CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET TEST 25

Chemistry

1. A 600 W mercury lamp emits monochromatic radiation of wavelength 331.3 nm. How many photons are emitted from the lamp per second?

$\left(h = 6.626 \times 10^{-34} \text{ Js, velocity of light } = 3 \times 10^8 ms^{-1}\right)$

A. 1×10^{21}

B. 1×10^{23}

C. 1×10^{22}

D. 1×10^{20}

Answer: A

▶ **Watch Video Solution**

2. The shortest wavelength in hydrogen spectrum of Lyman

series when $R_H = 109678cm^{-1}$ is :-

A. 1215.67Å

B. 1002.7Å

C. 911.7Å

D. 1234.7Å

Answer: C

3. Which of the following statements is false?

A. HCl molecule has one sigma bond

B. Acetylene molecule has three pi bonds and three

sigma bonds

C. Ethylene molecule has five sigma bonds and one pi

bond

D. Water molecule has two sigma bonds and two lone

pairs

Answer: B

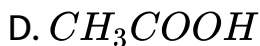**4.** N_2 and O_2 are converted into monocations, N_2^+ and O_2^+ respectively. Which of the following is wrong?

A. N_2^+ becomes diamagnetic

B. In O_2^+, paramagnetism decreases

C. In O_2^+, the bond order increases

D. In N_2^+ the $N - N$ bond is weakened.

Answer: A

5. Which one of the following has intramolecular H -bonding ?

A. H_2O

B. o-nitrophenol

C. NH_3

D. CH_3COOH

Answer: B

▶ Watch Video Solution

6. 56 g of nitrogen and 96 g of oxygen are mixed isothermally and at a total pressure of 10 atm. The partial pressures of oxygen and nitrogen (in atm) are respectively

A. 5, 5

B. 2, 8

C. 6, 4

D. 8, 2

Answer: C

▶ **Watch Video Solution**

7. How much time (in hours) would it take to distribute one Avogadro number of wheat grains if 10^{20} grains are distributed each second?

A. 16.73

B. 1.673

C. 167.3

D. 1673

Answer: B

---

8. Calculate the standard enthalpy change (in kJ mol^{-1}) for the reaction $H_2(g) + O_2(g) \rightarrow H_2O_2(g)$, given that bond enthalpy of H-H, O=O,O-H and O-O (in kJ mol^{-1}) are respectively 438, 498, 464 and 138.
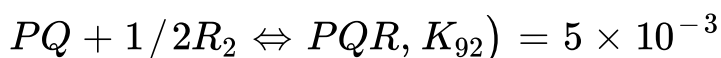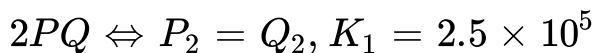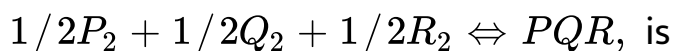
A. -334

B. -130

C. $+334$

D. $+130$

Answer: B

> ▶ Watch Video Solution

9. Consider the following reactions in which all the reactants and the products are in gaseous state.

$2PQ \Leftrightarrow P_2 = Q_2, K_1 = 2.5 \times 10^5$

$PQ + 1/2R_2 \Leftrightarrow PQR, K_{92}) = 5 \times 10^{-3}$

The value of K_2 for the equilibrium

$1/2P_2 + 1/2Q_2 + 1/2R_2 \Leftrightarrow PQR$, is

A. 2.5×10^3

B. 5×10^3

C. 5×10^{-3}

D. 1.0×10^{-5}

Answer: D

▶ **Watch Video Solution**

---

10. The amount of solute (molar mass 60 g mol^{-1}) that must be added to 180 g of water so that the vapour pressure of water is lowered by 10 % is

A. 66.67 g

B. 120 g

C. 30 g

D. 24 g

Answer: A

11. 200 ml of water is added of 500 ml of 0.2 M solution.

What is the molarity of this diluted solution?

    A. 0.7093 M

    B. 0.1428 M

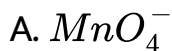   C. 0.4005 M

    D. 0.2897 M

Answer: B

12. Which of the following species can function both as oxidizing as well as reducing agent?

A. MnO_4^-

B. NO_3^-

C. ClO_4^-

D. aaeaq

Answer: D

▶ **Watch Video Solution**

13. One Faraday of electricity is pa ssed through molten Al_2O_3, aqeusous solution of $CuSO_4$ and molten NaCl taken in three different electrolytic cells connected in seris.

The mole ratio of Al, Cu,Na deposted at the respective cathode is

A. $2:3:6$

B. $6:3:2$

C. $1:2:3$

D. $3:6:2$

Answer: A

▶ **Watch Video Solution**

---

14. Choose the incorrect match :

A. $K[PtCl_3(C_2H_4)]$: Zeise's salt

B. $Fe(CO)_5$: Trigonal bipyramidal

C. $[Co(NH_3)_6]^{3+}$: Inner orbital complex

D. $[Cr(NH_3)_6]^{3+}$: Diamagnetic

Answer: D

▶ **Watch Video Solution**

15. Which of the following solutions will have the highest boiling point?

A. 0.1 M $FeCl_3$

B. 0.1 M $BaCl_2$

C. 0.1 M $NaCl$

D. 0.1 M urea

Answer: A

16. The first (ΔH_1) and second (ΔH_2) ionisation enthalpies (in $kJmol^{-1}$) and the (ΔH_{eg}) electron gain enthalpy (in $kJmol^{-1}$) of a elements are given below:

	Element	ΔH_1	ΔH_2	$\Delta_{eg}H$
1.	P	520	7300	−60
2.	Q	419	3051	−48
3.	R	1681	3374	−328
4.	S	1008	1846	−295
5.	T	2372	5251	+48
6.	U	738	1451	−40

Based on the above information match the following

columns.

Column-I		Column-II	
(a) The least reactive element	(p)	R	
(b) The most reactive metal is	(q)	S	
(c) The most reactive non-metal is	(r)	T	
(d) The non=metal with least oxidising power(other than zero group element)	(s)	Q	

A. V and II

B. II and V

C. V and III

D. IV and V

Answer: B

▶ Watch Video Solution

17. Which of the following undergoes reduction with H_2O_2 in an alkaline medium ?

    A. Mn^{2+}

    B. Fe^{2+}

    C. PbS

    D. $HOCl$

Answer: D

> ▶ **Watch Video Solution**

---

18. The metal that produces red violet colour in the non - luminous flame is

A. Zn

B. Ag

C. Rb

D. Pb

Answer: C

▶ **Watch Video Solution**

19. Among the oxyacids of phosphorous the dibasic acid is

A. H_3PO_2

B. $H_4P_2O_7$

C. HPO_3

D. H_3PO_3

Answer: D

▶ **Watch Video Solution**

---

20. Mark the correct statements(s)

(1) Manganeses exhibits $+7$ oxidation state

(2) Zinc forms coloured ions

(3) $[CoF_6]^{3-}$ is diamagnetic

(4) Sc forms $+4$ oxidation state
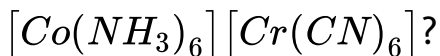
(5) Zn exhibits only $+2$ oxidation state

A. (i) and (ii)

B. (ii) and (iv)

C. (iii) and (iv)

D. (i) and (v)

Answer: D

▶ **Watch Video Solution**

---

21. Which among the following statement are true for the complex

$[Co(NH_3)_6][Cr(CN)_6]$?

(1) It is a non electrolyte

(2) The magnitude of the charge on each complex in is 3

(3) the complex will not conduct current.

(4) The complex will exhibit coordination isomerism

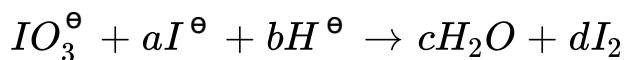(5) The magnitude of the charge on each complex ion is 1

A. 1 and 2

B. 1 and 3

C. 2 and 4

D. 3 and 5

Answer: C

▶ **Watch Video Solution**

22. In the balanced chemical reaction

$$IO_3^{\ominus} + aI^{\ominus} + bH^{\ominus} \rightarrow cH_2O + dI_2$$

a, b, c, and d, respectively, correspond to

A. 5, 6, 3, 3

B. 5, 3, 6, 3

C. 3, 5, 3, 6

D. 5, 6, 5, 5

Answer: A

---

23. Halogens exist in $-1, +1, +3, +5$ and $+7$ oxidation states. The halogen that exists only -1 state is

A. Cl

B. I

C. F

D. Br

Answer: C

24. In petrochemical industry , alcohols are directly converted to gasoline by passing over heated :-

A. Platinum

B. Nickel

C. Palladium

D. ZSM - 5

Answer: D

25. In Lassaigne's test for the detection of halogen , the sodium fusion extract is first boiled with concentrated nitric acid . This is

A. To dissolve Ag_2S

B. To remove silver halides

C. To decompose Na_2S and $NaCN$, if present
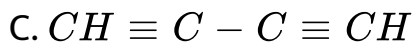
D. Because Ag_2S and $AgCN$ are insoluble in nitric acid

Answer: C

▶ **Watch Video Solution**
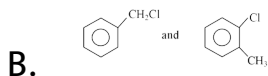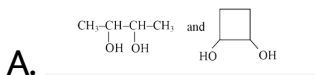
26. All carbon atoms are sp^2 hybridised in

A. $CH_2 = C = CH_2$

B. 1, 3- butadiene

C. $CH \equiv C - C \equiv CH$
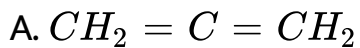
D. Cyclohexane

Answer: B

 Watch Video Solution

27. Which if the following pairs of compound is a ring chain isomer ?

A. $\underset{\underset{\text{OH OH}}{|}}{CH_3{-}CH{-}CH{-}CH_3}$ and

B. and

C. $CH_2{=}CH{-}CH_2OH$ and —OH

D. and —CH_2–CH_3
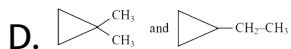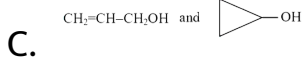
Answer: C

28. For two weak acids A and B, the ratio of their percent ionization is 4 : 9. The ratio of their Ka would be–
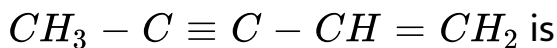
A. $4 : 9$

B. $2 : 3$

C. $16 : 81$

D. $3 : 2$

Answer: C

---

29. The maximum number of carbon atoms arranged linearly in the molecule,

$CH_3 - C \equiv C - CH = CH_2$ is

A. 5

B. 4

C. 2

D. 3

Answer: B

30. The number of atoms in a cubic based unit cell having one atom on each corner and two atoms on each body diagonal is
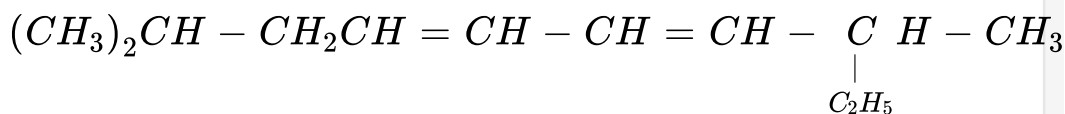
A. 8

B. 6

C. 4

D. 9

Answer: D

▶ Watch Video Solution

31. The IUPAC name of the following compound is

$$(CH_3)_2CH - CH_2CH = CH - CH = CH - \underset{\underset{C_2H_5}{|}}{C} H - CH_3$$

A. 2, 8-dimethyl -3, 6- decadiene

B. 1, 1, 7, 7 - tetramethyl -2, 5-octadiene

C. 2, 8- dimethyl - deca - 4, 6-diene

D. 3, 9- dimethyl -4, 6- decadiene

Answer: C

▶ **Watch Video Solution**

32. Chlorination of benzene in the presence of halogen

carrier is an example of :

A. Aromatic electrophilic substitution

B. Aromatic nucleophilic substitution

C. Aromatic electrolphilic addition

D. Aromatic nucleophilic addition

Answer: A

▶ **Watch Video Solution**

33. Aryl halides do not undergo uncleophilic substitution reactions under ordinary conditions because

(1) Approach of nucleophile is retarded

(2) Carbon carrying halogen atom is sp^3 hybridised

(3) The substrate molecule is destabilised due to resonance

(4) Partial double bond character between carbon and halogen

A. 2 and 3 only

B. 2, 3 and 4 only

C. 1 and 4 only

D. 1 and 3 only

Answer: C

▶ **Watch Video Solution**

34. The compressibility factor for a real gas at high pressure is .

A. 1

B. $1 + \dfrac{pb}{RT}$

C. $1 - \dfrac{pb}{RT}$

D. $1 + \dfrac{RT}{pb}$

Answer: B

▶ **Watch Video Solution**

35. Amine that cannot be prepared by Gabriel phthalimide synthesis is
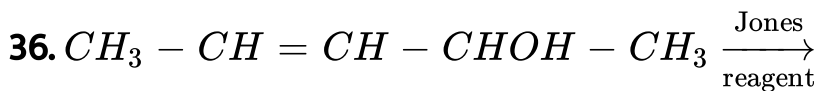
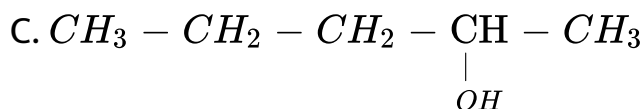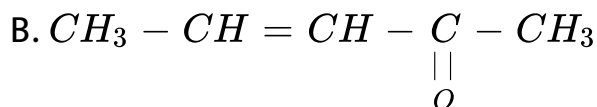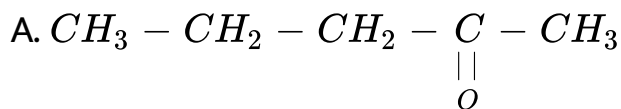   A. Benzyl amine

    B. Aniline

    C. iso - butylamine

    D. tertiary - butylamine

Answer: B

36. $CH_3 - CH = CH - CHOH - CH_3 \xrightarrow[\text{reagent}]{\text{Jones}}$

Product is ?

A. $CH_3 - CH_2 - CH_2 - \underset{\underset{O}{||}}{C} - CH_3$

B. $CH_3 - CH = CH - \underset{\underset{O}{||}}{C} - CH_3$

C. $CH_3 - CH_2 - CH_2 - \underset{\underset{OH}{|}}{CH} - CH_3$

D. $CH_3 - CH_2 - COOH$

Answer: B

37. Which of the following bases is not present in DNA ?

A. Adenine

B. Uracil

C. Cytosin

D. Guanine

Answer: B

▶ **Watch Video Solution**

38. Lactose is made of

A. $\alpha - D$-galactose and $\beta - D -$ glucose

B. $\alpha - D$ glucose and $\beta - D -$ glucose
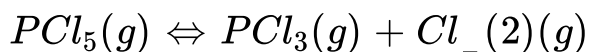
C. $\beta - D -$ galactose and $\beta - D -$ glucose

D. $\beta - D -$ galactose and $\alpha - D -$ glucose

Answer: C

▶ **Watch Video Solution**

39. For the reaction

$$PCl_5(g) \Leftrightarrow PCl_3(g) + Cl_{-}(2)(g)$$

The forward reaction at constant temperature is favoured by

A. Introducing an inert gas at constant volume

B. Introducing chlorine gas at constant volume

C. Introducing an inert gas at constant pressure

D. None of these

Answer: C

40. Cetyl trimethyl ammonium bromide is a :
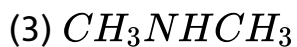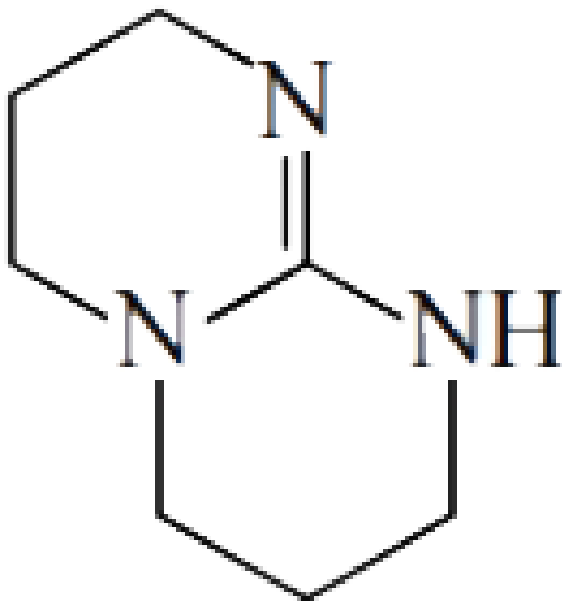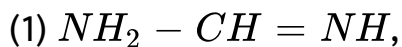
A. Cationic detergent

B. Anionic detergent

C. Non - ionic detergent

D. Antioxidant

Answer: A

41. The increasing order of PK_b for the following compounds will be

(1) $NH_2 - CH = NH,$

(3) CH_3NHCH_3

A. $(2) < (1) < (3)$

B. (3) lt (1) lt (2)

C. (2) lt (3) lt (1)

D. (1) lt (2) lt (3)

Answer: A

▶ **Watch Video Solution**

---

42. Purest form of commercial iron is :

A. Cast iron

B. Scarp iron and pig iron

C. Pig iron

D. Wrought iron

Answer: D

43. The electron gain enthalpy (in kJ//mol) of fluorine, chlorine, bromine and iodine, respectively ,are :

A. $-333, \ -349, \ -325 \ \text{and} \ -296$

B. $-349, \ -333, \ -325 \ \text{and} \ -296$

C. $-333, \ -325, \ -349 \ \text{and} \ -296$

D. $-296, \ -325, \ -333 \ \text{and} \ -349$

Answer: A

44. Which theory can explain bonding $Ni(CO)_4$

    A. Molecular orbital theory

    B. Crystal field theory

    C. Werner's theory

    D. Valence bond theory

Answer: A

▶ Watch Video Solution

45. Chlorine react with hot and concentrated $NaOH$ and produces compound (X) and (Y). Compound (X) gives white precipitate with silver nitrate solution. The average bond order between Cl and O atoms in (Y) is _____.

A. 1.67

B. 0.835

C. 2.67

D. 2

Answer: A

▶ **Watch Video Solution**