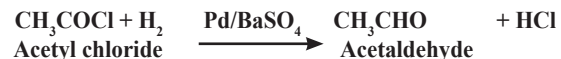


60. what is rosenmund reduction?what is the purpose of adding BaSO<sub>4</sub> in it?

i) Acid chlorides are reduced to aldehydes by hydrogen in presence of palladium suspended in barium sulphate as catalyst. Oct-2007

ii) BaSO<sub>4</sub> is used as a **catalytic poison**, to stop the reduction at the stage of aldehyde. Otherwise, the aldehyde formed will be further reduced to **primary alcohol**.

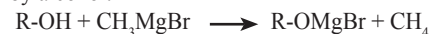


61. why formaldehyde cannot be prepared by rosenmund reduction method?

formyl chloride is unstable at room temperature, formaldehyde cannot be prepared by this method.

62. Alcohols cannot be used as a solvent for grignard reagents.why? M-08,2017

i) strongly basic substances like organometallic compounds are decomposed by alcohol.



63. Arrange the following conformation of n - butane with increasing order of energy, staggerd(anti),partially eclipsed,eclipsed and skew conformation.

staggerd < skew < partially eclipsed < eclipsed

64. The eclipsed form of which of the following has the highest energy.

Ethane,Propane, n-butane ,ethylene dibromide.

Ethylene dibromide eclipsed form has highest energy due to larger size of bromide.

65. Formaldehyde and benzaldehyde give Cannizzaro reaction but acetaldehyde does not - Account for this.

HCHO, C<sub>6</sub>H<sub>5</sub>CHO - **absence of α-hydrogen** so answer with this reaction.

CH<sub>3</sub>CHO - Presence of **α-hydrogen atom**,so does not answer with this reaction.

66. Acetaldehyde gives aldol condensation reaction but HCHO,C<sub>6</sub>H<sub>5</sub>CHO,

C<sub>6</sub>H<sub>5</sub>COC<sub>6</sub>H<sub>5</sub> does not. account for this statement.

CH<sub>3</sub>CHO - Presence of **α-hydrogen atom**,so answer with this reaction.

This reaction is characteristic of carbonyl compounds having **α-hydrogen atom**.

If there is no α-hydrogen atom in the carbonyl compound,aldol condensation does not take place.

ex. HCHO, C<sub>6</sub>H<sub>5</sub>CHO, C<sub>6</sub>H<sub>5</sub>COC<sub>6</sub>H<sub>5</sub>.  
Formaldehyde, Benzaldehyde Benzophenone



தவசு செய்!

தர்மம் செய்!!



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Paper Valuation Key Specialised Guide

**+2 CHEMISTRY**

**15/15** 1 MARK

**70/70**

**18/18** 3 MARK

**12/12** 2 MARK

**25/25** 5 MARK

**PART-1**

PART	TOTAL MARKS	No.OF Question	Q.No.
PART-1	15	15/15	1-15
PART-2	12	6/9	16-24

PART	TOTAL MARKS	No.OF Question	Q.No.
PART-3	18	6/9	25-33
PART-4	25	5/5	34-38

**New Examination Pattern**

**New Collection of...**

- Uses, Law, Comparison, Aromatic Electrophilic Substitution Reaction, Collection of Series
- Diagram, Problem, Question Bank 2006-2018

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**Published by**

**SRI NARAYANA PUBLICATIONS**

Murugan Kovil Street, Vellaiyur Po,  
Gangavalli Tk, Salem Dt.

Mobile No: 95788 42280, 95788 42283

www.srinarayanapublication.com

## CONTENTS

	Page No.
▶ 1. +2 Govt Model Question paper	4
▶ 2. New Collection Question Bank (2018 - 2016)	7
▶ 2.1 Comparison Type & preparation type	7
▶ 2.2 Reason Type	8
▶ 2.3 Uses & Law Type	10
▶ 2.4 Characteristic , Action of Heat & Test type	11
▶ 2.5 Conversion Type	11,21
▶ 2.6 Synthesis,structure,IUPAC,Define type	12
▶ 2.7 Naming Reaction( Lesson wise)	14
▶ 2.8 Mechanism	15
▶ 3 March 2018 One Mark	15
▶ 3.1 October & June 2017 One Mark	16
▶ 3.2 March 2017 One Mark	18
▶ 3.3 October & June 2017 One Mark	19
<b>✍ ORGANIC CHEMISTRY AT YOUR FINGER TIPS .....</b>	
▶ 4 Chlorination,Reaction with Na,NH <sub>3</sub> ,NaOH	23
▶ 4.1 Dry Distillation	24
▶ 4.2 Grignard Reagent	26
▶ 4.3 Oxidation Collection	27
▶ 4.4 Reduction	29
✍ 5. Preparation (collection Vol. I & Vol.II)	31 - 38
✍ 6. Reason Type (Vol. I & Vol.II)	39 - 48
✍ 7. Uses collection (Vol. I & Vol.II)	50
✍ 8. Aromatic Electrophilic substitution Reaction	61
✍ 9. Collection of Comparison type	76
✍ 10. Important Diagram	67
✍ 11. Collection of series	67

53. Explain why the ionisation energy of boron is less than that of Be. **M-2014**
- Boron atom ( $Z = 5; 1s^2 2s^2 2p_x^1 2p_y^0 2p_z^0$ ) is having **one unpaired electron** in the **2p-subshell**.
  - Be-atom ( $Z = 4; 1s^2 2s^2$ ) is having paired electrons in the **2s subshell**.
  - As the fully filled **2s-subshell in Be-atom is more stable than B-atom** due to symmetry, **more energy would be needed to remove an electron from Be-atom**. Hence, Be has high I. E.
- 
54. compare the first I.E of Aluminium( $Z=13$ ) with that of Magnesium ( $Z=12$ ) Justify your answer. **M-2012**
- The electronic configuration of magnesium is  $[\text{Ne}]3s^2$  and that of aluminium is  $[\text{Ne}] 3s^2 3p^1$ .
  - Thus, one has to **remove 3p-electron in case of aluminium and 3s electron** in the case of **magnesium**.
  - But it is **easier to remove the p electron than the s-electron**. Thus, the first ionization energy of aluminium is lower than that of magnesium.
- 
55. Second ionisation energy is greater than first ionisation energy why?
- first ionisation potential is the amount of energy required to remove an electron from the neutral gaseous atom .
  - but the second ionisation potential is the amount of energy required to remove an electron from a gaseous monovalent ion in which nuclear charge is greater.
  - when the nuclear charge is greater it is difficult to remove an electron which is more bound towards the nucleus.
- 
56. The I.E of Be (At. No.4) is greater than that of Li (At. No.3) why?
- The nuclear charge of Be ( $Z=4$ ) is greater than Li( $Z=3$ ).
  - Higher the nuclear charge, greater would be the force of attraction between nucleus and outermost electron. Hence, the first I.E. of Be is than that of Li.
- 
57. I.E. of fluorine is more than that of oxygen.why?
- F ( $Z = 9; 1s^2 2s^2 2p_x^2 2p_y^2 2p_z^1$ ) is having more nuclear charge than oxygen ( $Z = 8; 1s^2 2s^2 2p_x^2 2p_y^1 2p_z^1$ ).
  - In both the cases, the electron has to be removed from the same **2p-subshell**. As fluorine is having more nuclear charge than oxygen.
  - nucleus of fluorine will attract the outer 2p-electrons more firmly than oxygen**. Hence, first I.E. of fluorine would be more than that of oxygen.
- 
58. Electron affinities of noble gases are zero. why?
- As these atoms possess  **$ns^2 np^6$  configuration** in their valence shell.
  - these are stablest atoms and there are **no chances for the addition of an extra electron**. Thus, the electron affinities of noble gases are zero.
- 
59. The electron affinities of beryllium and nitrogen are almost zero.why? **M-2010**
- This may be due to the extra stability of the **completed 2s-orbital in beryllium** and of the **exactly half-filled p-orbital in nitrogen**. As these are stable electronic configurations, they **do not have tendency to accept electrons** and therefore, the electron affinities for beryllium and nitrogen are zero.

47. Why Electron affinity of fluorine is less than that of chlorine? **M-2013**
- size of F-atom (0.71 Å) is very small.
  - Because of **small size of fluorine atom** the 2p-subshell becomes compact. There occurs repulsion among electrons of the valence shell and also with electron to be added. This **repulsion is responsible for less tendency of F-atom** to accept electron.
  - Because of small size of fluorine there occurs large crowding of electrons around the nucleus. This crowding is able to screen the nucleus. Because of this, **effective nuclear charge gets decreased.**

48. The electron affinities of Be, Mg and N are almost zero. why?
- Be ( $Z = 4; 1s^2 2s^2$ ) and Mg ( $Z = 12; 1s^2 2s^2 2p^6 3s^2$ )  
N ( $Z = 7; 1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$ )
- Be, Mg **s orbital fully filled** in their valence shell. **Fully filled orbitals are most stable** due to symmetry. Therefore, these elements would be having least tendency to accept electron. Hence, **Be and Mg would be having zero electron affinity.**
  - nitrogen is having half filled 2p-subshell.** Half filled sub shells are most stable due to symmetry (Hund's rule). Thus, nitrogen is having least tendency to accept electron. Hence, **nitrogen is having almost zero electron affinity.**

49. why electron affinity of gold is high?
- All the metals, the E.A. of gold is comparatively high (222.7 kJ mol<sup>-1</sup>). This value may be attributed to the **higher effective nuclear charge and poor shielding of the nucleus by d electrons.**

50. why chemical equilibrium is called as dynamic equilibrium? **O-2017**
- A chemical reaction in equilibrium involves the **opposing reactions.**
  - One of the reactions produces the products and is known as the **forward reaction** while the other produces the reactants from products and is known as the reverse reaction. **Chemical equilibrium is dynamic in nature.**
  - both the forward and reverse reaction continue even after the equilibrium has reached and their **rates are equal.**

51. compare the ionisation energies of carbon and boron.
- Carbon ( $Z = 6; 1s^2 2s^2 2p_x^1 2p_y^1 2p_z^0$ ) is having more nuclear charge than boron ( $Z = 5; 1s^2 2s^2 2p_x^1 2p_y^0 2p_z^0$ ).
  - one has to remove electron from same 2p-subshell. Carbon is having more nuclear charge than boron.
  - Therefore the nucleus of carbon, attracts the outer 2p-electron more firmly than does boron. Thus, first I.E. of carbon would be more than that of boron.

52. Neon has more ionisation energy than fluorine why? **J-2010**
- The **nuclear charge of Ne ( $Z = 10$ ) is more than that of F ( $Z = 9$ ).** Greater the nuclear charge, greater would be the force of attraction between nucleus and outermost electron. Hence, the first I.E. of neon would be greater than that of fluorine.

✍ 12. Law type	-----	84
✍ 13. Test type	-----	85
<b>PROBLEM TEXT BOOK (SELF EVALUTION &amp; EXERCISE)</b>		
✍ 1. Atomic structure	-----	88
✍ 7. Nuclear Chemistry	-----	102
✍ 8. Solid State	-----	112
✍ 9. Thermodynamics	-----	117
✍ 10. Chemical Equilibrium	-----	124
✍ 11. Chemical Kinetics	-----	130
3 MARK & 5 MARK	-----	138

மாணவர்களின் கவனத்திற்கு...  
இந்த கல்வியாண்டு முதல் (2018-2019) +2 அரசு பொதுத்தேர்வு 150 மதிப்பெண்களுக்கு பதிலாக 70 மதிப்பெண்களுக்கு தேர்வு எழுதும் முறை நடைமுறைக்கு வருகிறது. மதிப்பெண் பங்கீடு (Blue Print) இல்லை. தமிழக அரசாங்கம் +2 மாணவர்களை நீட் மற்றும் போட்டித்தேர்வுகளுக்கு தயார் படுத்தும்விதமாக இந்த புதிய முறையை அறிமுகப்படுத்தியுள்ளது. இந்த புதிய முறை மூலம் மாணவர்களின் சிந்திக்கும் திறன் வளரும் என்று நம்பப்படுகிறது. 150 மதிப்பெண்கள் இருந்தபோது (Blue Print) மதிப்பெண் பங்கீடு முறையை பயன்படுத்தி மாணவர்கள் தேவையான பாடங்களை மட்டும் படித்து முழுமையான மதிப்பெண்கள் பெற முடிந்தது. தேவையில்லாத பாடங்களை படிப்பதை மாணவர்கள் முழுவதுமாக தவிர்த்தார்கள். இந்த முறை மூலம் மாணவர்கள் போட்டித்தேர்வுக்கு செல்லும்போது மிகவும் கஷ்டப்படுகிறார்கள். தேவையில்லாத பாடங்களை படிக்காமல் (Choice) விட்டுவிடுவதால் இந்த நிலை ஏற்படுகிறது. இதனை தவிர்க்கவும், தமிழக அரசு +2 பாடத்திட்டத்தில் உள்ள அனைத்து பாடங்களையும் மாணவர்கள் படிக்க வேண்டும் என்பதற்காக உருவாக்கப்பட்டுள்ளது.

**+1 அரசு பொதுத்தேர்வில் இருந்து நாம் தெரிந்து கொள்ள**

**வேண்டிய முக்கிய கருத்துக்கள் :**

- +1 அரசு பொதுத்தேர்விலும் விடைத்தாள் குறிப்பின்படி (Paper Valuation key) விடைத்தாள் திருத்தப்பட்டது.
- அரசு நிர்ணயித்த தேர்ச்சிக்கான மதிப்பெண் மிகக்குறைவு என்றபோதிலும் 60%க்கும் மேலான மாணவர்களால் அந்த மதிப்பெண்களை பெற முடியவில்லை என்று +1 விடைத்தாள்களை திருத்திய ஆசிரியர்களின் கருத்தாக உள்ளது.
- இந்த வழிகாட்டியானது +1 அரசு பொதுத்தேர்வு வினாத்தாளை தழுவி +2 அரசு மாதிரி வினாத்தாள் வடிவமைக்கப்பட்டுள்ளது.