

# JEE Main Online Exam 2019

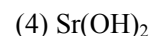
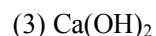
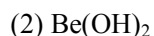
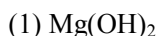
## [Memory Based Paper]

### Questions & Answer

11<sup>th</sup> January 2019 | Shift - I

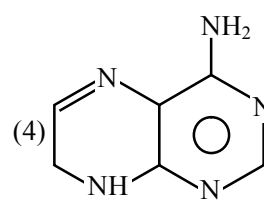
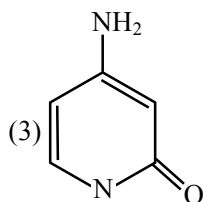
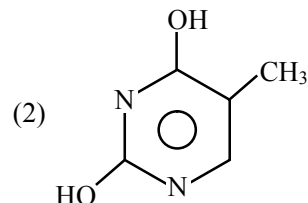
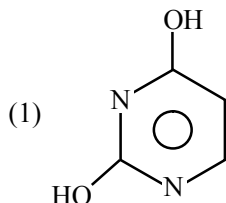
#### CHEMISTRY

**Q.1** Which of the following is amphoteric in nature



**Ans.** [2]

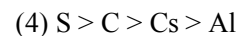
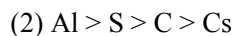
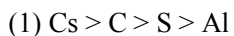
**Q.2** Which of the following is present in RNA



**Ans.** [1]

**Q.3** What is the correct order of atomic radius

C, Cs, Al, S



**Ans.** [3]

**Q.4** What is NaH

(1) Saline hydride

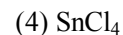
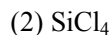
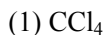
(2) Metal hydride

(3) Molecular hydride

(4) Electron rich hydride

**Ans.** [1]

**Q.5** Which of the following will not get hydrolysed



**Ans.** [1]

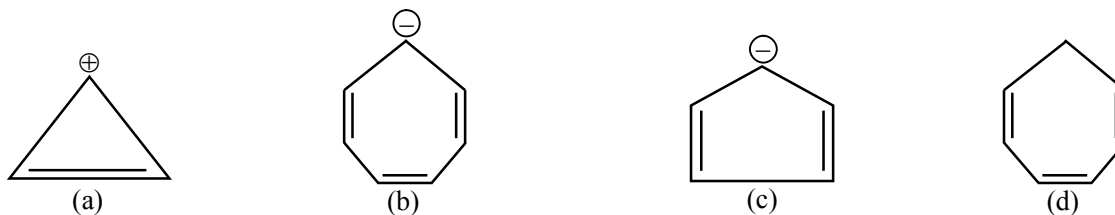
- Q.6** PAN produce  
(1) Acid rain (2) Wastage (3) Photochemical smog (4) Classical smog

**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



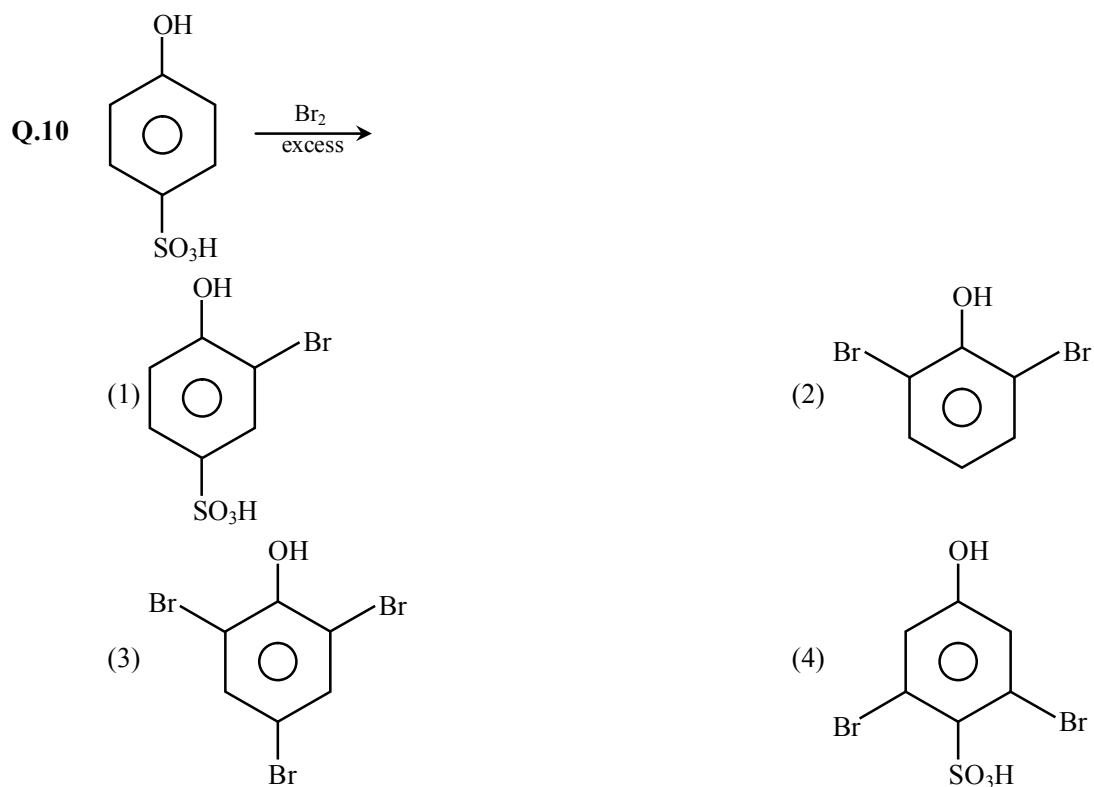
- (1) a, c (2) b, d only (3) only b (4) b, c, d

**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]



**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)

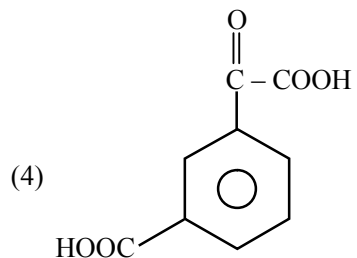
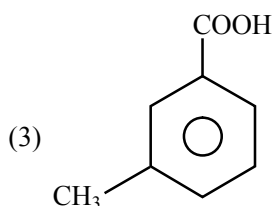
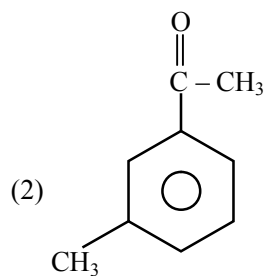
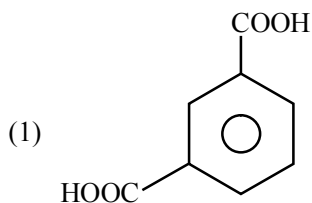
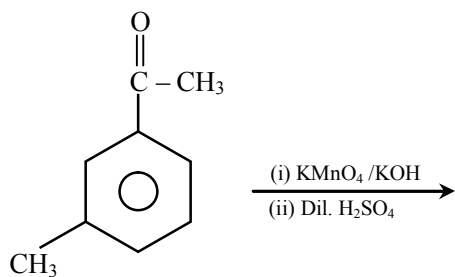
**Ans.** [4]

- 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 -

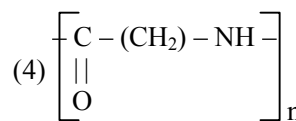
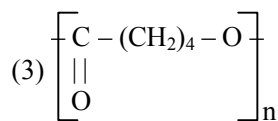
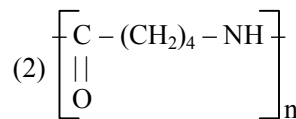
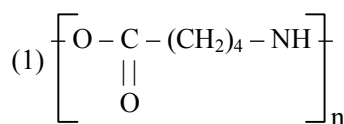
- (1)  $\Delta S = C_p \ln \frac{(T_1 + T_2)^2}{4T_1 T_2}$                       (2)  $\Delta S = 2C_p \ln \frac{(T_1 + T_2)^2}{2T_1 T_2}$   
(3)  $\Delta S = 2C_p \ln \frac{(T_1 + T_2)}{T_1 T_2}$                       (4)  $\Delta S = C_p \ln \frac{(T_1 + T_2)}{2T_1 T_2}$

**Ans.** [1]

**Q.13**



**Ans.** [1]



Ans. [3]

Q.15 **Column – I**

- (i) Ofloxacin  
(ii) Norethindrone  
(iii) Phenazine

**Column – II**

- (P) Antibiotic drug  
(Q) Hyper tension remover drug  
(R) Anti fertility drug  
(S) Analgesic drug

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

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

Ans. [1]

Q.16 H<sub>2</sub> can be used as better fuel because -

- (a) It produce less pollution than petrol  
(b) A cylinder of compressed H<sub>2</sub> gas weights about, 30 time as much as tank of petrol  
(c) Hydrogen is stored in tank of NaNi<sub>5</sub> 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<sup>+2</sup> // M<sup>n+</sup> / M

$$E_{\text{Zn}^{+2}/\text{Zn}}^{\circ} = -0.76 \text{ V}$$

- $E_{\text{cell}}^{\circ}$  (i)  $\text{Ag}^{+} + \text{e}^{-} \longrightarrow \text{Ag}_{(\text{s})}$                                       + 0.80 V  
(ii)  $\text{Au}^{3+} + 3\text{e}^{-} \longrightarrow \text{Au}_{(\text{s})}$                                       + 1.40 V  
(iii)  $\text{Fe}^{2+} + 2\text{e}^{-} \longrightarrow \text{Fe}_{(\text{s})}$                                       -0.44 V  
(iv)  $\text{Fe}^{3+} + \text{e}^{-} \longrightarrow \text{Fe}^{2+}$                                       + 0.77 V

Which will have highest cell potential per unit e<sup>-</sup> -

- (1) Ag<sup>+</sup>/Ag                                      (2) Au<sup>+3</sup>/Au                                      (3) Fe<sup>+2</sup>/Fe                                      (4) Fe<sup>+3</sup>/Fe<sup>+2</sup>

Ans. [1]

Q.18 Match the following :

**Column-I**

- (a) water + sugar  
(b) water + toluene  
(c) water + aniline

**Column-II**

- (i) Sublimation  
(ii) Differential extraction  
(iii) Recrystallisation  
(iv) Steam Distillation

(1) a – (iii), b – (ii), c – (iv)

(3) a – (i), b – (iii), c – (iv)

(2) a – (ii), b – (iii), c – (i)

(4) a – (ii), b – (i), c – (iv)

Ans. [1]

Q.19 A metal crystallises in FCC having edge length  $200\sqrt{2}$  pm and density is  $9 \times 10^3$  kg/m<sup>3</sup> then 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<sub>2</sub> is formed, 1 mole N<sub>2</sub> is formed and 4 mole of H<sub>2</sub>O is formed what is X.

(1) C<sub>12</sub> H<sub>16</sub> N

(2) C<sub>12</sub> H<sub>8</sub> N<sub>2</sub>

(3) C<sub>6</sub> H<sub>8</sub> N<sub>2</sub>

(4) C<sub>6</sub> H<sub>8</sub> N

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 obtained, which of the following is correct -

(1) e<sup>-</sup> jump from infinite to third energy state (Paschen series).

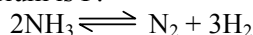
(2) e<sup>-</sup> jump from 5<sup>th</sup> to fourth energy state (Bracket series)

(3) e<sup>-</sup> jump from infinite to ground state [Lyman series]

(4) e<sup>-</sup> jump from infinite to 2<sup>nd</sup> energy state [Balmer series]

Ans. [3]

Q.23 The equilibrium constant during Habers Process is K<sub>p</sub> then find out the partial pressure of NH<sub>3</sub> according to the reaction, if total pressure at equilibrium is P.



Assume the partial pressure of NH<sub>3</sub> very less in comparison to the total pressure -

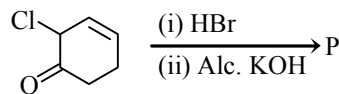
(1)  $\frac{\left(\frac{3}{2}\right)^{3/2} P^2}{(K_p)^{1/2} \times 2^{1/2}}$

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

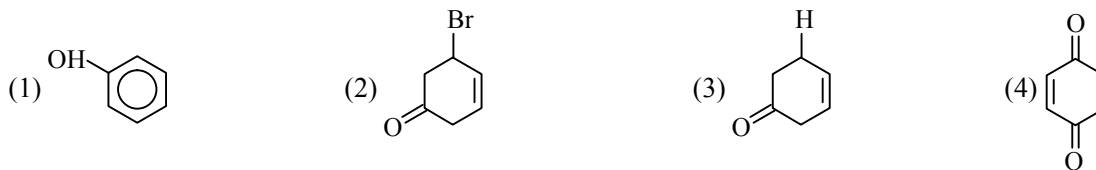
(3)  $\frac{\left(\frac{3}{2}\right)^{3/2} P^2}{(K_p)^{1/2}}$

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

Ans. [1]

**Q.24**


P is -


**Ans. [1]**
**Q.25**

(i)	Mg	(a)	Vitamin B <sub>12</sub>
(ii)	Zn	(b)	Chlorophyll
(iii)	Rh	(c)	Carboxy anhydrase
(iv)	Co	(d)	Wilkinson catalyst

(1) i - a; ii - b; iii - c; iv - d

(3) i - b; ii - c; iii - d; iv - a

(2) i - b; ii - a; iii - c; iv - d

(4) i - d; ii - b; iii - c; iv - a

**Ans. [3]**
**Q.26** In a graph between  $\ln k$  vs  $\frac{1}{RT}$ , gradient is  $-y$  then  $E_a$  will be -

 (1)  $y/k$ 

 (2)  $-y$ 

 (3)  $+y$ 

 (4)  $-yk$ 
**Ans. [3]**
**Q.27** A solution having freezing point  $-0.5^\circ\text{C}$  is diluted after dilution its freezing point become  $-0.2^\circ\text{C}$ , if initially 2 cups of water is present, then after dilution, how much  $\text{H}_2\text{O}$  is added -

 (1) 3 cups of  $\text{H}_2\text{O}$ 

 (2) 2 cups of  $\text{H}_2\text{O}$ 

 (3) 1 cups of  $\text{H}_2\text{O}$ 

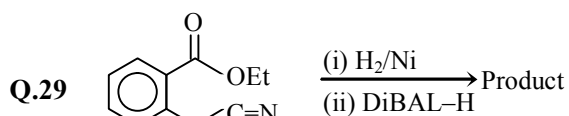
 (4) 4 cups of  $\text{H}_2\text{O}$ 
**Ans. [1]**
**Q.28** The cold water can contain maximum dissolved oxygen -

(1) 10 ppm

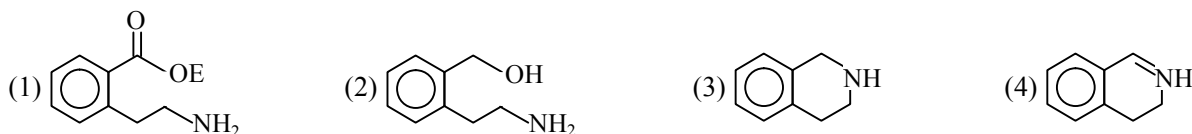
(2) 6 ppm

(3) 15 ppm

(4) 20 ppm

**Ans. [1]**


Product is -


**Ans. [4]**
**Q.30** In a mixture of 0.1 g of  $\text{NaHCO}_3$  & oxalic acid, 0.25 ml  $\text{CO}_2$  is released at ( $P = 1\text{bar}$ ,  $T = 298.5\text{K}$ ). At this temperature and pressure the molar volume of  $\text{CO}_2$  is 25 lit. Then find out the % of sodium bicarbonate -

(1) 84

(2) 8.4

(3) 0.84

(4) 33.6

**Ans. [3]**