# ANSWER KEY

FIRST YEAR HIGHER SECONDARY EXAMINATION March 2023

PART-~~I~~/II/III

SUBJECT: CHEMISTRY (HI)

CODE NO: FY464 VERSION: D

60 SCORES 2 HOURS

| Qn. No | Sub Qns | Answer Key/Value Points | Score | Total Score |
|---|---|---|---|---|
| 1 | | M | 1 | 1 |
| 2 | | 4 | 1 | 1 |
| 3 | | $H_3O^+$ | 1 | 1 |
| 4 | | $sp^3$ | 1 | 1 |
| 5 | |  | 1 | 1 |
| 6 | | Statement | 2 | 2 |
| 7 | | Any two quantum number -name / representation | 2 | 2 |
| 8 | | Cathode Ray: Start from cathode; Negative charged particles/electron<br>Anode Ray: Start from Anode; positive charged (+) particles | 1<br>1 | 2 |
| 9 | | Definition | 2 | 2 |
| 10 | | Statement | 2 | 2 |
| 11 | | Definition / explanation | 2 | 2 |
| 12 | | Lewis base – $H_2O$, $OH^-$ | 1<br>1 | 2 |
| 13 | | name / equation of any two type of redox reaction | 2 | 2 |

| Qn. No | Sub Qns | Answer Key/Value Points | Score | Total Score |
|---|---|---|---|---|
| 14 | | | | |

| Compound | functional group |
|---|---|
| $CH_3COOH$ | COOH |
| $CH_3OH$ | OH |
| $CH_3CN$ | CN |

Score: 1, 1 — Total Score: 2

15 $CH_3CH=CH_2 + HCl \rightarrow CH_3\underset{\underset{Cl}{|}}{CH}-CH_3$ / name + $CH_3CH_2CH_2Cl$ / name

Score: 1, 1 — Total Score: 2

16 a) $12 + 2 \times 16$

$= 44$

Score: ½, ½

16 b

| molecular formula | Empirical formula |
|---|---|
| $C_2H_2$ | CH |
| $C_6H_6$ | CH |
| $C_2H_4$ | $CH_2$ |

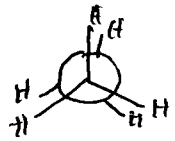
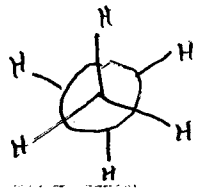
Score: 1, 1 — Total Score: 3

17

| Series of Hydrogen Spectrum | Region |
|---|---|
| Lyman | UV |
| Balmer | visible |
| paschen | IR |

Score: 1, 1, 1 — Total Score: 3

| Qn. No | Sub Qns | Answer Key/Value Points | Score | Total Score |
|---|---|---|---|---|
| 18 | a | Ubn | 1 | 3 |
| | b | correct reason / explanation | 2 | |
| 19 | | I - C. trigonal planar | 1 | 3 |
| | | II - A. linear | 1 | |
| | | III - B. tetrahedral | 1 | |
| 20 | a | Ç | 1 | 3 |
| | b | Definition / equation | 2 | |
| 21 | | Extensive - mass | ½ | 3 |
| | | volume | ½ | |
| | | Enthalpy | ½ | |
| | | Intensive - density | ½ | |
| | | pressure | ½ | |
| | | Temperature | ½ | |
| 22 | a | blood | 1 | 3 |
| | b | $K_p = \frac{P_{H_2} \cdot P_{I_2}}{P_{HI}^2}$ | 2 | |
| 23 | | i) 0 / zero | 1 | 3 |
| | | ii) -1 | 1 | |
| | | iii) +4 | 1 | |
| 24 | | i) Ethanol | 1 | 3 |
| | | 2) propanoic acid | 1 | |
| | | 3) cyclohexane | 1 | |

| Qn. No | Sub Qns | Answer Key/Value Points | Score | Total Score |
|---|---|---|---|---|
| 25 | | i) Wurtz Reaction | 1 | 3 |
| | | ii) Nitration / Electrophilic Substitution | 1 | |
| | | iii) Decarboxylation | 1 | |
| 26 | a | Staggered | 1 | 3 |
| | b | Conformer:  Name: Eclipsed | 1 | |
| | | Conformer:  Name: Staggered | 1 | |
| 27 | c | i) 2S | 1 | 4 |
| | | ii) 5P | 1 | |
| | | iii) 3d | 1 | |
| | | iv) 5d | 1 | |
| 28 | | | | 4 |

| Molecule | Bond order | Magnetic property | |
|---|---|---|---|
| $O_2$ | 2 | paramagnetic | 1 |
| $N_2$ | 3 | Diamagnetic | 1 |
| $H_2$ | 1 | Diamagnetic | 1 |
| $Li_2$ | 1 | Diamagnetic | 1 |

| | | | | |
|---|---|---|---|---|
| 29 | a | I - B / H | ½ | 4 |
| | | II - A / G | ½ | |
| | | III - D / U | ½ | |
| | | iv - C / S | ½ | |
| | b | Statement / equation | 2 | |

| Qn. No | Sub Qns | Answer Key/Value Points | Score | Total Score |
|---|---|---|---|---|
| 30 | a | Statement / explanation | 2 | 4 |
| | b | Explanation / definition / use / equation for pH | 2 | |
| 31 | a | Name of any two methods | 2 | 4 |
| | b | Nucleophile – $OH^-$ | ½ | |
| | | $NH_3$ | ½ | |
| | | Electrophile – $Cl^+$ | ½ | |
| | | $BF_3$ | ½ | |