A



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46. The electronegativities of C, N, Si and P are in the order of



Answer: A



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47. The correct set of quantum number for the unpaired electron of chlorine atom is

A. $2, 0, 0, +\frac{1}{2}$

B. $3, 0, 0, \pm\frac{1}{2}$

C. $2, 1, -1, +\frac{1}{2}$

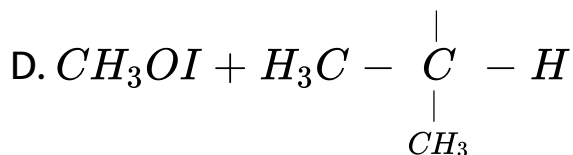
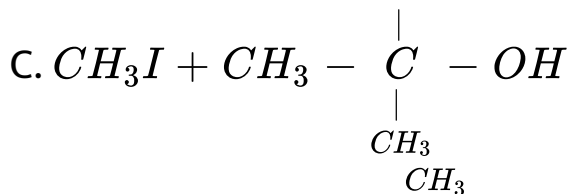
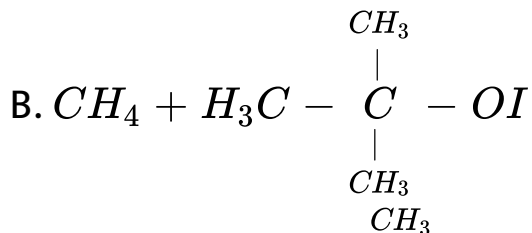
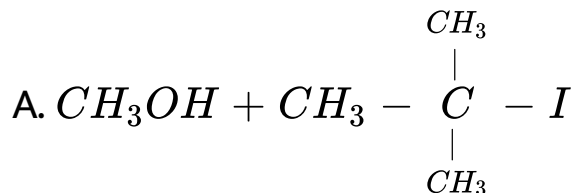
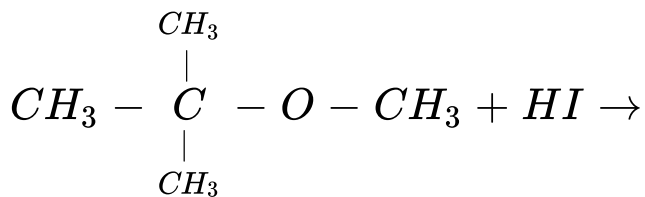
D. $3, 1, 1, \pm\frac{1}{2}$

Answer: D



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48. Complete the following equations:

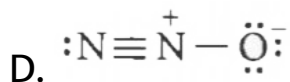
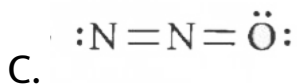
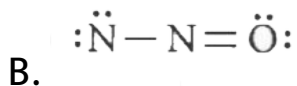
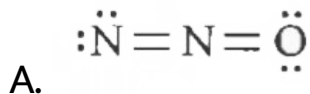


Answer: A



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49. Which of the following is the correct electron dot structure of N_2O molecule?



Answer: D



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50. Hydrogenation of vegetable oils in the presence of finely divided nickel as catalyst. The reaction is

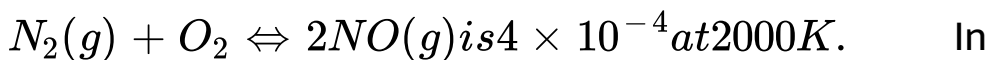
- A. enzyme catalysed reaction
- B. liquid catalysed reaction
- C. heterogeneous catalysis
- D. homogeneous catalysis.

Answer: C



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51. The equilibrium constant for the reaction



presence of a catalyst the equilibrium is attained ten

times faster. Therefore the equilibrium constant in

presence of catalyst at 2000 K is

A. 4×10^{-3}

B. 40×10^{-4}

C. 4×10^{-4}

D. 4×10^{-2}

Answer: C



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52. A reaction has both ΔH and ΔS - ve. The rate of reaction

- A. cannot be predicted for change in temperature
- B. increases with increase in temperature
- C. increases with decrease in temperature
- D. remains unaffected by change in temperature

Answer: C



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53. Which one of the following is not a common component of photo-chemical smog?

A. Ozone

B. Acrolein

C. Peroxyacetylnitrate

D. Chloroflourocarbons

Answer: D



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54. In which of the following, homolytic bond fission takes place?

- A. Free radical chlorination of methane
- B. Alkaline hydrolysis of ethyl chloride
- C. Addition of HBr to double bond
- D. Nitration of Benzene

Answer: A



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55. Hormones are secreted by ductless glands of human body. Iodine-containing hormone is

- A. insulin
- B. adrenaline
- C. testosterone
- D. thyroxine

Answer: D



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56. Cannizzaro's reaction is an example of auto oxidation.

A. It is a typical reaction of aliphatic aldehyde.

B. It is a reaction answered by only aldehydes containing α -hydrogen

C. It is a reaction answered only by aromatic aldehydes

D. It is a reaction answered by all aldehydes

Answer:



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57. For the preparation of Alkanes, aqueous solution of sodium or potassium salt of carboxylic acid is subjected to

A. hydrogenation

B. oxidation

C. electrolysis

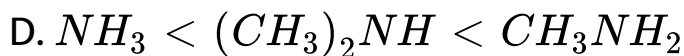
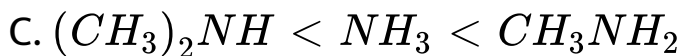
D. hydrolysis

Answer: C



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58. The correct order of increasing basic nature for the bases NH_3 , CH_3NH_2 and $(CH_3)_2NH$ in aqueous solution



Answer: D



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59. Bactericidal antibiotics among the following is

A. ofloxacin

B. erythromycin

C. chloramphenicol

D. tetracycline.

Answer: A



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60. The magnetic nature of elements depends on the presence of unpaired electrons. Identify the

configuration of transition elements which shows highest magnetic moment?

A. $3d^2$

B. $3d^8$

C. $3d^7$

D. $3d^5$

Answer: D



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