ChemGGuru

JEE Main Online Exam 2019

[Memory Based Paper]

Questions & Answer

11th January 2019 | Shift - I

CHEMISTRY

Q.1 Which of the following is amphoteric in nature

(1) $Mg(OH)_2$ (2) $Be(OH)_2$ (3) $Ca(OH)_2$ (4) $Sr(OH)_2$

Ans. **[2]**

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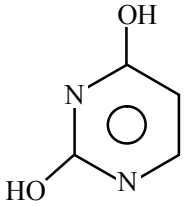
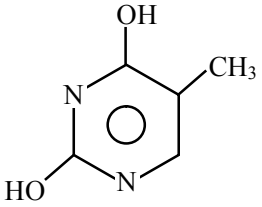
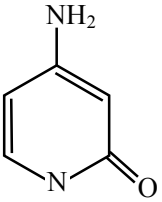
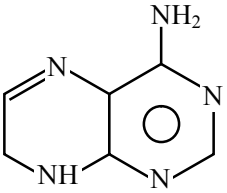
Q.2 Which of the following is present in RNA

(1) 

(2) 

(3) 

(4) 

Ans. **[1]**

Q.3 What is the correct order of atomic radius

C, Cs, Al, S

(1) Cs > C > S > Al (2) Al > S > C > Cs (3) Cs > Al > S > C (4) S > C > Cs > Al

Ans. **[3]**

Q.4 What is NaH

(1) Saline hydride (2) Metal hydride

(3) Molecular hydride (4) Electron rich hydride

Ans. **[2]**

Q.5 Which of the following will not get hydrolysed

(1) CCl_4 (2) $SiCl_4$ (3) $PbCl_4$ (4) $SnCl_4$

Ans. **[1]**

Q.6 PAN produce

(1) Acid rain (2) Wastage (3) Photochemical smog (4) Classical smog

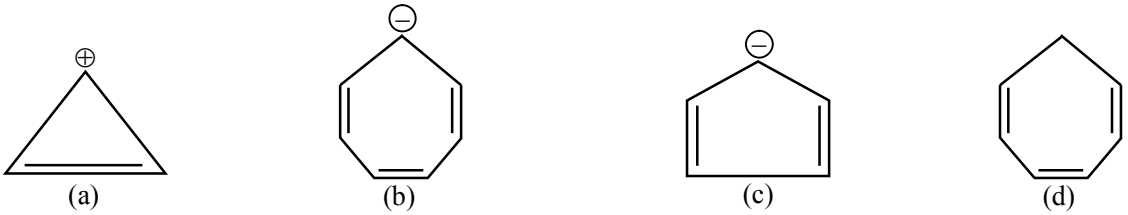
Ans. **[3]**

Q.7 Which of the following is solid Sol

(1) Butter (2) Paints (3) Gem stone (4) Cake

Ans. **[3]**

Q.8 Which of the following is/are not aromatic



(1) a, c (2) b, d only (3) only b (4) b, c, d

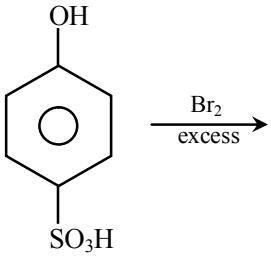
Ans. **[2]**

Q.9 Which of the following metal do not show variable Oxidation state -

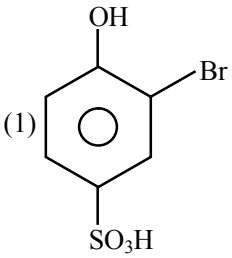
(1) Sc (2) Cu (3) Ni (4) Fe

Ans. **[1]**

Q.10



(1)



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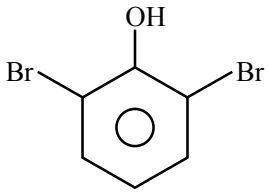

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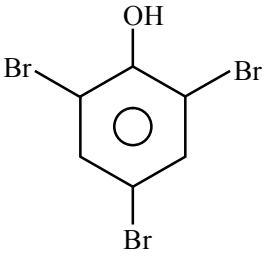

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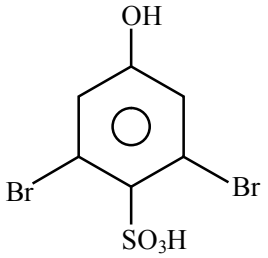


Ans. **[3]**

Q.11

Column – I	Column – II
(i) Zn	(a) Siderite
(ii) Fe	(b) Calamine
(iii) Cu	(c) Malachite
(iv) Al	(d) Kaolin

(1) (i – d), (ii – a), (iii – b), (iv – c)
(2) (i – d), (ii – b), (iii – c), (iv – a)
(3) (i – b), (ii – a), (iii – d), (iv – c)
(4) (i – b), (ii – a), (iii – c), (iv – d)

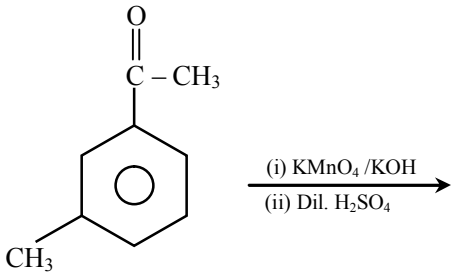
Ans. **[4]**

Q.12 Two substance having same mass and of same metal at temp T_1 and T_2 they attain thermal equilibrium at constant pressure, the change in entropy observed is -

(1) $\Delta S = Cp\ell n\frac{(T_1+T_2)^2}{4T_1T_2}$
(2) $\Delta S = 2Cp\ell n\frac{(T_1+T_2)^2}{2T_1T_2}$
(3) $\Delta S = 2Cp\ell n\frac{(T_1+T_2)}{T_1T_2}$
(4) $\Delta S = Cp\ell n\frac{(T_1+T_2)}{2T_1T_2}$

Ans. **[1]**

Q.13



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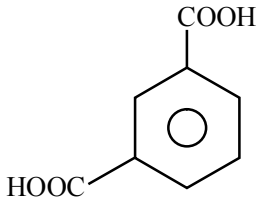

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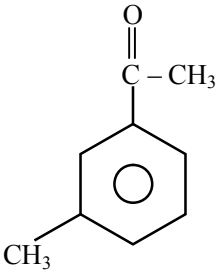

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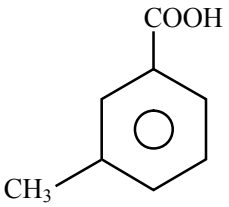

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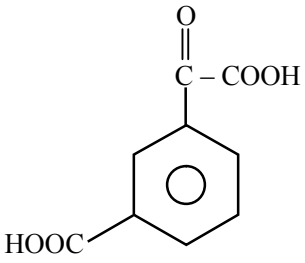
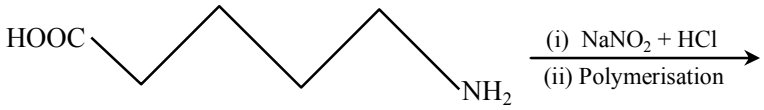
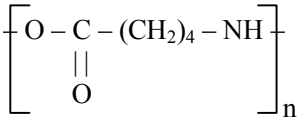
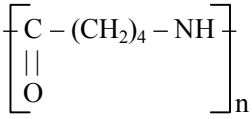
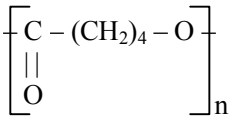


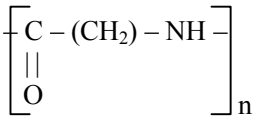
Ans. **[1]**

Q.14 

(1) 

(2) 

(3) 

(4) 

Ans. **[3]**

Q.15

Column – I	**Column – II**
(i) Ofloxacin	(P) Antibiotic drug
(ii) Norethindrone	(Q) Hyper tension remover drug
(iii) Phenalzine	(R) Anti fertility drug
	(S) Analgesic drug

(1) i – P, ii – R, iii – Q (2) i – R, ii – Q, iii – P

(3) i – S, ii – Q, iii – R (4) i – S, ii – P, iii – R

Ans. **[1]**

Q.16 H_2 can be used as better fuel because -

(a) It produce less pollution than petrol

(b) A cylinder of compressed H_2 gas weights about, 30 time as much as tank of petrol

(c) Hydrogen is stored in tank of $NaNi_5$ alloy

(d) It's calorific value is 50 KJ/mole and petrol has 120 KJ/mole

(1) b, c (2) b, c, d (3) a, b, c (4) b, d

Ans. **[3]**

Q.17 $Zn(s) / Zn^{+2} // M^{n+} / M$

$E^{o}_{Zn^{+2}/Zn} = -0.76\,V$

E^{o}_{cell} (i) $Ag^{+} + e^{-} \longrightarrow Ag_{(s)}$ + 0.80 V

(ii) $Au^{3+} + 3e^{-} \longrightarrow Au_{(s)}$ + 1.40 V

(iii) $Fe^{2+} + 2e^{-} \longrightarrow Fe_{(s)}$ –0.44 V

(iv) $Fe^{3+} + e^{-} \longrightarrow Fe^{2+}$ + 0.77 V

Which will have highest cell potential per unit e^{-} -

(1) Ag^{+}/Ag (2) Au^{+3}/Au (3) Fe^{+2}/Fe (4) Fe^{+3}/Fe^{+2}

Ans. **[1]**

Q.18 Match the following :

Column-I	Column-II
(a) water + sugar	(i) Sublimation
(b) water + toluene	(ii) Differential extraction
(c) water + aniline	(iii) Recrystallisation
	(iv) Steam Distillation

(1) a – (iii), b – (ii), c – (iv) (2) a – (ii), b – (iii), c – (i)
(3) a – (i), b – (iii), c – (iv) (4) a – (ii), b – (i), c – (iv)

Ans. **[1]**

Q.19 A metal crystallises in FCC haying edge length $200\sqrt{2}$ pm and density is 9×10^3 kg/m^3 than the molar mass of the metal is

(1) 0.036025 kg/mol (2) 0.020252 kg/mol (3) 0.010257 kg/mol (4) 0.040312 kg/mol

Ans. **[1]**

Q.20 A Duma process is done on A compound X and if 6 mole CO_2 is formed, 1 mole N_2 is formed and 4 mole of H_2O is formed what is X.

(1) $C_{12}H_{16}N$ (2) $C_{12}H_8N_2$ (3) $C_6H_8N_2$ (4) C_6H_8N

Ans. **[3]**

Q.21 $X \rightleftharpoons Y$

$\Delta G^0 = 120 - \frac{3}{8} \times T$

Which of the following is correct -

(1) At 315 K, X is formed (2) AT 280 K, Y is formed
(3) AT 350 K, X is formed (4) At 300 K, Y is formed

Ans. **[1]**

Q.22 For Hydrogen atom when electron transit from high energy state to low energy state, a photon of wavelength 900 nm is obtain, which of the following is correct -

(1) e^- jump from infinite to third energy state (Paschen series).
(2) e^- jump from 5th to fourth energy state (Bracket series)
(3) e^- jump from infinite to ground state [Lyman series]
(4) e^- jump from infinite to 2nd energy state [Balmer series]

Ans. **[3]**

Q.23 The equilibrium constant during Habers Process is K_p then find out the partial pressure of NH_3 according to the reaction, if total pressure at equilibrium is P.

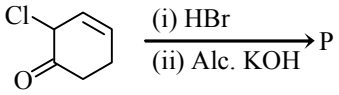
$$2NH_3 \rightleftharpoons N_2 + 3H_2$$

Assume the partial pressure of NH_3 very less in comparison to the total pressure -

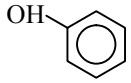
(1) $\frac{\left(\frac{3}{2}\right)^{3/2} P^2}{(K_p)^{1/2} \times 2^{1/2}}$ (2) $\frac{\left(\frac{3}{2}\right)^{3/2} P^2}{K_p \times 2^{1/2}}$ (3) $\frac{\left(\frac{3}{2}\right)^{3/2} P^2}{(K_p)^{1/2}}$ (4) $\frac{\left(\frac{3}{2}\right)^{2} P^2}{(K_p)^{1/2}}$

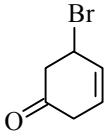
Ans. **[1]**

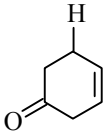
Q.24

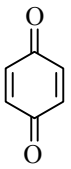


P is -

(1) 

(2) 

(3) 

(4) 

Ans. **[1]**

Q.25

(i)	Mg	(a)	Vitamin B_{12}
(ii)	Zn	(b	Chlorophyll
(iii)	Rh	(c)	Carboxy anhydrase
(iv)	Co	(d)	Wilkinson catalyst

(1) i – a; ii – b; iii – c; iv – d
(2) i – b; ii – a; iii – c; iv – d
(3) i – b; ii – c; iii – d; iv – a
(4) i – d; ii – b; iii – c; iv – a

Ans. **[3]**

Q.26 In a graph between ℓnk vs $\frac{1}{RT}$, gradient is – y then Ea will be -

(1) y/k (2) –y (3) + y (4) – yk

Ans. **[3]**

Q.27 A solution having freezing point –0.5ºC is diluted after dilution its freezing point become –0.2ºC, if initially 2 cups of water is present, then after dilution, how much H_2O is added -

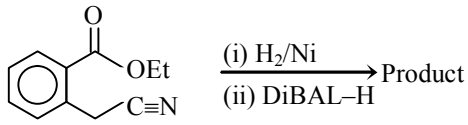
(1) 3 cups of H_2O (2) 2 cups of H_2O (3) 1 cups of H_2O (4) 4 cups of H_2O

Ans. **[1]**

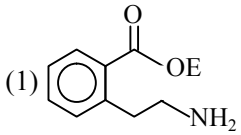
Q.28 The cold water can contain maximum dissolved oxygen -

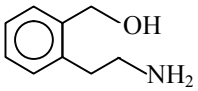
(1) 10 ppm (2) 6 ppm (3) 15 ppm (4) 20 ppm

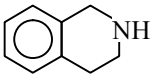
Ans. **[1]**

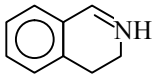
Q.29 

Product is -

(1) 

(2) 

(3) 

(4) 

Ans. **[4]**

Q.30 In a mixture of 0.1 g of $NaHCO_3$ & oxalic acid, 0.25 ml CO_2 is released at (P = 1bar, T = 298.5 K). At this temperature and pressure the molar volume of CO_2 is 25 lit. Then find out the % of sodium bicarbonate -

(1) 84 (2) 8.4 (3) 0.84 (4) 33.6

Ans. **[3]**