



Resonance[®]
Educating for better tomorrow

SUBJECT : CHEMISTRY

KARNATAKA COMMON ENTRANCE TEST (KCET) 2019

Date: 30 April, 2019 | Total Duration: 80 Minutes

Maximum Time for Answering: 70 Min. | Max. Marks: 60

Dos :

1. Once again confirm whether the CET No. and name printed on the OMR Answer Sheet and the Admission Ticket are same.
2. This question booklet is issued to you by the invigilator after the 2' bell i.e., after 02.30 Pm.
3. Confirm whether the OMR Answer Sheet and the Question Paper issued to you are with same version code.
4. The Version Code and Serial Number of this question booklet should be entered on the Nominal Roll without any mistakes.
5. Compulsorily affix the complete signature at the bottom portion of the OMR answer sheet in the space provided.

DONTs :

1. The timing and marks printed on the OMR answer sheet should not be damaged / mutilated / spoiled.
2. The 3rd Bell rings at 02.40 pm, till then;
 - Do not remove the seal present on the right hand side of this question booklet.
 - Do not look inside this question booklet.
 - Do not start answering on the OMR answer sheet.

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains **60** questions and each question will have one statement and four distracters. (Four different options choices.)
2. After the 3rd Bell is rung at 02.40 pm, remove the seal on the right hand side of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced immediately by complete test booklet by showing it to Room Invigilator. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 70 minutes:
 - Read each question carefully.
 - Choose the correct answer from out of the four available distracters (options / choices) given under each question / statement.
 - Completely darken / shade the relevant circle with a blue or black ink ballpoint pen against the question number on the OMR answer sheet.

CORRECT METHOD	WRONG METHOD

4. Please note that even a minute unintended ink dot on the OMR answer sheet will also be recognized and recorded by the scanner. Therefore, avoid multiple markings of any kind on the OMR answer sheet.
5. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same.
6. After the last bell is rung at 03.50 pm, stop writing on the OMR answer sheet and affix your left hand thumb impression on the OMR answer sheet as per the instructions.
7. Hand over the OMR answer sheet to the room invigilator as it is.
8. After separating the top sheet (KEA copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
9. Preserve the replica of the OMR answer sheet for a minimum period of ONE year.
10. In case of any discrepancy in the English and Kannada Versions, the English version will be taken as final.

Resonance Eduventures Ltd.

Registered & Corporate Office: CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.)-324005
Tel.No.: 0744-6607777, 3012100, 3012222, 6635555 | Toll Free: 1800 258 5555 | Fax: +91-022-39167222 | 08003 444 888

Website: www.resonance.ac.in | E-mail: contact@resonance.ac.in | CIN: U80302RJ2007PLC024029

Toll Free : 1800 258 5555 | 08003 444 888 | [facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu) | twitter.com/ResonanceEdu | www.youtube.com/resowatch | blog.resonance.ac.in

**HIGHEST number of CLASSROOM Students Qualified
for JEE (Advanced) 2019 from any Institute of India***

12465^{*}
(All are from Regular Classroom Program)

**with 8 classroom students in
top 100 in JEE Main 2019**



*Based on the information collected from
public domain till 7th May 2019

Top Category Ranks in JEE Main 2019

AIR-2, 4, 7 (ST)

Atin Bainada, Raja, Kuldeep Meena

AIR-11 (SC)

Anshul Navphule

Students qualified for
JEE Advanced 2019

8235

students from Repeaters' Batches

4230

students from Freshers' Batches

HIGHEST CLASSROOM GIRLS

Student Qualified for
JEE (Advanced) 2019
from any Institute of India*

1506

HIGHEST CLASSROOM HINDI MEDIUM

Students Qualified
for JEE (Advanced) 2019
from any Institute of India*

1450

All the above students are from Classroom Contact Program

For scholarship on the basis of JEE Main 2019, SMS RESO SCHO at 56677

**ADMISSIONS
OPEN
FOR 2019-20**

Classes: V to XII & XII+
Target: JEE (Main+Advanced)
JEE (Main) | AIIMS/ NEET
Pre-foundation | Commerce & CLAT

ResoNET Dates
9th & 16th June 2019

COURSE: VIJAY (JR)
FOR CLASS: XIII

Target: JEE (Main+Advanced) 2020

Course Starts from

10th JUNE 2019

Resonance Eduventures Limited

Registered & Corporate Office: CG Tower, A-46 & 52, IPIA, Near City Mall,
Jhalawar Road, Kota (Rajasthan) - 324005

Tel. No.: 0744-2777777, 2777700 | CIN: U80302RJ2007PLC024029

Toll Free:

1800 258 5555

website: www.resonance.ac.in

CHEMISTRY

1. The vitamin that helps in clotting of blood is

- (A) B₂ (B) K (C) A (D) C

Ans. (B)

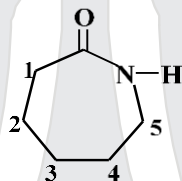
Sol. It is fact

2. The polymer containing five methylene groups in its repeating unit is

- (A) Dacron (B) Bakelite (C) Nylon 6, 6 (D) Nylon 6

Ans. (D)

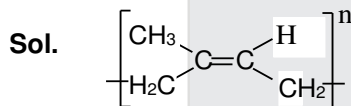
Sol. Nylon-6, the monomer has 5 methylene groups $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{COOH}$



3. Cis-1, 4-polyisoprene is called

- (A) Buna-S (B) Natural rubber
(C) Buna-N (D) Neoprene

Ans. (B)



Polyisoprene

4. Which cleansing agent gets precipitated in hard water?

- (A) Cetyl trimethyl ammonium bromide
(B) Sodium dodecyl benzene sulphonate
(C) Sodium lauryl sulphate
(D) Sodium stearate

Ans. (D)

Sol. $2\text{C}_{17}\text{H}_{35}\text{COONa} + \text{CaCl}_2 \rightarrow 2\text{NaCl} + (\text{C}_{17}\text{H}_{35}\text{COO})_2\text{Ca}$
insoluble calcium stearate (soap)

5. Anti-histamine among the following is

- (A) Amoxycillin (B) Chloroxylenol
(C) Bromopheneramine (D) Morphine

Ans. (C)

Sol. It is fact

6. The elements in which electrons are progressively filled in 4f orbital are called

- (A) Lanthanoids (B) Halogens
(C) Actinoids (D) Transition elements

Ans. (A)

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 73400 10333

[facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu)

twitter.com/ResonanceEdu

www.youtube.com/resowatch

blog.resonance.ac.in

7. Incorrect statement with reference to Ce (Z = 58)
 (A) Atomic size of Ce is more than that of Lu. (B) Ce shows common oxidation states of +3 and +4.
 (C) Ce⁴⁺ is a reducing agent. (D) Ce in +3 oxidation state is more stable than in +4.

Ans. (C)

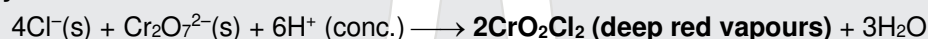
Sol. Ce⁴⁺ is an oxidizing agent.

8. A mixture of NaCl and K₂Cr₂O₇ is heated with conc. H₂SO₄, deep red vapours are formed. Which of the following statement is false?

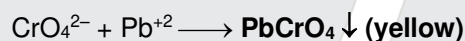
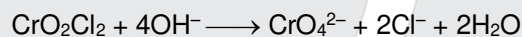
- (A) The vapours contain CrO₂Cl₂ and Cl₂.
 (B) The vapours when passed into lead acetate in acetic acid gives a yellow precipitate.
 (C) The vapours give a yellow solution with NaOH.
 (D) The vapours contain CrO₂Cl₂ only.

Ans. (A)

Sol. Chromyl chloride test:



When deep red vapours are passed into sodium hydroxide solution, a **yellow solution** of sodium chromate is formed, which when treated with lead acetate gives **yellow precipitate of lead chromate**.



9. Which of the following statement is wrong?
 (A) Metals in highest oxidation states are more stable in oxides than in fluorides.
 (B) All elements of 3d series exhibit variable oxidation states.
 (C) In highest oxidation states, the transition metals show acidic character.
 (D) Mn³⁺ and Co³⁺ are oxidizing agents in aqueous solution.

Ans. (B)

Sol. Zn doesn't exhibit variable oxidation states.

10. Which among the following is the strongest ligand?
 (A) CO (B) en (C) CN⁻ (D) NH₃

Ans. (A)

Sol. Synergic effect of σ and π bond.

11. Relative lowering of vapour pressure of a dilute solution of glucose dissolved in 1 kg of water is 0.002. The molality of the solution is

- (A) 0.111 (B) 0.021 (C) 0.004 (D) 0.222

Ans. (A)

Sol.
$$\frac{P^0 - P}{P^0} = \frac{W_2}{M_2} \times \frac{M_1}{W_1}$$

$$0.002 = \frac{W_2}{M_2} \times \frac{18}{1000}$$





$$\frac{W_2}{M_2} = 0.11 \text{ mole}$$

$$\text{Molality} = \frac{W_2}{M_2} \times \frac{1000}{W_1} = 0.11 \times \frac{1000}{1000} = 0.11 \text{ m}$$

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005
 Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 73400 10333  facebook.com/ResonanceEdu  twitter.com/ResonanceEdu  www.youtube.com/resowatch  blog.resonance.ac.in

12. One litre solution of MgCl_2 is electrolyzed completely by passing a current of 1A for 16 min 5 sec. The original concentration of MgCl_2 solution was (Atomic mass of Mg = 24)

(A) 0.5×10^{-3} M (B) 1.0×10^{-2} M (C) 5×10^{-3} M (D) 5×10^{-2} M

Ans. (C)

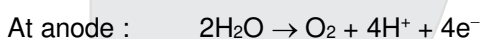
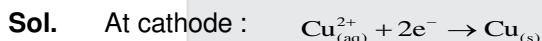
Sol. $m = \frac{EIZ}{96500} = \frac{12 \times 1 \times 965}{96500} = 12 \times 10^{-2}$ g

Molarity, $M = \frac{w_2}{M_2} \times \frac{1000}{V_{\text{sol}}} = \frac{12 \times 10^{-2}}{24} \times \frac{1000}{1000} = 0.5 \times 10^{-2} = 5 \times 10^{-3}$ M

13. An aqueous solution of CuSO_4 is subjected to electrolysis using inert electrodes. The pH of the solution will

(A) decrease
(B) increase or decrease depending on the strength of the current
(C) increase
(D) remains unchanged

Ans. (A)



Production of H^+ ions will decrease pH.

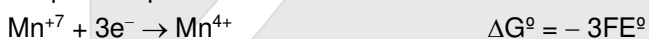
14. Given: $E_{\text{Mn}^{+7}|\text{Mn}^{+2}}^0 = 1.5$ V and $E_{\text{Mn}^{+4}|\text{Mn}^{+2}}^0 = 1.2$ V, then $E_{\text{Mn}^{+7}|\text{Mn}^{+4}}^0$ is

(A) 1.7 V (B) 2.1 V (C) 0.3 V (D) 0.1 V

Ans. (A)



Required equation



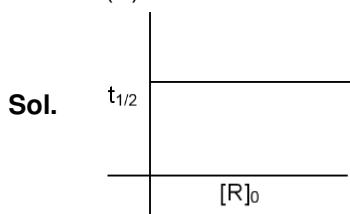
$\therefore -3FE^0 = -7.5 F + 2.4 F$

$\therefore E^0 = 1.7$ V

15. The plot of $t_{1/2}$ v/s $[\text{R}]_0$ for a reaction is a straight-line parallel to x-axis. The unit for the rate constant of this reaction is

(A) $\text{L mol}^{-1} \text{s}^{-1}$ (B) s^{-1} (C) $\text{mol L}^{-1} \text{s}$ (D) $\text{mol L}^{-1} \text{s}^{-1}$

Ans. (B)



$t_{1/2}$ is independent of initial concentration of the reactant and is first order reaction.

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

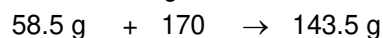
Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 73400 10333 [facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu) twitter.com/ResonanceEdu www.youtube.com/resowatch blog.resonance.ac.in

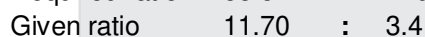
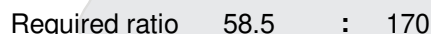
16. The mass of AgCl precipitated when a solution containing 11.70 g of NaCl is added to a solution containing 3.4 g of AgNO₃ is [Atomic mass of Ag = 108, Atomic mass of Na = 23]

- (A) 2.87 g (B) 6.8 g (C) 5.74 g (D) 1.17 g

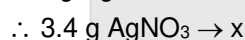
Ans. (A)



(Limiting reagent)



(limiting reagent)



$$x = \frac{3.4 \times 143.5}{170} = 2.87 \text{ g}$$

17. Two particles A and B are in motion. If the wavelength associated with 'A' is 33.33 nm, the wavelength associated with 'B' whose momentum is $\frac{1}{3}$ rd of 'A' is

- (A) 1.25×10^{-7} m (B) 1.0×10^{-7} m (C) 1.0×10^{-8} m (D) 2.5×10^{-8} m

Ans. (B)

Sol. $\frac{\lambda_A}{\lambda_B} = \frac{P_B}{P_A} \quad \frac{33.33}{\lambda_B} = \frac{1}{3}$

$\lambda_B = 99.99 \text{ nm} = 0.99 \times 10^{-7} \text{ m}$

18. The first ionization enthalpy of the following elements are in the order:

- (A) P < Si < C < N (B) Si < P < C < N (C) C < N < Si < P (D) P < Si < N < C

Ans. (B)

Sol. First ΔH_{IE} order is : Si < P < C < N

19. Solubility of AgCl is least in

- (A) 0.1 M BaCl₂ (B) 0.1 M AlCl₃ (C) 0.1 M NaCl (D) Pure water

Ans. (B)

Sol. This is due to common ion effect (Cl⁻).

20. Which of the following equations does NOT represent Charles's law for a given mass of gas at constant pressure?

(A) $\log K = \log V + \log T$

(B) $\frac{d(\ln V)}{dT} = \frac{1}{T}$

(C) $\frac{V}{T} = K$

(D) $\log V = \log K + \log T$

Ans. (A)





Sol. Charles law: $\frac{V}{T} = k$

Resonance Eduventures Limited

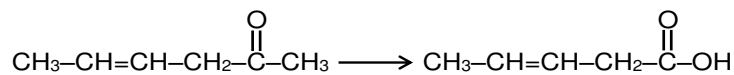
REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

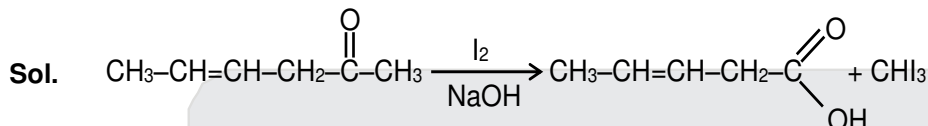
Toll Free : 1800 258 5555 73400 10333  facebook.com/ResonanceEdu  twitter.com/ResonanceEdu  www.youtube.com/resowatch  blog.resonance.ac.in

21. Which is the most suitable reagent for the following conversion?



- (A) Benzoyl peroxide (B) Sn and NaOH solution
(C) Tollen's reagent (D) I₂ and NaOH solution

Ans. (D)



22. Which of the following is least soluble in water at 298 K?

- (A) (CH₃)₂NH (B) C₆H₅NH₂ (C) CH₃NH₂ (D) (CH₃)₃N

Ans. (D)

Sol. "D" is least soluble as there is no scope of H-bonding.

23. If Aniline is treated with 1 : 1 mixture of conc. HNO₃ and con. H₂SO₄, p-nitroaniline and m-nitroaniline are formed nearly in equal amounts. This is due to

- (A) m & p directing property of -NH₂ group.
(B) isomerization of some p-nitroaniline into m-nitroaniline.
(C) m-directing property of -NH₂ group.
(D) protonation of -NH₂ which causes deactivation of benzene ring.

Ans. (D)

Sol. In presence of acid aniline gets protonated to anilinium ion which is meta directing.

24. In nucleic acids, the nucleotides are joined together by

- (A) Phosphodisulphide linkage (B) Sulphodiester linkage
(C) Phosphoester linkage (D) Phosphodiester linkage

Ans. (D)

Sol. It is fact

25. Which of the following is generally water insoluble?

- (A) Amylose (B) Glycine (C) Fibrous protein (D) Vitamin-C

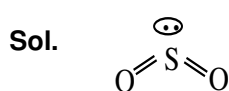
Ans. (C)

Sol. Fibrous proteins are generally insoluble in water

26. Which of the following possess net dipole moment?

- (A) BeCl₂ (B) CO₂ (C) SO₂ (D) BF₃

Ans. (C)



BeCl₂ and CO₂ have linear geometry and BF₃ has triangular planar geometry with zero dipole moment.

27. The number of π-bonds and σ-bonds present in naphthalene are respectively

- (A) 5, 11 (B) 5, 20 (C) 6, 19 (D) 5, 19

Ans. (D)

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

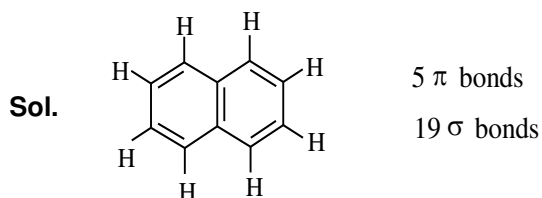
Toll Free : 1800 258 5555 73400 10333

facebook.com/ResonanceEdu

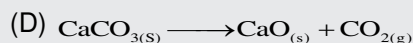
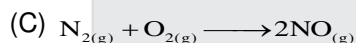
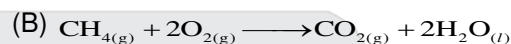
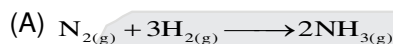
twitter.com/ResonanceEdu

www.youtube.com/resowatch

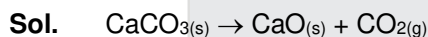
blog.resonance.ac.in



28. The reaction in which $\Delta H > \Delta U$ is



Ans. (D)



$\Delta n = +1$

$\Delta H = \Delta U + \Delta n_g RT$

$\Delta H > \Delta U$

29. The number of moles of electron required to reduce 0.2 mole of $Cr_2O_7^{2-}$ to Cr^{+3}

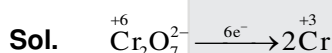
(A) 12

(B) 0.6

(C) 1.2

(D) 6

Ans. (C)



1 mol requires 6 mole of electrons

0.2 mol requires $\frac{0.2 \times 6}{1} = 1.2$ mol of electrons

30. In the reaction $B(OH)_3 + 2H_2O \longrightarrow [B(OH)_4]^- + H_3O^+$

$B(OH)_3$ functions as

(A) Bronsted acid

(B) Lewis acid

(C) Protonic acid

(D) Lewis base

Ans. (B)

Sol. Boric acid is a weak mono basic acid (not a protonic acid) but acts as a Lewis acid by accepting electrons from OH^- ions.

31. Match the following pKa values.

Acid		pKa	
(a)	Phenol	(i)	16
(b)	p-Nitrophenol	(ii)	0.78
(c)	Ethanol	(iii)	10
(d)	Picric acid	(iv)	7.1

	a	b	c	d		a	b	c	d
(A)	iii	i	iv	ii	(B)	iv	ii	iii	i
(C)	iii	iv	i	ii	(D)	ii	i	ii	iv

Ans. (C)





Sol. Presence of nitro group (EWG) increases the acidic strength, and picric acid is trinitrophenol.

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

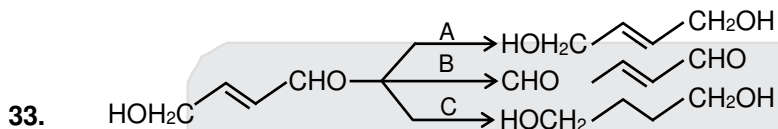
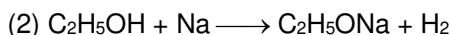
Toll Free : 1800 258 5555 73400 10333  facebook.com/ResonanceEdu  twitter.com/ResonanceEdu  www.youtube.com/resowatch  blog.resonance.ac.in

32. Which of the following can be used to test the acidic nature of ethanol?

- (A) NaHCO_3 (B) Na metal
(C) Blue litmus solution (D) Na_2CO_3

Ans. (B)

Sol. (1) With sodium metal, ethanol evolves H_2 gas.



The reagents A, B and C respectively are

- (A) NaBH_4 , PCC, H_2/Pd (B) H_2/Pd , alk. KMnO_4 , NaBH_4
(C) H_2/Pd , PCC, NaBH_4 (D) NaBH_4 , alk. KMnO_4 , H_2/Pd

Ans. (A)

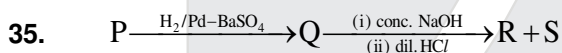
Sol. PCC and NaBH_4 does not affect the double bond

34. Propanoic acid undergoes HVZ reaction to give chloropropanoic acid. The product obtained is

- (A) weaker acid than propanoic acid (B) stronger than dichloropropanoic acid
(C) stronger acid than propanoic acid (D) as stronger as propanoic acid

Ans. (C)

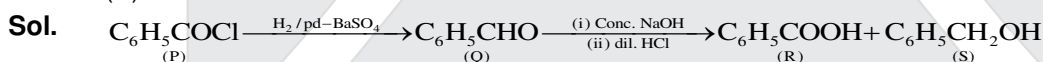
Sol. EWG increases the acidic strength



R and S form benzyl benzoate when treated with each other. Hence, P is

- (A) $\text{C}_6\text{H}_5\text{COCl}$ (B) $\text{C}_6\text{H}_5\text{COOH}$ (C) $\text{C}_6\text{H}_5\text{CHO}$ (D) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$

Ans. (A)



36. Which of the following is a network crystalline solid?

- (A) NaCl (B) Ice (C) I_2 (D) AlN

Ans. (D)

37. The number of atoms in 2.4 g of body centred cubic crystal with edge length 200 pm is

(density = 10 g cm^{-3} , $N_A = 6 \times 10^{23}$ atoms/mol)

- (A) 6×10^{23} (B) 6×10^{19} (C) 6×10^{22} (D) 6×10^{20}

Ans. (C)

Sol. $d = \frac{ZM}{a^3 N_A}$

$$M = \frac{d \times a^3 \times N_A}{Z} = \frac{10 \times (200)^3 \times 10^{-30} \times 6 \times 10^{23}}{2} = 24$$

24 g contains 6×10^{23}

2.4 g contains?

6×10^{22}

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 73400 10333 facebook.com/ResonanceEdu twitter.com/ResonanceEdu www.youtube.com/resowatch blog.resonance.ac.in

38. 1 mole of NaCl is doped with 10^{-5} mole of SrCl_2 . The number of cationic vacancies in the crystal lattice will be:

- (A) 6.022×10^{23} (B) 12.044×10^{20} (C) 6.022×10^{18} (D) 6.022×10^{15}

Ans. (C)

Sol. 1 mol SrCl_2 gives 1 cationic vacancy.

10^{-5} moles of SrCl_2 gives 10^{-5} mole cationic vacancies.

∴ The number of cationic vacancy in 1 moles of NaCl when it is doped with 10^{-5} moles of SrCl_2 is 6.022×10^{18} .

39. A non-volatile solute, 'A' tetramerises in water to the extent of 80%. 2.5 g of 'A' in 100 g of water, lowers the freezing point by 0.3°C . the molar mass of A in g mol^{-1} is (K_f for water = $1.86 \text{ K kg mol}^{-1}$)

- (A) 155 (B) 354 (C) 62 (D) 221

Ans. (C)

Sol. $\alpha = \frac{80}{100} = 0.8$

$$\alpha = \frac{1-i}{1-\frac{1}{n}} = \frac{1-i}{1-\frac{1}{4}}$$

$$0.8 = \frac{1-i}{\frac{3}{4}}$$

$$i = 0.4$$

$$\Delta T_f = 0.3$$

$$\Delta T_f = \frac{i \times K_f \times W_2 \times 1000}{M_2 \times 100}$$

$$M_2 = \frac{0.4 \times 1.86 \times 2.5 \times 10}{0.3}$$

$$M_2 = 62 \text{ g mol}^{-1}$$

40. Solution 'A' contains acetone dissolved in chloroform and solution 'B' contains acetone dissolved in carbon disulphide. The type of deviations from Raoult's law shown by solutions A and B, respectively are

- (A) Negative and negative (B) negative and positive
(C) Positive and positive (D) positive and negative

Ans. (B)

Sol. Acetone and chloroform – negative deviation

Acetone and carbon disulphide – positive deviation

41. Among the following, the main reactions occurring in blast furnace during extraction of iron from haematite are:



- (A) ii and iii (B) i and iv (C) i and ii (D) iii and iv





Ans. (B)

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

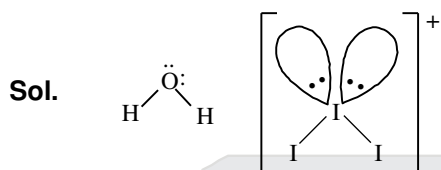
Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555  73400 10333  facebook.com/ResonanceEdu  twitter.com/ResonanceEdu  www.youtube.com/resowatch  blog.resonance.ac.in

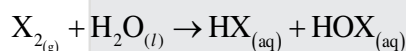
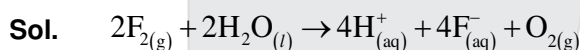
42. Which of the following pair contains 2 lone pair of electrons on the central atom?
 (A) XeF₄, NH₃ (B) SO₄²⁻, H₂S (C) I₃⁺, H₂O (D) H₂O, NF₃

Ans. (C)



43. Which of the following statement is correct?
 (A) F₂ oxidises H₂O to O₂ but Cl₂ does not (B) Fluoride is a good oxidizing agent
 (C) Cl₂ oxidises H₂O to O₂ but F₂ does not (D) Cl₂ is a stronger oxidizing agent than F₂

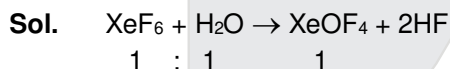
Ans. (A)



X = Cl₂ or Br₂

44. 0.1 mole of XeF₆ is treated with 1.8 g of water. The product obtained is
 (A) XeOF₄ (B) Xe + XeO₃ (C) XeO₃ (D) XeO₂F₂

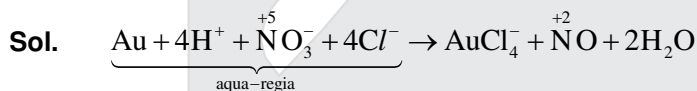
Ans. (A)



0.1 mole of XeF₆ reacts with 0.1 mol of H₂O (1.8 g) to give XeOF₄

45. In the reaction of gold with aquaregia, oxidation state of Nitrogen changes from
 (A) +5 to +2 (B) +3 to +1 (C) +4 to +2 (D) +6 to +4

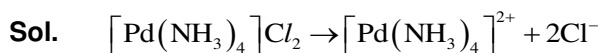
Ans. (A)



46. Addition of excess of AgNO₃ to an aqueous solution of 1 mole of PdCl₂·4NH₃ gives 2 moles of AgCl. The conductivity of this solution corresponds to

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

Ans. (A)



It is 1 : 2 i.e., AB₂ type of electrolyte.

47. The formula of penta aquanitrate chromium (III) nitrate is,
 (A) [Cr(H₂O)₅(NO₃)](NO₃)₂ (B) [Cr(H₂O)₅(NO₂)]NO₃
 (C) [Cr(H₂O)₆](NO₃)₃ (D) [Cr(H₂O)₆](NO₂)₂

Ans. (A)

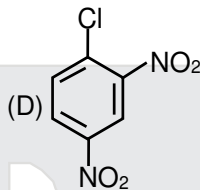
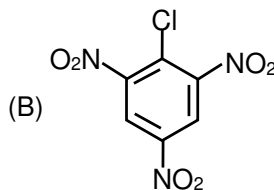
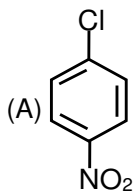
Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005
 Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 73400 10333 [facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu) twitter.com/ResonanceEdu www.youtube.com/resowatch blog.resonance.ac.in

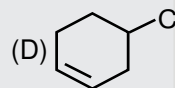
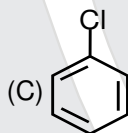
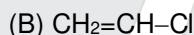
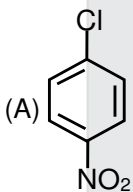
48. Which of the following halide undergoes hydrolysis on warming with water/aqueous NaOH?



Ans. (B)

Sol. As the number of electron withdrawing group at ortho and para position increases reactivity towards Nucleophilic substitution reaction increases.

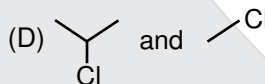
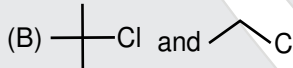
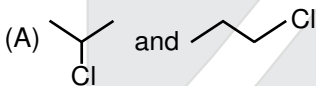
49. The compound having longest C - Cl bond is:



Ans. (D)

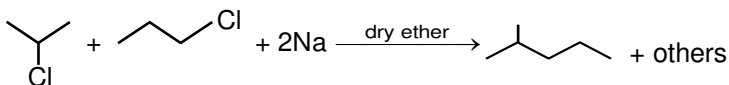
Sol. In this chlorine atom is attached to sp^3 hybridised carbon.

50. The alkyl halides required to prepare by Wurtz reaction are



Ans. (A)

Sol. Wurtz reaction



51. Which is a wrong statement?

(A) $\ln k$ vs $\frac{1}{T}$ plot is a straight line.

(B) Presence of catalyst will not alter the value of E_a

(C) Rate constant $k = \text{Arrhenius constant } A$: if $E_a = 0$

(D) $e^{-E_a/RT}$ gives the fraction of reactant molecules that are activated at the given temp

Ans. (B)

Sol. A catalyst will alter the value of E_a .

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005
Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

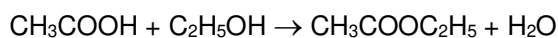
Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555 73400 10333 facebook.com/ResonanceEdu twitter.com/ResonanceEdu www.youtube.com/resowatch blog.resonance.ac.in

52. 1 L of 2 M CH₃COOH is mixed with 1 L of 3M C₂H₅OH to form an ester. The rate of the reaction with respect to the initial rate when each solution is diluted with an equal volume of water will be
(A) 0.5 times (B) 4 times (C) 0.25 times (D) 2 times

Ans. (C)

Sol. Esterification is a second order reaction



$$r = k [\text{CH}_3\text{COOH}] [\text{C}_2\text{H}_5\text{OH}]$$

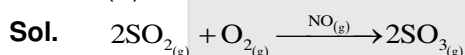
$$\text{Order} = 2$$

When equal volume of two solutions are mixed, concentration of the solutions reduces to half the initial value. Hence, rate of reaction gets reduced to $\frac{1}{4}$ initial rate.

53. Which of the following is an example of homogeneous catalysis?

- (A) Oxidation of SO₂ in lead chamber process
(B) Manufacture of NH₃ by Haber's process
(C) Oxidation of NH₃ in Ostwald's process
(D) Oxidation of SO₂ in contact process

Ans. (A)



The reactions and catalyst are in the same phase.

54. Critical Micelle concentration for a soap solution is $1.5 \times 10^{-4} \text{ mol L}^{-1}$. Micelle formation is possible only when the concentration of soap solution in mol L^{-1} is

- (A) 7.5×10^{-5} (B) 1.1×10^{-4} (C) 2.0×10^{-3} (D) 4.6×10^{-5}

Ans. (C)

Sol. For formation of micelles, concentration of soap should exceed CMC value

55. Oxidation state of copper is +1 in

- (A) Azurite (B) Chalcopyrite (C) Malachite (D) Cuprite

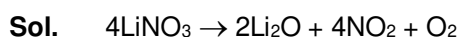
Ans. (D)

Sol. Cu₂O – Cuprite

56. The metal nitrate that liberates NO₂ on heating

- (A) KNO₃ (B) RbNO₃ (C) NaNO₃ (D) LiNO₃

Ans. (D)



57. Which of the following is NOT true regarding the usage of hydrogen as a fuel?

- (A) Combustion product is ecofriendly.
(B) Hydrogen gas can be easily liquefied and stored.
(C) High calorific value
(D) The combustible energy of hydrogen can be directly converted to electrical energy in a fuel cell.

Ans. (B)

Sol. Hydrogen is highly inflammable and hence storage is difficult.

Hydrogen has low critical temperature and hence not easily liquefiable.

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555

73400 10333

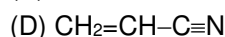
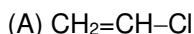
facebook.com/ResonanceEdu

twitter.com/ResonanceEdu

www.youtube.com/resowatch

blog.resonance.ac.in

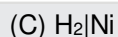
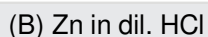
58. Resonance effect is not observed in



Ans. (B)

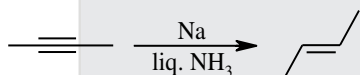
Sol. In $\text{H}_2\text{C}=\text{CH}-\text{CH}_2-\text{NH}_2$, the lone pair of N is not on adjacent carbon with π bond. (Not in conjugated system.)

59. 2-butyne is reduced to trans-but-2-ene using



Ans. (D)

Sol. Birch reduction



60. Eutrophication causes

(A) reduction in dissolved oxygen

(B) decreases BOD

(C) increase of nutrients in water

(D) reduction in water pollution

Ans. (A)

Sol. Eutrophication refers to excessive increases in minerals and nutrients in aquatic system. Resulting in excess of algae growth and reduction in dissolved oxygen.

Resonance Eduventures Limited

REGISTERED & CORPORATE OFFICE : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph.No. : 0744-2777777, 0744-2777700 | Toll Free : 1800 258 5555 | FAX No. : +91-022-39167222 | To Know more : sms RESO at 56677

Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555

73400 10333

[facebook.com/ResonanceEdu](https://www.facebook.com/ResonanceEdu)

twitter.com/ResonanceEdu

www.youtube.com/resowatch

blog.resonance.ac.in

CHAMPIONS RARELY TALK. THEY LET THEIR RESULTS DO THE TALKING.

AIR 99

Harish Yadav

Classroom student
since class XI

AIR 70

Jatin Munjal

Short Term
Classroom Contact Program
(JEE Main to JEE Advanced
duration)

AIR 46

Sukhmanjit Mann

Classroom student
since class XI

AIR 45

Utkarsh Agarwal

Classroom student
since class XI

AIR 4

Pawan Goyal

Classroom student
since class VIII

AIR 39

Shashank Roy

Classroom student
since class XI

AIR 34

Sayantan Pal

Classroom student
since class XI

1 Student in
AIR Top - 5

5 Students in
AIR Top - 50

7 Students in
AIR Top - 100

ALL FROM CLASSROOM PROGRAM

**ADMISSIONS
OPEN
FOR 2019-20**

Classes: V to XII & XII+
Target: JEE (Main+Advanced)
JEE (Main) | AIIMS/NEET
Pre-foundation | Commerce & CLAT

ResoNET Dates
9th & 16th June 2019

COURSE: VIJAY (JR)
FOR CLASS: XIII

Target: JEE (Main+Advanced) 2020

Course Starts from

10th June 2019

Resonance Eduventures Limited

Registered & Corporate Office: CG Tower, A-46 & 52, IPIA, Near City Mall,
Jhalawar Road, Kota (Rajasthan) - 324005

Tel. No.: 0744-2777777, 2777700 | CIN: U80302RJ2007PLC024029

Toll Free:

1800 258 5555

website: www.resonance.ac.in