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DU MSc Chemistry

Topic:- DU_119_MSC_CHEM

1) Specific Redox reaction of chlorine is known as [Question ID = 1959]

1. reduction [Option ID = 7836]
2. redox chlorination [Option ID = 7835]
3. disproportionation [Option ID = 7834]
4. oxidation [Option ID = 7833]

Correct Answer :-

- oxidation [Option ID = 7833]

2) Which of the following is not a standard condition?**[Question ID = 1906]**

1. 1 mol dm⁻³ solutions [Option ID = 7624]
2. 100 atm [Option ID = 7622]
3. 100 kPa [Option ID = 7621]
4. 298 K [Option ID = 7623]

Correct Answer :-

- 100 kPa [Option ID = 7621]

3) Which transitions are studied by UV spectrophotometer?**[Question ID = 1955]**

1. Rotational [Option ID = 7818]
2. Electronic [Option ID = 7817]
3. Vibrational [Option ID = 7819]
4. Nuclear [Option ID = 7820]

Correct Answer :-

- Electronic [Option ID = 7817]

4) Which electrode/s may be used to determine the pH of a solution?**[Question ID = 1897]**

1. Quinhydrone electrode [Option ID = 7587]
2. Hydrogen electrode [Option ID = 7586]
3. All of the above [Option ID = 7588]
4. Glass electrode [Option ID = 7585]



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Correct Answer :-

- Glass electrode [Option ID = 7585]

5) Which acid is present in lemon ? [Question ID = 1949]

1. lactic acid [Option ID = 7794]
2. tartaric acid [Option ID = 7796]
3. citric acid [Option ID = 7795]
4. malic acid [Option ID = 7793]

Correct Answer :-

- malic acid [Option ID = 7793]

6) Gram molecular volume of oxygen at STP is [Question ID = 1964]

1. 11200 cm³ [Option ID = 7853]
2. 22400 cm³ [Option ID = 7856]
3. 5600 cm³ [Option ID = 7855]
4. 3200 cm³ [Option ID = 7854]

Correct Answer :-

- 11200 cm³ [Option ID = 7853]

7) Glucose does not react with: [Question ID = 1921]

1. HCN [Option ID = 7683]
2. NaHSO₃ [Option ID = 7684]
3. C₆H₅NHNH₂ [Option ID = 7681]
4. H₂N-OH [Option ID = 7682]

Correct Answer :-

- C₆H₅NHNH₂ [Option ID = 7681]

8) Which does not increase rate by affecting the number or nature of collisions? [Question ID = 1905]

1. adding a catalyst [Option ID = 7619]
2. increasing the surface area [Option ID = 7617]
3. increasing the pressure [Option ID = 7618]
4. increasing the temperature [Option ID = 7620]

Correct Answer :-

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- increasing the surface area [Option ID = 7617]

9) If AgI crystallizes in zinc blende structure with I^{2-} ions at lattice points, what fraction of tetrahedral voids is occupied by Ag^+ ions?

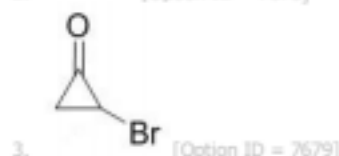
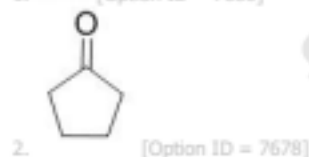
[Question ID = 1968]

1. 75% [Option ID = 7870]
2. 25% [Option ID = 7872]
3. 50% [Option ID = 7871]
4. 100% [Option ID = 7869]

Correct Answer :-

- 100% [Option ID = 7869]

10) Which carbonyl compound has maximum dipole moment? [Question ID = 1920]



Correct Answer :-



11) Identify the wrong statement in the following

[Question ID = 1951]

1. Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table [Option ID = 7803]
2. Atomic radius of the elements increases as one moves down the first group of the periodic table [Option ID = 7802]
3. Amongst isoelectronic species, greater the negative charge on the anion, larger is the ionic radius [Option ID = 7804]

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4. Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius [Option ID = 7801]

Correct Answer :-

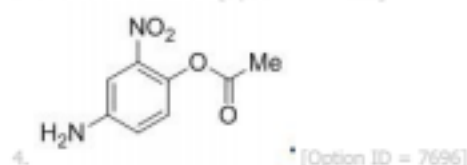
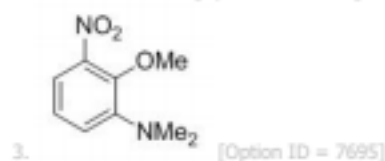
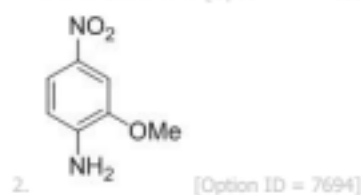
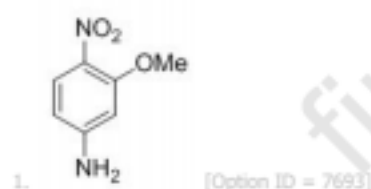
- Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius [Option ID = 7801]

 12) The structure of sulphur dioxide molecule (SO_2) may be given as [Question ID = 1956]

1. Linear [Option ID = 7824]
2. Bent [Option ID = 7823]
3. Octahedral [Option ID = 7822]
4. Tetrahedral [Option ID = 7821]

Correct Answer :-

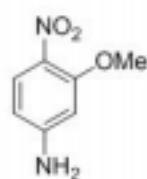
- Tetrahedral [Option ID = 7821]

 13) The structure of the compound that matches the ^1H NMR data given below: ^1H NMR ($\text{DMSO}-d_6$): δ 7.75 (dd, $J = 8.8, 2.4$ Hz, 1H), 7.58 (d, $J = 2.4$ Hz, 1H), 3.80 (s, 3H) [Question ID = 1924]


Correct Answer :-

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[Option ID = 7693]

14) A mixture of CaCl_2 and NaCl weighing 4.44 g is treated with sodium carbonate solution to precipitate all the Ca^{2+} ions as calcium carbonate. The mixture is then heated to get 0.56 g of CaO . The percentage of NaCl in the mixture (atomic mass of $\text{Ca} = 40$) is ____.

[Question ID = 1963]

1. 70 [Option ID = 7850]
2. 75 [Option ID = 7849]
3. 25 [Option ID = 7852]
4. 30.6 [Option ID = 7851]

Correct Answer :-

- 75 [Option ID = 7849]

15) Which pair of species is listed in increasing order of the property given? [Question ID = 1958]

1. Ionization energy: O , F [Option ID = 7829]
2. Covalent character: HI , HBr [Option ID = 7832]
3. Melting point: I_2 , Br_2 [Option ID = 7830]
4. Radius: Te^{2-} , Te^{4+} [Option ID = 7831]

Correct Answer :-

- Ionization energy: O , F [Option ID = 7829]

16) The material, whose dimensions can be changed upon the application of an electric field is called [Question ID = 1947]

1. Ferromagnetic [Option ID = 7785]
2. Ferroelectric [Option ID = 7787]
3. Piezoelectric [Option ID = 7786]
4. Pyroelectric [Option ID = 7788]

Correct Answer :-

- Ferromagnetic [Option ID = 7785]

17) In the case of a particle in a one-dimensional box, the energy of an energy state is given by: [Question ID = 1887]

1. $E_n = 8n^2h^2/ma^2$, where $n = 1, 2, 3, \dots$ [Option ID = 7548]
2. $E_n = n^2h^2/(8ma^2)$, where $n = 1, 2, 3, \dots$ [Option ID = 7546]
3. $E_n = n^2h^2/8ma^2$, where $n = 1, 2, 3, \dots$ [Option ID = 7545]
4. $E_n = n^2h^2a^2/8m$, where $n = 1, 2, 3, \dots$ [Option ID = 7547]

Correct Answer :-



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- $E_n = n^2 h^2 / 8ma^2$, where $n = 1, 2, 3, \dots$ [Option ID = 7545]

18) How many chiral carbon atoms are present in 2, 3, 4 – trichloropentane? [Question ID = 1965]

1. 2 [Option ID = 7858]
2. 1 [Option ID = 7857]
3. 3 [Option ID = 7859]
4. 4 [Option ID = 7860]

Correct Answer :-

- 1 [Option ID = 7857]

19) The process of heating the concentrated ore in a limited supply of air or in absence of air is known as: [Question ID = 1952]

1. Cupellation [Option ID = 7806]
2. Roasting [Option ID = 7805]
3. Calcination [Option ID = 7808]
4. Leaching [Option ID = 7807]

Correct Answer :-

- Roasting [Option ID = 7805]

20) Spectroscopic transitions leading to bending of bond angles in molecules will appear at which region of the electromagnetic spectrum? [Question ID = 1951]

1. Radiofrequency [Option ID = 7564]
2. Infra-red [Option ID = 7563]
3. Microwave [Option ID = 7562]
4. Ultraviolet [Option ID = 7561]

Correct Answer :-

- Ultraviolet [Option ID = 7561]

21) Oxidation product of quinoline with KMnO_4 is :

[Question ID = 1933]

1. Phthalic anhydride [Option ID = 7731]
2. Phthalic acid [Option ID = 7729]
3. Nicotinic acid [Option ID = 7730]
4. None of these [Option ID = 7732]

Correct Answer :-

- Phthalic acid [Option ID = 7729]

22) The IUPAC name for the complex $[\text{Co}(\text{NO}_2)(\text{NH}_3)_5]\text{Cl}_2$ is [Question ID = 1973]

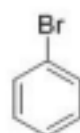
1. nitrito-N-pentaamminecobalt (II) chloride [Option ID = 7891]
2. nitrito-N-pentaamminecobalt (III) chloride [Option ID = 7889]
3. pentaammine nitrito-N-cobalt (III) chloride [Option ID = 7890]
4. pentaammine nitrito-N-cobalt (II) chloride [Option ID = 7892]

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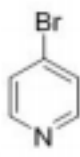
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Correct Answer :-

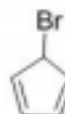
- nitrito-N-pentaamminecobalt (III) chloride [Option ID = 7889]

23) The compound that gives precipitate on warming with aqueous AgNO_3 is: [Question ID = 1929]

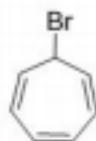
1. [Option ID = 7713]



2. [Option ID = 7716]



3. [Option ID = 7714]



4. [Option ID = 7715]

Correct Answer :-



- [Option ID = 7713]

24) The one which decreases with dilution is [Question ID = 1979]

1. Specific conductance [Option ID = 7916]
2. Molar conductance [Option ID = 7914]
3. conductance [Option ID = 7915]
4. Equivalent conductance [Option ID = 7913]

Correct Answer :-

- Equivalent conductance [Option ID = 7913]

25) The standard emf of galvanic cell involving 3 moles of electrons in its redox reaction is 0.59 V. The equilibrium constant for the reaction of the c

1. 10^{26} [Option ID = 7645]

2. 10^{20} [Option ID = 7646]



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3. 10^{30} [Option ID = 7648]4. 10^{15} [Option ID = 7647]

Correct Answer :-

• 10^{25} [Option ID = 7645]26) The oxidation state of Cr in $[\text{Cr}(\text{NH}_3)_4\text{Cl}_2]^+$ is [Question ID = 1975]

1. 2 [Option ID = 7899]

2. 0 [Option ID = 7897]

3. 1 [Option ID = 7898]

4. 3 [Option ID = 7900]

Correct Answer :-

• 0 [Option ID = 7897]

27) Activated charcoal is used to remove colouring matter from pure substances. It works by ____ [Question ID = 1970]

1. absorption [Option ID = 7879]

2. adsorption [Option ID = 7880]

3. reduction [Option ID = 7877]

4. oxidation [Option ID = 7878]

Correct Answer :-

• reduction [Option ID = 7877]

28) Which type of colloid is the dissolution of sulphur (S_8) [Question ID = 1969]

1. Micelle [Option ID = 7874]

2. Multimolecular colloid [Option ID = 7875]

3. Associated colloid [Option ID = 7873]

4. Macromolecular colloid [Option ID = 7876]

Correct Answer :-

• Associated colloid [Option ID = 7873]

29) For the given complex $[\text{CoCl}_2(\text{en})(\text{NH}_3)_2]^+$, the number of geometrical isomers, the number of optical isomers and total number of isomers of a [Question ID = 1976]

1. 0, 1, 3 [Option ID = 7902]

2. 0, 2, 2 [Option ID = 7903]

3. 2, 2, 3 [Option ID = 7901]

4. 3, 3, 4 [Option ID = 7904]

Correct Answer :-

• 2, 2, 3 [Option ID = 7901]

30) A covalent molecule AB_3 has pyramidal structure. The number of lone pair and bond pair electrons in the molecule are respectively [Question ID = 1977]

1. 2 and 2 [Option ID = 7843]

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2. 1 and 3 [Option ID = 7841]
 3. 0 and 4 [Option ID = 7844]
 4. 3 and 1 [Option ID = 7842]

Correct Answer :-

- 1 and 3 [Option ID = 7841]

31) Among the following compounds the compounds having anti-conformation as most stable conformation [Question ID = 1944]

1.  [Option ID = 7775]
 2.  [Option ID = 7773]
 3.  [Option ID = 7774]
 4.  [Option ID = 7776]

Correct Answer :-

-  [Option ID = 7773]

 32) In which of the following octahedral complexes of Co (atomic no. 27), will the magnitude of Δ_0 be the highest?

[Question ID = 1977]

1. $[\text{Co}(\text{NH}_3)_6]^{3+}$ [Option ID = 7908]
 2. $[\text{Co}(\text{CN})_6]^{3-}$ [Option ID = 7906]
 3. $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ [Option ID = 7907]
 4. $[\text{Co}(\text{C}_2\text{O}_4)_3]^{3-}$ [Option ID = 7905]

Correct Answer :-

- $[\text{Co}(\text{C}_2\text{O}_4)_3]^{3-}$ [Option ID = 7905]

33) Hydroxyl ion concentration of 1M HCl is [Question ID = 1966]

1. $1 \times 10^{-13} \text{ mol dm}^{-3}$ [Option ID = 7863]
 2. $1 \times 10^{-14} \text{ mol dm}^{-3}$ [Option ID = 7861]
 3. $1 \times 10^{-1} \text{ mol dm}^{-3}$ [Option ID = 7862]
 4. $1 \times 10^1 \text{ mol dm}^{-3}$ [Option ID = 7864]

Correct Answer :-

- $1 \times 10^{-14} \text{ mol dm}^{-3}$ [Option ID = 7861]



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34) The unit of rate constant for a zero order reaction is: [Question ID = 1893]

1. s^{-1} [Option ID = 7569]
2. $mol\ dm^{-3}\ s^{-1}$ [Option ID = 7570]
3. $mol^{-1}\ dm^3\ s^{-1}$ [Option ID = 7571]
4. $mol^{-2}\ dm^6\ s^{-1}$ [Option ID = 7572]

Correct Answer :-

- s^{-1} [Option ID = 7569]

35) Using the basic phase rule equation, find out which of the following is a correct representation of the degrees of freedom (F) of a system: [Question ID = 7613]

1. $F=0$, for a two-component system with two phases in equilibrium [Option ID = 7616]
2. $F=2$, for a one-component system with two phases in equilibrium [Option ID = 7614]
3. $F=3$, for a two-component system with two phases in equilibrium [Option ID = 7615]
4. $F=1$, for a one-component system with two phases in equilibrium [Option ID = 7613]

Correct Answer :-

- $F=1$, for a one-component system with two phases in equilibrium [Option ID = 7613]

36) What is the unit of specific conductance (or conductivity) of a conductor? [Question ID = 1882]

1. $Siemens^{-1}\ cm$ [Option ID = 7526]
2. $Siemens^{-1}\ cm^{-1}$ [Option ID = 7525]
3. $Siemens\ cm^{-1}$ [Option ID = 7527]
4. $Siemens\ cm$ [Option ID = 7528]

Correct Answer :-

- $Siemens^{-1}\ cm^{-1}$ [Option ID = 7525]

37) The addition of a catalyst during a chemical reaction alters which of the following quantities? [Question ID = 1971]

1. Internal energy [Option ID = 7884]
2. Activation energy [Option ID = 7881]
3. Enthalpy [Option ID = 7883]
4. Entropy [Option ID = 7882]

Correct Answer :-

- Activation energy [Option ID = 7881]

38) A ligand can also be regarded as [Question ID = 1962]

1. Lewis base [Option ID = 7846]
2. Lewis acid [Option ID = 7845]
3. Bronsted base [Option ID = 7848]
4. Bronsted acid [Option ID = 7847]

Correct Answer :-

- Lewis acid [Option ID = 7845]



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39) When a solute is distributed between two immiscible liquids, on which of the following parameters the value of partition coefficient (K_D) depends?

1. Amount of solute [Option ID = 7595]
2. Relative amount of the two solvents [Option ID = 7596]
3. Temperature [Option ID = 7593]
4. Pressure [Option ID = 7594]

Correct Answer :-

- Temperature [Option ID = 7593]

40) The equation that relates the change in the equilibrium constant, K_{eq} , of a chemical reaction to the change in temperature, T , is known as: [Question ID = 7532]

1. Wilhem's equation [Option ID = 7536]
2. Sackur-Tetrode equation [Option ID = 7535]
3. Mark-Houwink equation [Option ID = 7533]
4. Van't Hoff equation [Option ID = 7534]

Correct Answer :-

- Mark-Houwink equation [Option ID = 7533]

41) Milk is a colloidal system in which

[Question ID = 1954]

1. Water is dispersed in fat [Option ID = 7815]
2. Fat is dispersed in water [Option ID = 7814]
3. Fat is dissolved in water [Option ID = 7813]
4. None of these [Option ID = 7816]

Correct Answer :-

- Fat is dissolved in water [Option ID = 7813]

42) In a body-center cubic (BCC) type of crystal lattice, the number of atoms belonging exclusively to each unit cell within the lattice is/are: [Question ID = 7572]

1. 2 [Option ID = 7574]
2. 1 [Option ID = 7573]
3. 3 [Option ID = 7575]
4. 4 [Option ID = 7576]

Correct Answer :-

- 1 [Option ID = 7573]

43) What quantity will remain unchanged for a sample of gas in a sealed rigid container when it is cooled from 100°C to 75°C at constant volume? [Question ID = 7624]

1. The pressure of the gas [Option ID = 7627]
2. The average energy of the molecules [Option ID = 7626]
3. The average speed of the molecules [Option ID = 7625]
4. The density of the gas [Option ID = 7628]

Correct Answer :-



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- The average speed of the molecules [Option ID = 7625]

44) The number of independent modes of vibration in a non-linear molecule having N atoms is [Question ID = 1892]

1. $3N - 3$ [Option ID = 7568]
2. $3N$ [Option ID = 7567]
3. $3N - 5$ [Option ID = 7565]
4. $3N - 6$ [Option ID = 7566]

Correct Answer :-

- $3N - 5$ [Option ID = 7565]

45) 10 cm^3 of NaOH solution of pH 12 is mixed with 990 cm^3 of water. What is the pH of the resulting solution? [Question ID = 1886]

1. 11 [Option ID = 7541]
2. 1 [Option ID = 7543]
3. 10 [Option ID = 7542]
4. 3 [Option ID = 7544]

Correct Answer :-

- 11 [Option ID = 7541]

46) Degeneracy of 1^{st} excited state of a particle in 2-D rectangular box with sides 'a' and '2a' is: [Question ID = 1885]

1. 2 [Option ID = 7540]
2. 0 [Option ID = 7539]
3. 1 [Option ID = 7537]
4. 3 [Option ID = 7538]

Correct Answer :-

- 1 [Option ID = 7537]

47) Today the concentration of green house gases is very high because of

[Question ID = 1946]

1. Increase in combustion of oil and coal [Option ID = 7782]
2. Use of refrigerator [Option ID = 7781]
3. Deforestation [Option ID = 7783]
4. all of the above [Option ID = 7784]

Correct Answer :-

- Use of refrigerator [Option ID = 7781]

48) A system maintaining same pressure is known as: [Question ID = 1909]

1. Isochoric system [Option ID = 7635]
2. Isothermal system [Option ID = 7633]
3. Isentropic system [Option ID = 7634]
4. Isobaric system [Option ID = 7636]



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Correct Answer :-

- Isothermal system [Option ID = 7633]

49) The term PVC used in the plastic industry stands for [Question ID = 1950]

1. phosphaviny chloride [Option ID = 7800]
2. phosphorvanadium chloride [Option ID = 7799]
3. polyvinyl carbobate [Option ID = 7797]
4. polyvinyl chloride [Option ID = 7798]

Correct Answer :-

- polyvinyl carbobate [Option ID = 7797]

50) A compound is formed by elements A and B. This crystallises in the cubic structure where the A atoms are at the corners of the cube and B atoms are at the centers of the edges. The formula of the compound is:

[Question ID = 1960]

1. AB_4 [Option ID = 7840]
2. AB [Option ID = 7839]
3. A_6B_4 [Option ID = 7838]
4. A_6B [Option ID = 7837]

Correct Answer :-

- A_6B [Option ID = 7837]

51) What type of light scattering involves interaction of photons with acoustic phonons in solids? [Question ID = 1901]

1. Compton Scattering [Option ID = 7604]
2. Mie Scattering [Option ID = 7602]
3. Rayleigh Scattering [Option ID = 7601]
4. Brillouin Scattering [Option ID = 7603]

Correct Answer :-

- Rayleigh Scattering [Option ID = 7601]

52) The correct expression for the Freundlich adsorption equation involving 'x' mass of gas adsorbed on 'm' mass of adsorbent at pressure 'p', with adsorbate and adsorbent, is: [Question ID = 1903]

1. $(x/m) = k p^{1/n}$ [Option ID = 7610]
2. $(x/p) = k m^n$ [Option ID = 7611]
3. $(x/p) = k m^{1/n}$ [Option ID = 7609]
4. $(x/m) = k p^n$ [Option ID = 7612]

Correct Answer :-

- $(x/p) = k m^{1/n}$ [Option ID = 7609]

53) The isotope atoms differ in ? [Question ID = 1957]

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1. atomic weight [Option ID = 7826]
2. number of neutrons [Option ID = 7828]
3. number of electrons [Option ID = 7827]
4. atomic number [Option ID = 7825]

Correct Answer :-

- atomic number [Option ID = 7825]

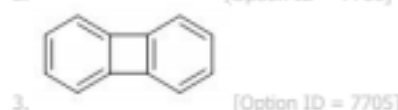
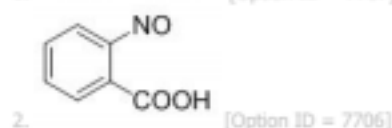
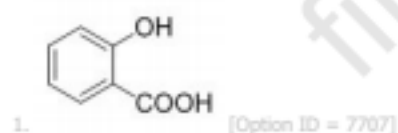
54) It takes 15 minutes for the concentration of a radioactive species to decay to its $1/8^{\text{th}}$ value of its original concentration. What is the rate constant k [Option ID = 7517]

1. 865.8 s^{-1} [Option ID = 7520]
2. 0.001155 s^{-1} [Option ID = 7518]
3. 600 s^{-1} [Option ID = 7517]
4. 0.00231 s^{-1} [Option ID = 7519]

Correct Answer :-

- 600 s^{-1} [Option ID = 7517]

55) Anthranilic acid, on treatment with iso-amyl nitrite furnishes a product which displays a strong peak at 76 (m/e) in its mass spectrum. The structure of the product is [Option ID = 7705]



Correct Answer :-

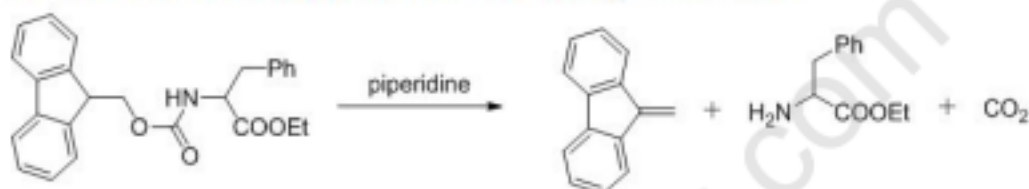


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The mechanism involved in the following reaction is:



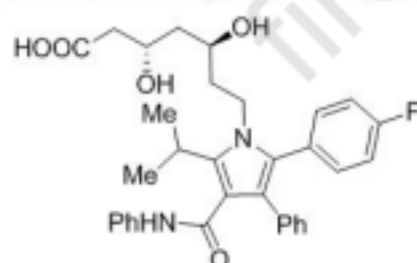
[Question ID = 1928]

1. E1CB- elimination [Option ID = 7712]
2. E2- elimination [Option ID = 7709]
3. E1- elimination [Option ID = 7710]
4. syn- elimination [Option ID = 7711]

Correct Answer :-

- E2- elimination [Option ID = 7709]

57) Atorvastatin (structure given below) is a



[Question ID = 1932]

1. Cholesterol lowering drug [Option ID = 7725]
2. Blood sugar lowering drug [Option ID = 7726]
3. Anti-plasmodial drug [Option ID = 7727]
4. Anti-HIV drug [Option ID = 7728]

Correct Answer :-

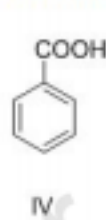
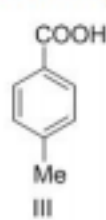
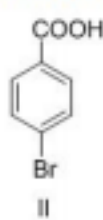
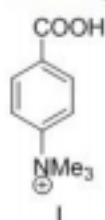
- Cholesterol lowering drug [Option ID = 7725]

58)

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Arrange the following in decreasing order of acidity



[Question ID = 1934]

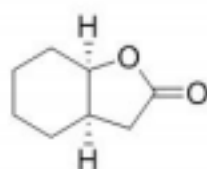
1. III > II > IV > I [Option ID = 7734]
2. II > IV > I > III [Option ID = 7736]
3. II > I > IV > III [Option ID = 7735]
4. I > II > IV > III [Option ID = 7733]

Correct Answer :-

- I > II > IV > III [Option ID = 7733]

59)

In the IR spectrum, carbonyl absorption band for the following compound appears at



[Question ID = 1925]

1. 1810 cm^{-1} [Option ID = 7697]
2. 1710 cm^{-1} [Option ID = 7698]
3. 1730 cm^{-1} [Option ID = 7699]
4. 1690 cm^{-1} [Option ID = 7700]

Correct Answer :-

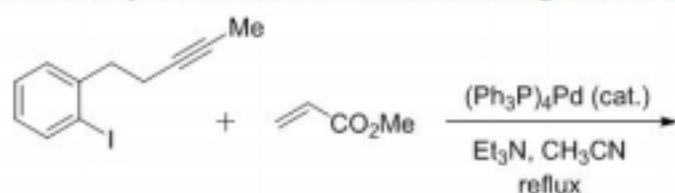
- 1810 cm^{-1} [Option ID = 7697]

60)

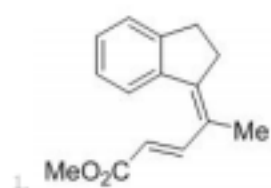
7/7/2019

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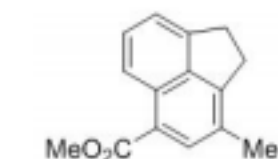
Find Major Product of the following reaction:



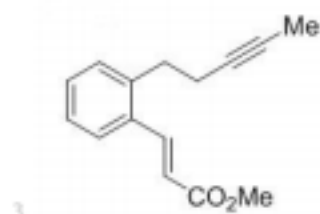
[Question ID = 1938]



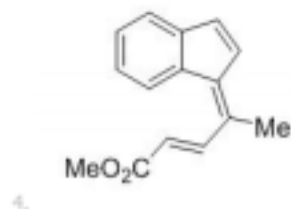
[Option ID = 7749]



[Option ID = 7751]

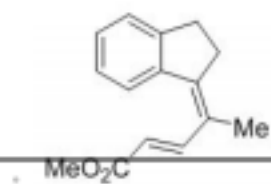


[Option ID = 7750]



[Option ID = 7752]

Correct Answer :-

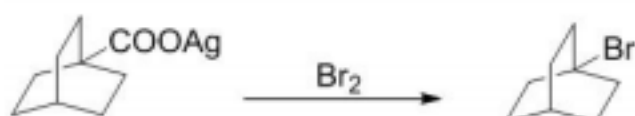


[Option ID = 7749]

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61) Following reaction goes through:



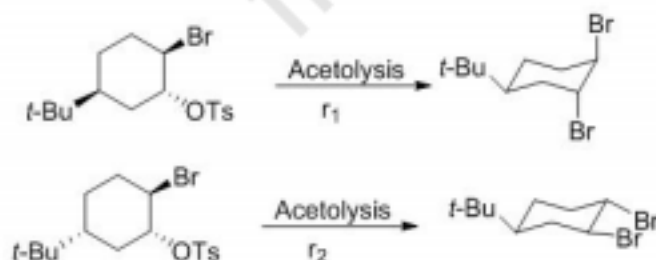
[Question ID = 1930]

1. carbene intermediate [Option ID = 7720]
2. free radical intermediate [Option ID = 7717]
3. carbocation intermediate [Option ID = 7719]
4. carbanion intermediate [Option ID = 7718]

Correct Answer :-

- free radical intermediate [Option ID = 7717]

62) Which of the following is correct?



[Question ID = 1943]

1. $r_2 > r_1$ [Option ID = 7770]
2. $r_1 > r_2$ [Option ID = 7769]
3. $r_1 = r_2$ [Option ID = 7771]
4. all are correct [Option ID = 7772]

Correct Answer :-

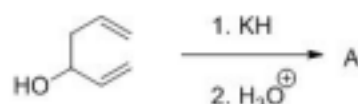
- $r_1 > r_2$ [Option ID = 7769]

63)

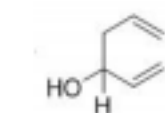
7/7/2019

192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

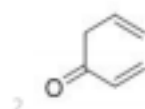
Find product (A) of the below reaction is:



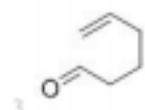
[Question ID = 1922]



[Option ID = 7686]



[Option ID = 7685]

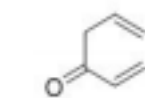


[Option ID = 7688]



[Option ID = 7687]

Correct Answer :-



[Option ID = 7685]

64) Match the following:

A. NMR Spectroscopy	i. Quadruple Splitting
B. Raman Spectroscopy	ii. Binding Energy
C. Mossbauer Spectroscopy	iii. Polarizability Ellipsoid
D. Photoelectron Spectroscopy	iv. Larmor Precession

[Question ID = 1895]

1. A = iv, B = iii, C = ii, D = i [Option ID = 7579]

2. A = iv, B = iii, C = i, D = ii [Option ID = 7578]

3. A = ii, B = iv, C = i, D = iii [Option ID = 7577]

4. A = iii, B = iv, C = i, D = ii [Option ID = 7580]

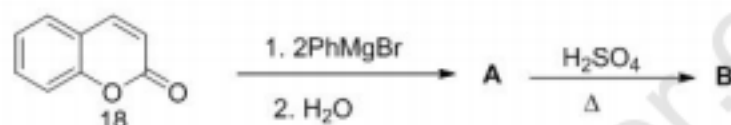
Correct Answer :-

7/7/2019

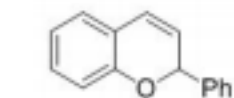
192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

• A = ii, B = iv, C = i, D = iii [Option ID = 7577]

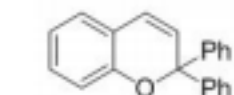
65) Product B in the following reaction is:



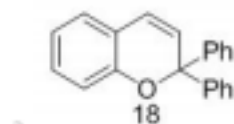
[Question ID = 1916]



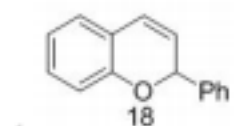
[Option ID = 7661]



[Option ID = 7663]

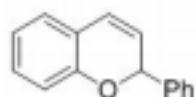


[Option ID = 7664]



[Option ID = 7662]

Correct Answer :-



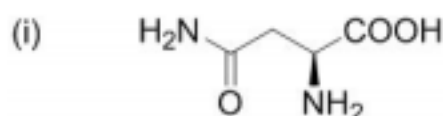
[Option ID = 7661]

66)

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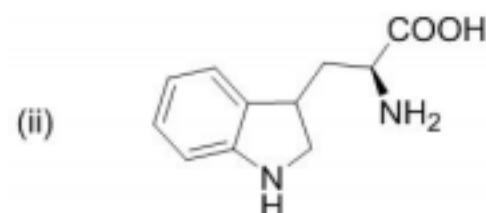
192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

Match the amino acids with structures:

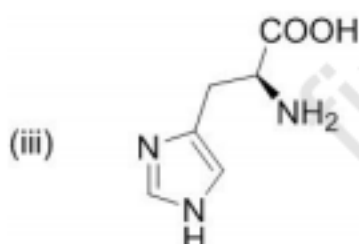


(A) tryptophan

(B) histidine



(C) Asparagine



(D) Serine

(E) Glutamic acid

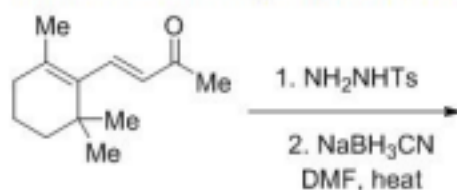
[Question ID = 1926]

1. (i)-C (ii)-A (iii)-(B) [Option ID = 7704]
2. (i)-C (ii)-D (iii)-(B) [Option ID = 7702]
3. (i)-A (ii)-E (iii)-(C) [Option ID = 7701]
4. (i)-A (ii)-B (iii)-(D) [Option ID = 7703]

Correct Answer :-

- (i)-A (ii)-E (iii)-(C) [Option ID = 7701]

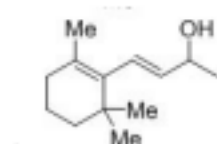
67) Find out the major product of the following reaction is:



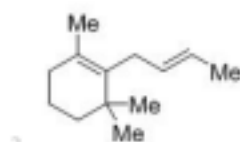
[Question ID = 1935]

7/7/2019

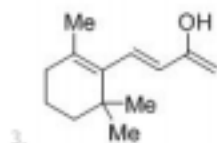
192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion



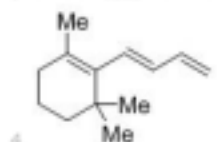
[Option ID = 7740]



[Option ID = 7737]

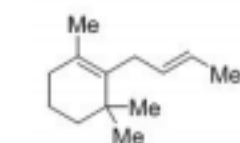


[Option ID = 7739]



[Option ID = 7738]

Correct Answer :-



[Option ID = 7737]

68)

Consider the addition of HBr to 3,3-Dimethyl-1-butene shown below. What is the best mechanistic explanation for the formation of the observed product?



[Question ID = 1917]

1. Double bond shift in the alkene followed by the protonation and addition of bromide to the carbocation [Option ID = 7666]
2. Protonation of the alkene followed by a hydride shift and addition of bromide to the carbocation [Option ID = 7665]
3. Protonation of alkene followed by a methyl shift and addition of bromide to the carbocation [Option ID = 7668]
4. Addition of bromide to the alkene followed by a double bond shift and protonation [Option ID = 7667]

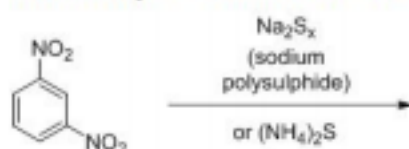
Correct Answer :-

7/7/2019

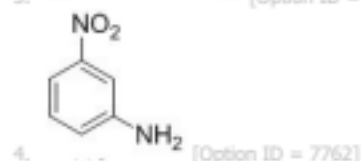
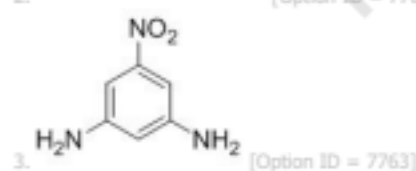
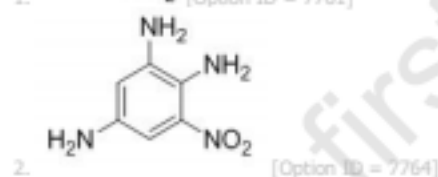
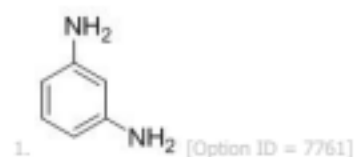
192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

- Protonation of the alkene followed by a hydride shift and addition of bromide to the carbocation [Option ID = 7665]

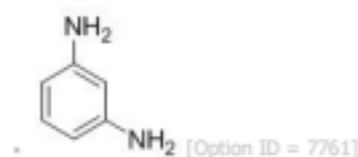
69) Find Major Product of the following reaction:



[Question ID = 1941]



Correct Answer :-

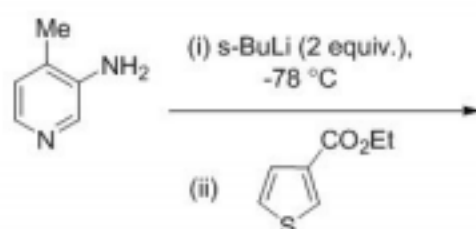


70)

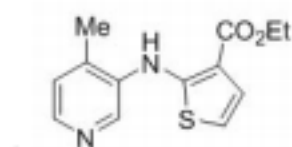
7/7/2019

192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

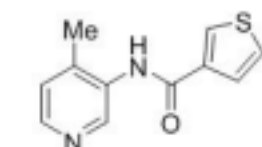
Find the major product of the given reaction:



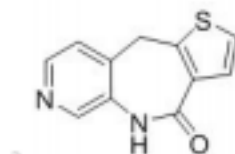
[Question ID = 1914]



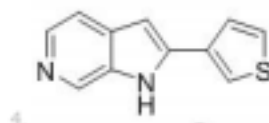
[Option ID = 7654]



[Option ID = 7653]

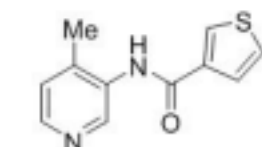


[Option ID = 7656]



[Option ID = 7655]

Correct Answer :-



[Option ID = 7653]

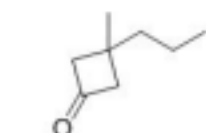
7/7/2019

192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

The major product formed in the following reaction is:



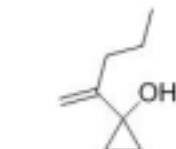
[Question ID = 1915]



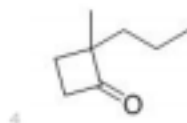
[Option ID = 7657]



[Option ID = 7660]

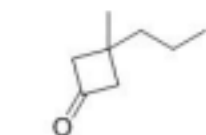


[Option ID = 7659]



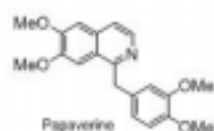
[Option ID = 7658]

Correct Answer :-



[Option ID = 7657]

72) Papaverine on oxidation with potassium permanganate gives a ketone, which on fusion with potassium hydroxide gives

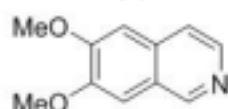


[Question ID = 15235]

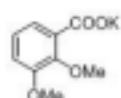
7/7/2019

192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

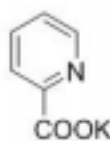
1. None of these [Option ID = 30940]



2. [Option ID = 30938]

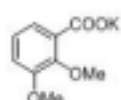


3. [Option ID = 30937]



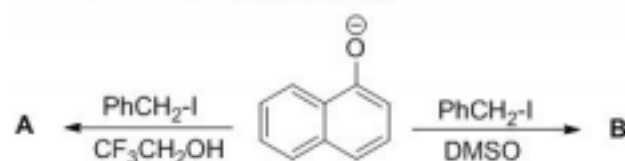
4. [Option ID = 30939]

Correct Answer :-

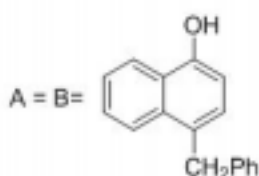


[Option ID = 30937]

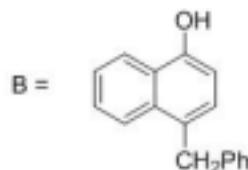
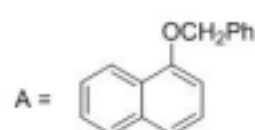
73) A and B are respectively



[Question ID = 1919]



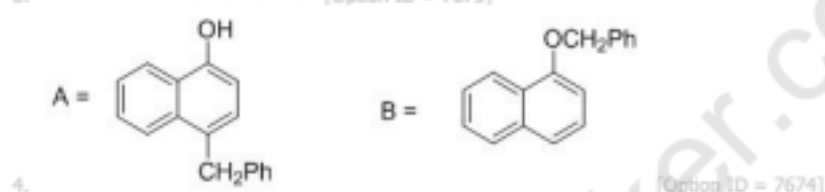
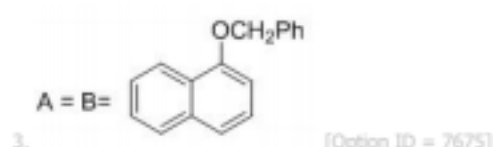
1. [Option ID = 7676]



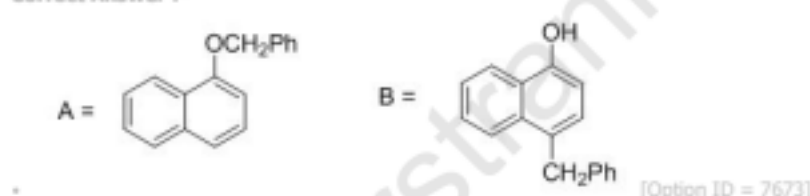
2. [Option ID = 7673]

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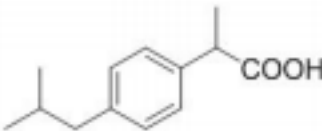
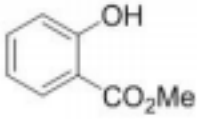
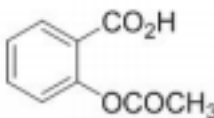
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Correct Answer :-



74) The correct match for the compounds in column A with the description in column B is:

	Column-A	Column-B
(P)		(X) Oil of wintergreen
(Q)		(Y) Aspirin
(R)		(Z) Ibuprofen

[Question ID = 1931]

1. P-Y, Q-Z, R-X [Option ID = 7721]

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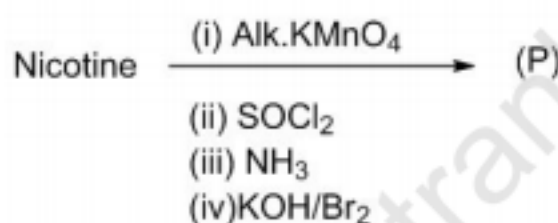
192.168.183.10:8195/GameChanger/Reports/PapersetQuestion/PapersetQuestion

2. P-Z, Q-Y, R-X [Option ID = 7723]
 3. P-Z, Q-X, R-Y [Option ID = 7722]
 4. P-X, Q-Z, R-Y [Option ID = 7724]

Correct Answer :-

- P-Y, Q-Z, R-X [Option ID = 7721]

75) The product (P) in the following reaction is



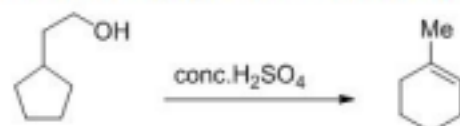
[Question ID = 1945]

1. 2-amino-Pyridine [Option ID = 7777]
 2. 2-amino-nicotinamide [Option ID = 7779]
 3. 3-amino-Pyridine [Option ID = 7778]
 4. 3-amino-nicotinic acid [Option ID = 7780]

Correct Answer :-

- 2-amino-Pyridine [Option ID = 7777]

76) How many 1,2-shift are involved during the course of the following reaction:



[Question ID = 1939]

1. 2 [Option ID = 7754]
 2. 1 [Option ID = 7753]
 3. 3 [Option ID = 7755]
 4. 4 [Option ID = 7756]

Correct Answer :-

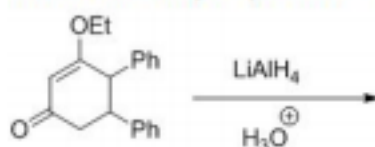
- 1 [Option ID = 7753]

77)

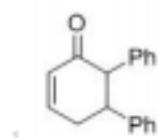
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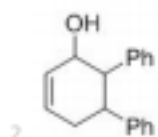
Find out major product:



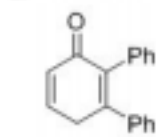
[Question ID = 1942]



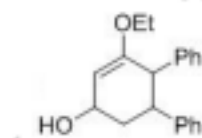
[Option ID = 7765]



[Option ID = 7766]

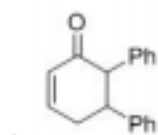


[Option ID = 7768]



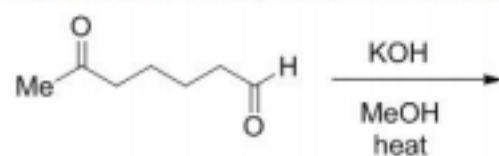
[Option ID = 7767]

Correct Answer :-



[Option ID = 7765]

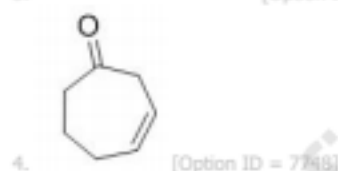
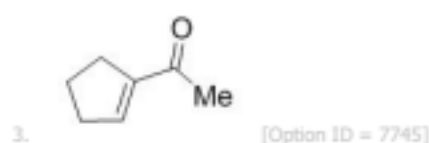
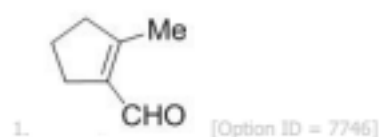
78) Find Major Product of the following reaction:



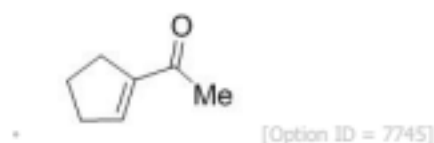
[Question ID = 1937]

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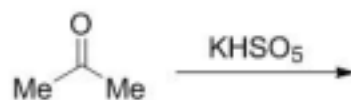
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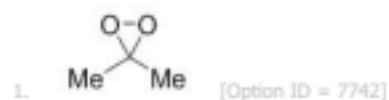
Correct Answer :-



79) Find major product of the below reaction is:

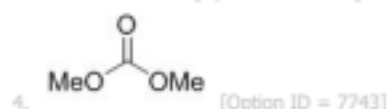
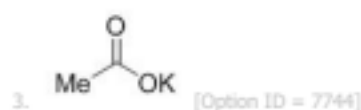


[Question ID = 1936]



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Correct Answer :-



80) For a reaction between two ionic species dissolved in a solvent, the rate constant relies on which factor/s?

[Question ID = 1911]

1. Charges of both the ions [Option ID = 7641]
2. Dielectric constant of the solvent [Option ID = 7642]
3. All of the above [Option ID = 7644]
4. Ionic strength of the solution [Option ID = 7643]

Correct Answer :-

- Charges of both the ions [Option ID = 7641]

81) For a crystal, the angle of diffraction (2θ) is 90° and the second order line has a d value of $2.28\text{\AA}$. The wavelength (in $\text{\AA}$) of X-Rays used for Bragg

[Question ID = 1967]

1. 1.613 [Option ID = 7867]
2. 2.28 [Option ID = 7865]
3. 1.00 [Option ID = 7866]
4. 4.00 [Option ID = 7868]

Correct Answer :-

- 2.28 [Option ID = 7865]

82) The magnetic moment (spin only) of $[\text{NiCl}_4]^{2-}$ is [Question ID = 1974]

1. 5.46 BM [Option ID = 7893]
2. 1.82 BM [Option ID = 7895]
3. 1.41 BM [Option ID = 7894]
4. 2.82 BM [Option ID = 7896]

Correct Answer :-

- 5.46 BM [Option ID = 7893]



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83) Total spin angular momentum of nd^{10} electronic system is (a.u.): [Question ID = 1908]

1. 0 [Option ID = 7629]
2. $\frac{1}{4}$ [Option ID = 7631]
3. 1 [Option ID = 7630]
4. $\frac{1}{2}$ [Option ID = 7632]

Correct Answer :-

- 0 [Option ID = 7629]

84) Electronic transitions originating from the 2S energy level of the Hydrogen atom to higher levels belong to which series? [Question ID = 1890]

1. Brackett Series [Option ID = 7559]
2. Lyman Series [Option ID = 7557]
3. Pfund Series [Option ID = 7560]
4. Balmer Series [Option ID = 7558]

Correct Answer :-

- Lyman Series [Option ID = 7557]

85) Which of the following indicators cannot be used in redox potentiometric titrations? [Question ID = 1898]

1. Nile red [Option ID = 7591]
2. Methylene blue [Option ID = 7590]
3. Erioglaucine A [Option ID = 7589]
4. Quinhydrone [Option ID = 7592]

Correct Answer :-

- Erioglaucine A [Option ID = 7589]

86) Which of the following represent the correct bond orders for N_2 , N_2^+ and N_2^- molecules? [Question ID = 1888]

1. 3.0, 2.5, 2.5 [Option ID = 7551]
2. 3.0, 2.0, 2.5 [Option ID = 7550]
3. 3.0, 3.0, 3.0 [Option ID = 7549]
4. 2.5, 2.5, 2.5 [Option ID = 7552]

Correct Answer :-

- 3.0, 3.0, 3.0 [Option ID = 7549]

87) Which of the following equations is used in the calculation of the equilibrium Constant (K)? [Question ID = 1910]

1. $\ln(K) = -(RT/nFE^0)$ [Option ID = 7640]
2. $\ln(K) = (nFE^0/RT)$ [Option ID = 7637]
3. $\ln(K) = -(nFE^0/RT)$ [Option ID = 7638]
4. $\ln(K) = (RT/nFE^0)$ [Option ID = 7639]

Correct Answer :-

- $\ln(K) = (nFE^0/RT)$ [Option ID = 7637]

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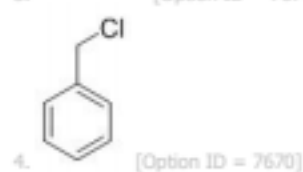
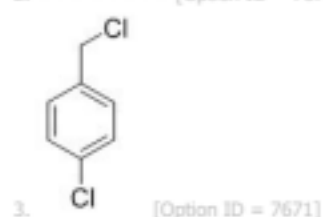
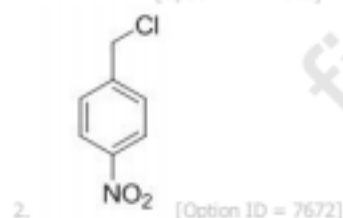
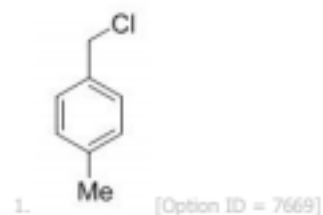
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88) Which of the following molecules give pure rotational spectra? [Question ID = 1896]

1. O_2 , CH_4 [Option ID = 7582]
2. H_2 , HCl [Option ID = 7581]
3. H_2 , CO [Option ID = 7583]
4. HCl , CO [Option ID = 7584]

Correct Answer :-

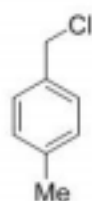
- H_2 , HCl [Option ID = 7581]

 89) Which of the following is most reactive toward S_N2 reaction? [Question ID = 1918]


Correct Answer :-

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[Option ID = 7669]

90) Which of the following indicates the incorrect limiting value of the van't Hoff factor (i) at infinite dilution for strong electrolytes? [Question ID = 7607]

1. $\text{HCl} = 2$ [Option ID = 7607]
2. $\text{H}_2\text{SO}_4 = 2$ [Option ID = 7605]
3. $\text{NH}_4\text{Cl} = 6$ [Option ID = 7606]
4. $\text{K}_4[\text{Fe}(\text{CN})_6] = 5$ [Option ID = 7608]

Correct Answer :-

- $\text{H}_2\text{SO}_4 = 2$ [Option ID = 7605]

91) Which one of the following Vitamins is essential for coagulation of Blood? [Question ID = 1953]

1. D [Option ID = 7811]
2. B1 [Option ID = 7810]
3. K [Option ID = 7809]
4. C [Option ID = 7812]

Correct Answer :-

- K [Option ID = 7809]

92) Which one of the following is least basic in character? [Question ID = 1940]



[Option ID = 7760]



[Option ID = 7759]



[Option ID = 7758]



[Option ID = 7757]

Correct Answer :-



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[Option ID = 7757]

93) The vibrational energy of a simple harmonic oscillator, as calculated from the Schrodinger equation, depends on:

[Question ID = 1900]

1. Oscillation frequency [Option ID = 7598]
2. Vibrational quantum number [Option ID = 7597]
3. Planck's constant [Option ID = 7599]
4. All of the above [Option ID = 7600]

Correct Answer :-

- Vibrational quantum number [Option ID = 7597]

94) The frequency of 3×10^{18} Hz falls in the:

[Question ID = 1883]

1. Visible and ultraviolet region [Option ID = 7531]
2. Infra-red region [Option ID = 7530]
3. X-Ray region [Option ID = 7532]
4. Microwave region [Option ID = 7529]

Correct Answer :-

- Microwave region [Option ID = 7529]

95) The reduced C-C bond strength/order in Zeise's salt as compared to C-C bond in free ethylene is due to the following factor:

[Question ID = 1978]

1. back bonding or back donation [Option ID = 7912]
2. sp hybridization [Option ID = 7909]
3. quadruple bonding [Option ID = 7911]
4. ionic bonding [Option ID = 7910]

Correct Answer :-

- sp hybridization [Option ID = 7909]

96) The correct statement with respect to the complexes $\text{Ni}(\text{CO})_4$ and $[\text{Ni}(\text{CN})_4]^{2-}$ is

[Question ID = 1972]

1. nickel is in the same oxidation state in both [Option ID = 7888]
2. have tetrahedral and square planar geometry, respectively [Option ID = 7885]
3. both have tetrahedral geometry [Option ID = 7887]
4. both have square planar geometry [Option ID = 7886]



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Correct Answer :-

- have tetrahedral and square planar geometry, respectively [Option ID = 7885]

97) The chemical reaction: $2A + B \rightarrow C + 2D$ is found to be first order with respect to A but second order with respect to B. The rate of the reaction is

[Question ID = 1889]

1. None of these [Option ID = 7556]
2. $k [A] [B]^2$ [Option ID = 7554]
3. $k [A]^2 [B]$ [Option ID = 7553]
4. $k [A] [B]$ [Option ID = 7555]

Correct Answer :-

- $k [A]^2 [B]$ [Option ID = 7553]

98) Chemical potential is also known as

[Question ID = 1881]

1. Partial molar enthalpy [Option ID = 7522]
2. Partial molar volume [Option ID = 7523]
3. Partial molar entropy [Option ID = 7521]
4. None of the above [Option ID = 7524]

Correct Answer :-

- Partial molar entropy [Option ID = 7521]

99) Who is regarded as father of modern chemistry? [Question ID = 1948]

1. Einstein [Option ID = 7789]
2. Lavoisier [Option ID = 7792]
3. C.V. Raman [Option ID = 7791]
4. Rutherford [Option ID = 7790]

Correct Answer :-

- Einstein [Option ID = 7789]

100) ^1H NMR spectrum of a mixture of benzene and acetonitrile shows two singlets of equal integration. The molar ratio of benzene : acetonitrile is

1. 1 : 2 [Option ID = 7691]
2. 1 : 1 [Option ID = 7689]
3. 2 : 1 [Option ID = 7690]
4. 6 : 1 [Option ID = 7692]

Correct Answer :-

- 1 : 1 [Option ID = 7689]