

80 previous-year questions, every one with the official answer and a worked solution.

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NSEC 2013

Time: 120 minutes · Maximum marks: 240 · Questions: 80

1. The number of optically active stereoisomers of tartaric acid, $(\text{HOOC} \cdot \text{CHOH} \cdot \text{CHOH} \cdot \text{COOH})$ is

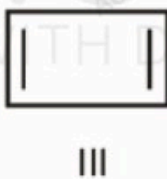
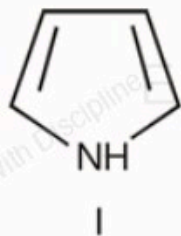
- (A) 4 (B) 2
(C) 1 (D) 3

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

2. Which of the following structure is aromatic?



- (A) Structures I and II (B) Structure I only
(C) Structure II only (D) Structure III only

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

3. Salicylic acid on treatment with bromine water will give

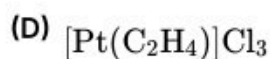
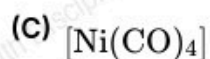
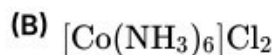
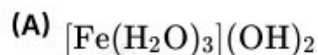
- (A) 2-bromo-6-hydroxybenzoic acid (B) 2,4,6-tribromophenol
(C) 2,6-dibromobenzoic acid (D) 1,3-dibromo-6-hydroxybenzoic acid

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

4. In which of the following compounds is the oxidation number of the transition metal, zero?

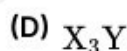
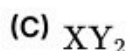
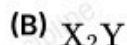
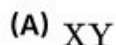


[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

5. If each of the following salts has solubility product $K_{sp} = 1 \times 10^{-9}$, which of them is least soluble in water?



[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

6. A DNA sample stored at 4°C was removed from the refrigerator and heated in a hot water bath with temperature increasing gradually. Which bond of the DNA molecule will break first?

(A) Phosphodiester bond

(B) Glycoside linkage

(C) Hydrogen bond

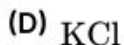
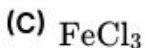
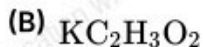
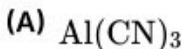
(D) Covalent bond

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

7. Which of the following salts produces the most basic solution?

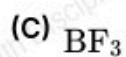
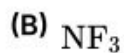
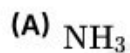


[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

8. Which of the following compounds has zero dipole moment?

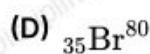
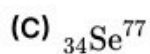
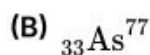
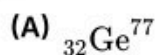


[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

9. An isotone of ${}_{32}\text{Ge}^{76}$ is

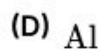
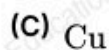
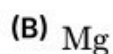
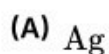


[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

10. One of the constituents of German silver is



[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

11. A catalyst is a substance that

(A) undergoes chemical change to accelerate the rate of the reaction

(B) decreases the energy of activation of the reaction

(C) increases the kinetic energy of the reaction

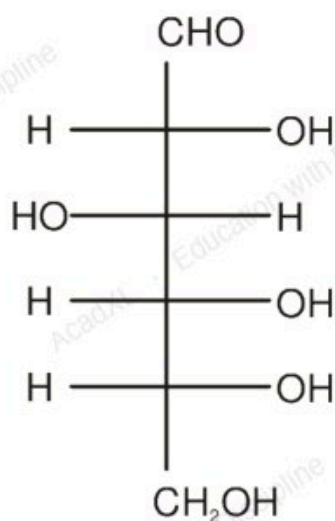
(D) lowers the potential energy of the products with respect to that of the reactants.

[3 marks, -1 for a wrong answer]

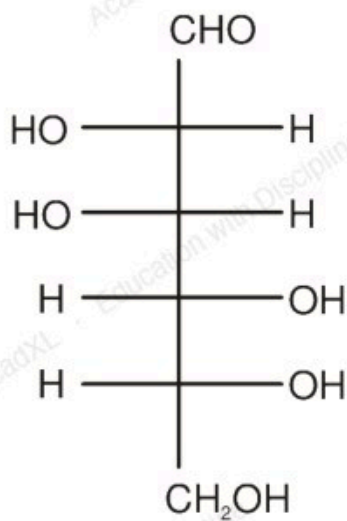
ANSWER: B

No solution stored for this question.

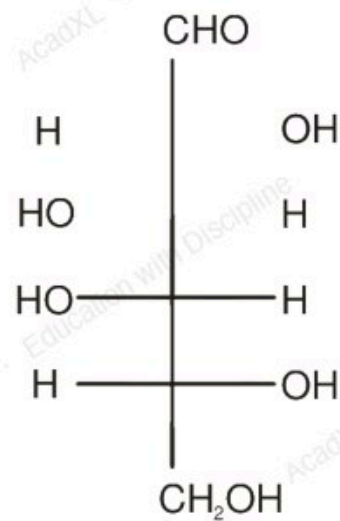
12. The above structures (D-Glucose, D-Mannose, D-Galactose) are related to each other as



D-Glucose



D-Mannose



D-Galactose

(A) identical substances

(B) diastereomers

(C) enantiomers

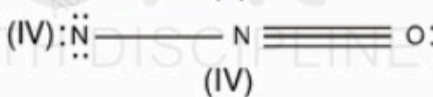
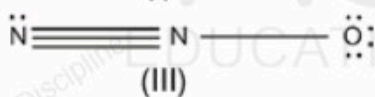
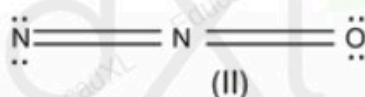
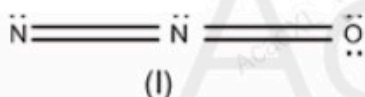
(D) epimers

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

13. Which one of the following is not a valid structure for dinitrogen oxide?



(A) I

(B) II

(C) III

(D) IV

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

14. A mixture of acidified $\text{K}_2\text{Cr}_2\text{O}_7$ and 10% KI is titrated against $\text{Na}_2\text{S}_2\text{O}_3$ (Sodium thiosulphate) solution using starch indicator. The colour of the reaction mixture at the end point is

(A) Yellow

(B) Blue

(C) Green

(D) Colourless

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

15. The gas which liberates bromine from a solution of KBr is

- (A) Cl_2 (B) I_2
(C) SO_2 (D) HI

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

16. The bond order of NO^+ ion is

- (A) 1 (B) 2
(C) 2.5 (D) 3

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

17. What is NOT true for both cellulose and DNA?

- (A) Both are long chain polymers (B) Both contains similar monomers
(C) Both have glycosidic Linkages (D) Both can break down by enzymatic hydrolysis

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

18. An enzyme working at pH 4.5 became inactive when treated with a hydrophobic surfactant. The enzyme may be

- (A) Cytosolic (B) Extracellular
(C) Peripheral membrane bound (D) Integral Membrane bound

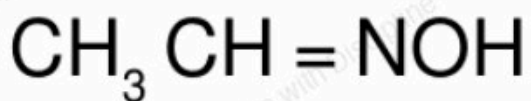
[3 marks, -1 for a wrong answer]

ANSWER: C

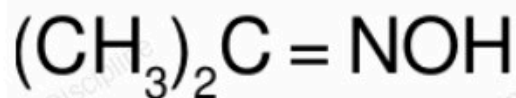
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19. Which of the following molecules cannot show geometric isomerism?

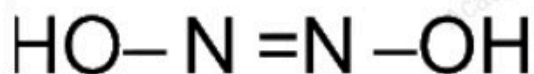
(A)



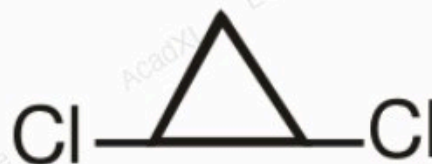
(B)



(C)



(D)



[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

20. Which of the following is most stable?

(A) 2,3-Dimethyl-2-butene

(B) 2-Butene

(C) 2-Methyl-2-butene

(D) 1-Butene

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

21. RNA forms loop structure because

(A) It always contain uracyl instead of thymine

(B) of presence of nearby complementary bases

(C) all RNAs have to form loop structure to function

(D) they are always single stranded

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

22. Which is the strongest oxidising agent among the species given below? (i) In^{3+} , $E^0 = -1.34 \text{ V}$; (ii)

Au^{3+} , $E^0 = 1.40 \text{ V}$; (iii) Hg^{2+} , $E^0 = 0.867 \text{ V}$; (iv) Cr^{3+} , $E^0 = -0.786 \text{ V}$

(A) Cr^{3+}

(B) Au^{3+}

(C) Hg^{2+}

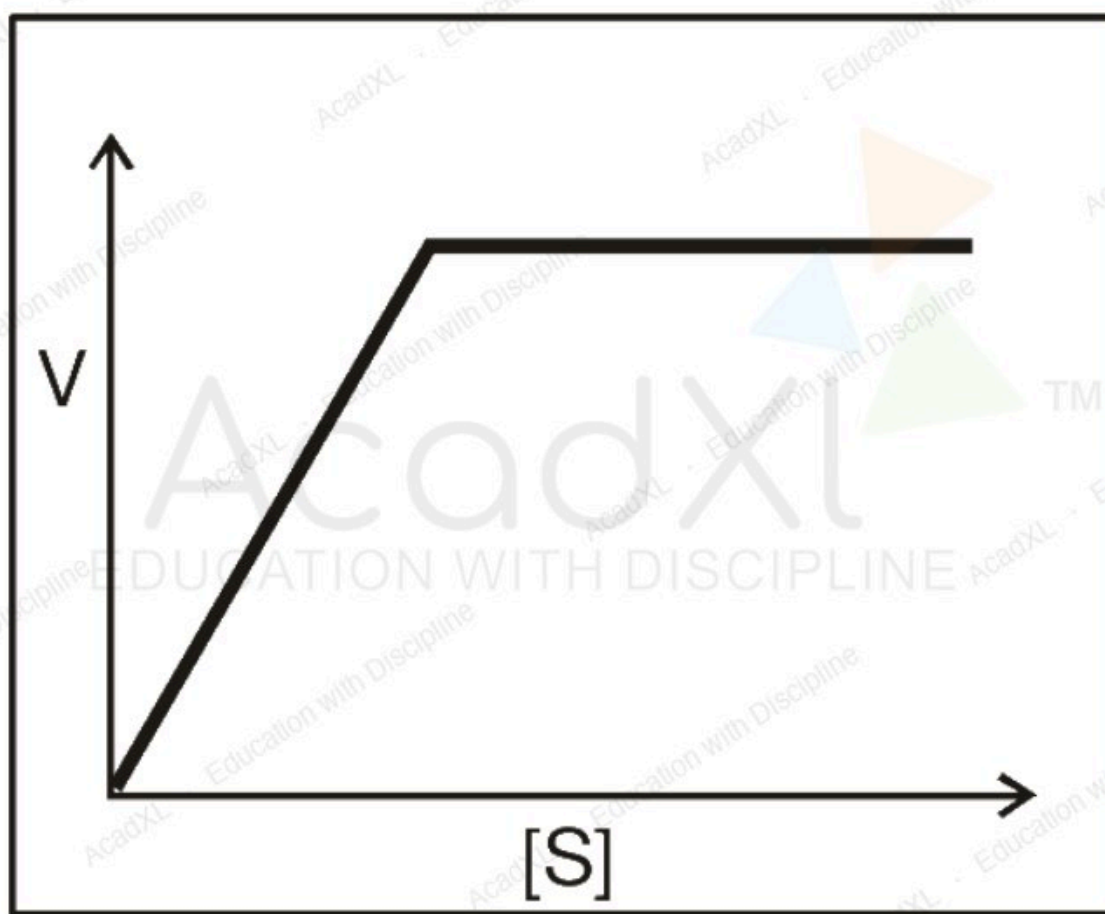
(D) In^{3+}

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

23. The kinetics of an enzyme-catalyzed hydrolysis reaction is represented by the following graph, where $[S]$ is the substrate concentration, and v is the rate of reaction. The kinetic course of the reaction can be described as



(A) First order, zero order

(B) Zero order, first order

(C) First order, second order

(D) Second order, first order

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

24. The number of unpaired electrons in Ni^{2+} is

- (A) 0 (B) 2
(C) 3 (D) 4

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

25. The colourless ion from among the following is

- (A) Mn^{2+} (B) Cu^{+}
(C) Cr^{3+} (D) Fe^{2+}

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

26. The metal carbonyl which is paramagnetic is

- (A) $\text{Ni}(\text{CO})_4$ (B) $\text{V}(\text{CO})_6$
(C) $\text{Cr}(\text{CO})_6$ (D) $\text{Fe}(\text{CO})_5$

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

27. The percentage composition of nitrogen in an organic compound can be determined by

- (A) Dumas method (B) Kjeldahl method
(C) Victor's method (D) Hoffman's method

[3 marks, -1 for a wrong answer]

ANSWER: A, B

No solution stored for this question.

28. High spin complexes having coordination number '6' are usually formed through

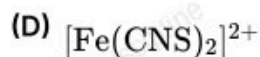
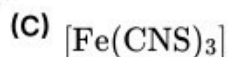
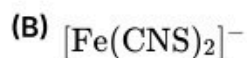
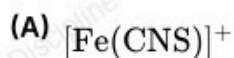
- (A) sp^3d^2 hybridisation (B) d^2sp^3 hybridisation
(C) sp^3 hybridisation (D) sp^3d hybridisation

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

29. The blood red color obtained in the detection of nitrogen and sulphur together in an organic compound in Lassaigne's test is due to



[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

30. A protein attached to carbohydrate moiety is called as

(A) Lipoprotein

(B) Nucleoprotein

(C) Apoprotein

(D) Glycoprotein

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

31. Which of the following aqueous solution has the lowest electrical conductance?

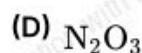
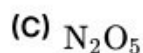
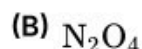
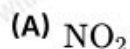


[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

32. The reddish-brown gas formed when nitric oxide is oxidized by air is



[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

33. The electronic level which allows the hydrogen atom to absorb, but not emit a photon is

(A) 1s

(B) 2s

(C) 2p

(D) 3s

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

34. Bell metal is an alloy of copper and

(A) Tin

(B) Aluminium

(C) Zinc

(D) Nickel

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

35. Europium (Eu) and Terbium (Tb) attain stable $4f^7$ configuration by exhibiting oxidation states of

(A) +2 and +4

(B) +3 and +4

(C) +2 and +3

(D) +1 and +3

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

36. Which of the following reaction parameters will change due to addition of a catalyst

(A) Free energy

(B) Only equilibrium constant

(C) Only rate constant

(D) Both equilibrium constant and rate constant

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

37. A plot of $1/[\text{NO}_2]$ verses time for decomposition of NO_2 was found to be linear. This means that the reaction

(A) Is zero order with respect to $[\text{NO}_2]$

(B) Is first order with respect to $[\text{NO}_2]$

(C) Is second order with respect to $[\text{NO}_2]$

(D) Order cannot be determined from the information given

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

38. The carbanion expels a leaving group LG to yield an alkene as shown above by



(A) $\text{E}_{1\text{cb}}$ mechanism

(B) E_1 mechanism

(C) E_2 mechanism

(D) Such a reaction does not take place

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

39. Select the most correct statement among the following:

(A) $\text{S}_{\text{N}}1$ mechanism takes place in non-polar solvents

(B) $\text{S}_{\text{N}}2$ mechanism in chiral substrates gives racemic mixtures as products

(C) $\text{S}_{\text{N}}1$ mechanism is encouraged by polar solvents

(D) The solvent never influences the mechanism

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

40. Fehlings solution is

(A) AgNO_3 solution + NaOH solution + NH_4OH

(B) Alkaline solution of Cupric ion complexed with citrate ion

(C) Copper sulphate + sodium potassium tartarate + NaOH

(D) Copper sulphate solution

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

41. Cyclohexene + $\text{Br}_2 \rightarrow$ Product. The correct name of the product obtained is



Cyclohexene



Product

- (A) cis-1,2-dibromocyclohexane (B) cis-1,4-dibromocyclohexane
(C) trans-1,2-dibromocyclohexane (D) trans-1,4-dibromocyclohexane

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

42. A solution of sodium metal in liquid ammonia is strongly reducing due to the presence of

- (A) sodium atoms (B) sodium hydride
(C) sodium amide (D) solvated electrons

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

43. The number of unpaired electrons in Ni^{2+} ion is 2, therefore its spin multiplicity is

- (A) 2 (B) 1
(C) 3 (D) 4

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

44. A cold aqueous solution of PbCl_2 gives golden yellow precipitate on addition of

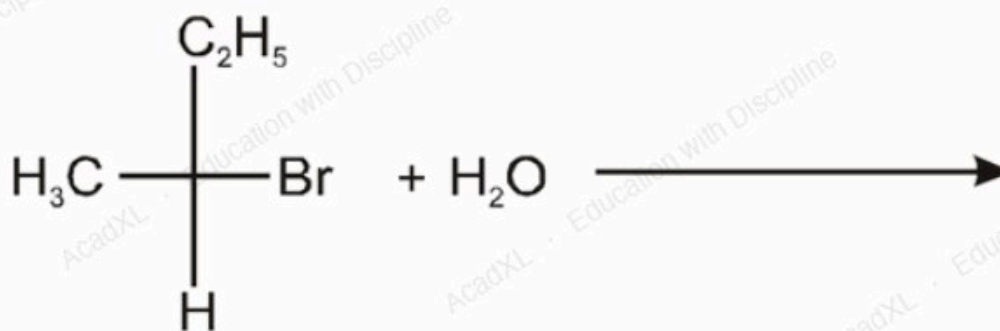
- (A) KCl solution (B) KI solution
(C) NaCl solution (D) K_2SO_4 solution

[3 marks, -1 for a wrong answer]

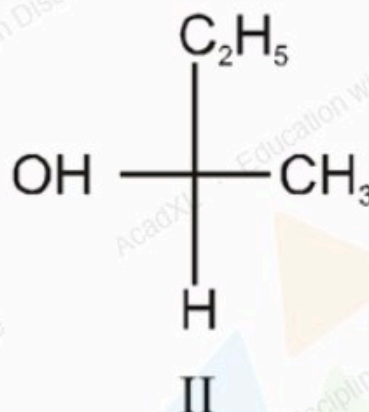
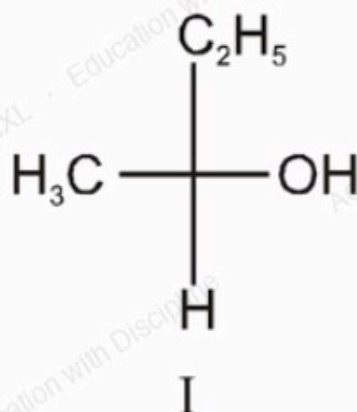
ANSWER: B

No solution stored for this question.

45. In the reaction given below (2-bromobutane + H_2O), the product obtained will contain the two compounds I and II shown:



the product obtained will contain :



- (A) Only Compound I
(B) Only Compound II
(C) Both Compounds I and II
(D) this substitution cannot take place

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

46. Acetone and propen-2-ol are

- (A) enantiomers
(B) keto-enol tautomers
(C) diastereoisomers
(D) meso compounds

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

47. How old is a fossil bone whose ^{14}C content is 15.0% of that living bone? Half life of ^{14}C isotope is 5.73×10^3 yr.

(A) 25488 yr

(B) 15688 yr

(C) 388 yr

(D) 6818 yr

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

48. How much chemical energy is fixed in the form of ATP upon complete oxidation of one mole of glucose? (Hydrolysis of ATP yields 7.5 kcal/mole)

(A) 360

(B) 300

(C) 270

(D) 200

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

49. The value of the constant in Nernst equation $E = E^0 - \frac{\text{constant}}{n} \ln Q$ at 25°C is

(A) 0.592

(B) 0.0592

(C) 0.296

(D) 0.0296

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

50. The chemical formula of Plaster of Paris is

(A) $2\text{CaSO}_4 \cdot \text{H}_2\text{O}$

(B) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$

(C) $3\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$

(D) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

51. The K_p/K_c ratio for the reaction: $4\text{NH}_3(\text{g}) + 7\text{O}_2(\text{g}) \rightleftharpoons 4\text{NO}(\text{g}) + 6\text{H}_2\text{O}(\text{g})$, at 127°C is

(A) 0.0301

(B) 0.0831

(C) 1.0001

(D) 33.26

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

52. Van Arkel method of purification of metals involves converting the metal to a

(A) Volatile compound

(B) Volatile unstable compound

(C) Non-volatile stable compound

(D) Non-volatile unstable compound

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

53. Which of the following reaction mechanisms does not involve carbocation as an intermediate?

(A) Baeyer-Villiger Oxidation

(B) Beckman rearrangement

(C) Fries Rearrangement

(D) Diels-Alder Reaction

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

54. Which of the following statements is correct?

(A) $-\text{NO}_2$ group activates the benzene ring for attack of electrophile at ortho and para position.

(B) $-\text{NH}_2$ group activates the benzene ring for attack of electrophile at ortho and para position.

(C) Both $-\text{NO}_2$ group as well as $-\text{NH}_2$ group activate the benzene ring for attack of electrophile at ortho and para position.

(D) Neither $-\text{NO}_2$ group nor $-\text{NH}_2$ group activate the benzene ring for attack of electrophile at ortho and para position.

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

55. Which of the following does not have an active methylene group?



[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

56. $\text{CH}_2=\text{CHCl}$ is monomer of

(A) Poly styrene

(B) Natural rubber

(C) PVC

(D) Nylon-6

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

57. A cell membrane acts as a semi-permeable selective boundary because it contains

(A) Lipids and carbohydrates

(B) Proteins and carbohydrates

(C) Proteins and Nucleic acids

(D) Lipids and proteins

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

58. 4s orbital has lesser energy than 3d orbital because it has

(A) Greater value of n

(B) Lesser value of l

(C) Lesser value of $(n + l)$

(D) $l = 0$

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

59. When zinc rod is directly placed in copper sulphate solution

(A) the blue colour of the solution starts intensifying

(B) the solution remains electrically neutral

(C) the temperature of the solution falls

(D) the weight of zinc rod starts increasing

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

60. The linear molecule among the following is

(A) CO_2

(B) NO_2

(C) SO_2

(D) ClO_2

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

61. In the compound $\text{Na}_2\text{S}_2\text{O}_3$, the oxidation state of sulphur is

(A) -2

(B) +2

(C) +4

(D) +6

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

62. The pH of 0.1 M NH_4OH , ($K_b = 1.8 \times 10^{-5}$, $K_w = 10^{-14}$), is

(A) 1.0

(B) 5.7

(C) 11.1

(D) 13.0

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

63. In animals, the stored carbohydrates is

(A) Starch

(B) Glycogen

(C) Sucrose

(D) Fructan

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

64. For a chemical reaction ΔH is negative and ΔS is positive. This reaction is

(A) spontaneous at all temperatures

(B) nonspontaneous at all temperatures

(C) spontaneous only at high temperatures

(D) spontaneous only at low temperatures

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

65. Which of the following salt/s of H_3PO_3 exists? (I) NaH_2PO_3 (II) Na_2HPO_3 (III) Na_3PO_3

(A) I and II only

(B) I, II and III

(C) II and III only

(D) III only

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

66. Which of the following molecules is most volatile?

(A) Salicylaldehyde

(B) p-nitrophenol

(C) p-hydroxybenzoic acid

(D) m-hydroxybenzoic acid

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

67. The isoelectric point of an amino acid is:

(A) The pH at which it exists in the acidic form

(B) The pH at which exists in the basic form

(C) The pH at which it exists in the Zwitterion form

(D) The pH which is equal to its $\text{p}K_a$ value

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

68. A gas shows positive Joule-Thomson Effect below its

(A) Boyle Temperature

(B) Critical Temperature

(C) Inversion Temperature

(D) Transition Temperature

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

69. The following data was recorded for the reaction: $X + Y \rightarrow P$. Set I: $[A] = 0.1 \text{ M}$, $[B] = 0.2 \text{ M}$, Rate = 0.001. Set II: $[A] = 0.2 \text{ M}$, $[B] = 0.2 \text{ M}$, Rate = 0.004. Set III: $[A] = 0.2 \text{ M}$, $[B] = 0.8 \text{ M}$, Rate = 0.008. The order of the reaction is

- (A) 1 (B) 2
(C) 2.5 (D) 3

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

70. Which solution has the highest pH?

- (A) 0.01 M CaCl_2 (B) 0.01 M KNO_2
(C) 0.01 M CH_3COOH (D) 0.01 M CH_3COCH_3

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

71. The minimum number of H^+ ions that can be released by an amino acid is

- (A) 1 (B) 2
(C) 3 (D) 4

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

72. Which of the following molecular structures is NOT possible?

- (A) OF_2 (B) SF_2
(C) OF_4 (D) SF_4

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

73. K_p for the reaction given below is 1.36 at 499 K. Which of the following equations can be used to calculate K_c for this reaction? $\text{N}_2\text{O}_5(\text{g}) \rightarrow \text{N}_2\text{O}_3(\text{g}) + \text{O}_2(\text{g})$

(A) $K_c = \frac{(0.0821) \times (499)}{1.36}$

(B) $K_c = \frac{(1.36) \times (0.0821)}{499}$

(C) $K_c = \frac{1.36}{(0.0821) \times (499)}$

(D) $K_c = \frac{(1.36) \times (499)}{0.0821}$

[3 marks, -1 for a wrong answer]

ANSWER: C

No solution stored for this question.

74. A 55-kDa protein was acid hydrolysed to obtain a mixture of amino acids. How many amino acids could be present in the solution?

(A) 550

(B) 500

(C) 1000

(D) 1100

[3 marks, -1 for a wrong answer]

ANSWER: B

No solution stored for this question.

75. Which of the following phenols is most soluble in aqueous sodium bicarbonate?

(A) 2,4-dihydroxyacetophenone

(B) p-cyanophenol

(C) 3,4-dicyanophenol

(D) 2,4,6-tricyanophenol

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

76. 6.24 g of ethanol are vaporized by supplying 5.89 kJ of heat energy. What is the enthalpy of vapourisation of ethanol?

(A) 43.42 kJ

(B) 47.0 kJ

(C) 21.75 kJ

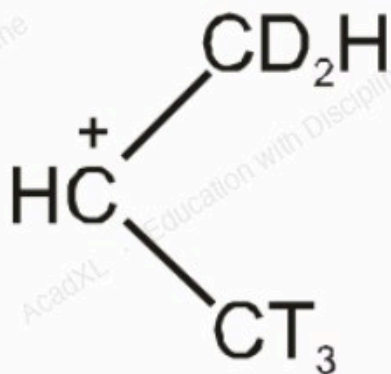
(D) 435.0 kJ

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

77. How many hyperconjugative structures are possible in the following carbocation?



- (A) 1 (B) 3
(C) 5 (D) 6

[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

78. The ions which give black precipitates on passing H_2S gas in acidic medium are

- (A) Al^{3+} and Ni^{2+} (B) Ni^{2+} and Co^{2+}
(C) Cu^{2+} and Bi^{3+} (D) Zn^{2+} and Mn^{2+}

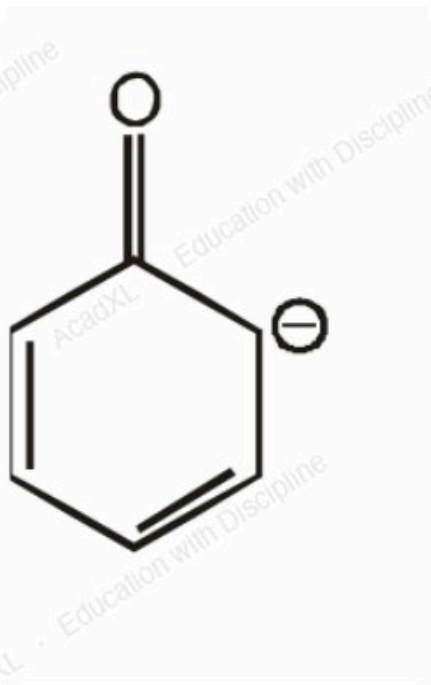
[3 marks, -1 for a wrong answer]

ANSWER: C

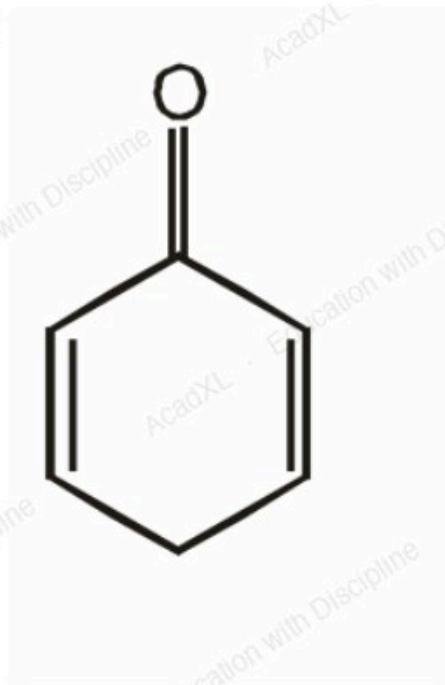
No solution stored for this question.

79. Which of the following is not a resonating structure for the phenoxide ion?

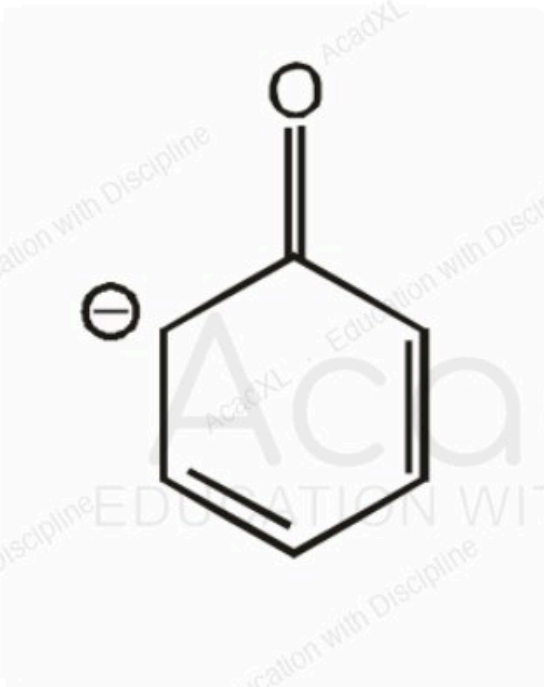
(A)



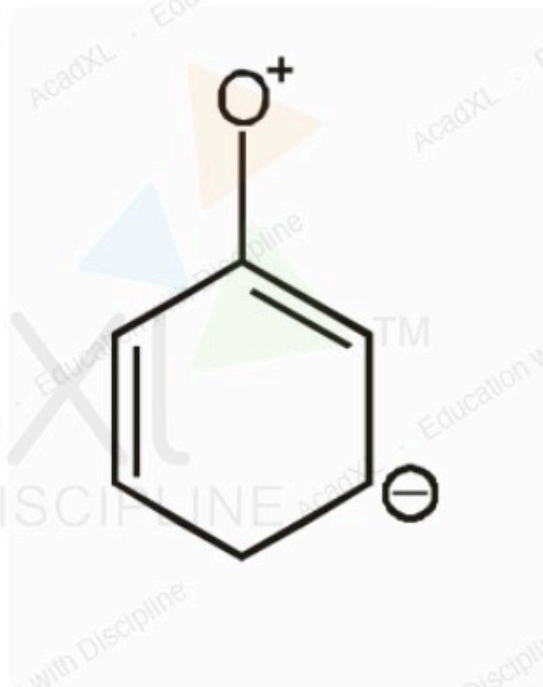
(B)



(C)



(D)

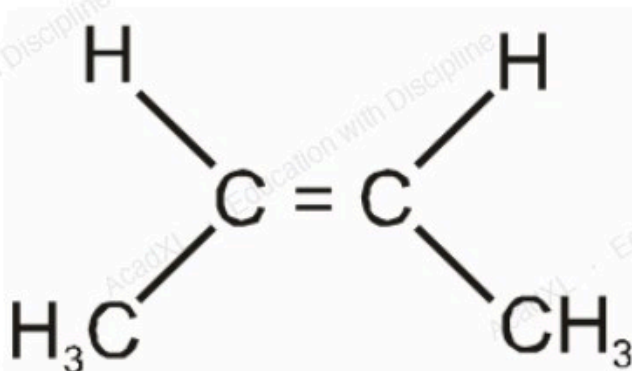


[3 marks, -1 for a wrong answer]

ANSWER: D

No solution stored for this question.

80. Which of the following statements is true for the reaction given below? (cis-2-butene treated with alkaline KMnO_4 to give P)



- (A) P is a meso compound 2,3-butanediol formed by syn addition. (B) P is a meso compound 2,3-butanediol formed by anti addition.
- (C) P is a racemic mixture of d- and l-2,3-butanediol formed by anti addition. (D) P is a racemic mixture of d- and l-2,3-butanediol formed by syn addition.

[3 marks, -1 for a wrong answer]

ANSWER: A

No solution stored for this question.

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Answer key

1. B	2. B	3. B	4. C	5. A	6. C
7. B	8. C	9. B	10. C	11. B	12. B
13. A	14. C	15. A	16. D	17. B	18. C
19. B	20. A	21. B	22. B	23. A	24. B
25. B	26. B	27. A, B	28. A	29. B	30. D
31. D	32. A	33. A	34. A	35. A	36. C
37. C	38. A	39. C	40. C	41. C	42. D
43. C	44. B	45. C	46. B	47. B	48. C
49. D	50. A	51. A	52. B	53. D	54. B
55. D	56. C	57. D	58. C	59. B	60. A
61. B	62. C	63. B	64. A	65. A	66. A
67. C	68. C	69. C	70. B	71. A	72. C
73. C	74. B	75. D	76. A	77. D	78. C
79. D	80. A				

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