

G.C.E. A/L Examination March - 2019

Conducted by Field Work Centre, Thondaimanaru In Collaboration with

Provincial Department of Education, Northern Province.

| Grade :- 12 (2020) | | Chemistry I | | Time :- One hour | |
|--------------------|--|---|---|---|---|
| | | Part | - I | | |
| × | $N_A = 6.022 \times 10^{23} mol^{-1} h = 6.626 \times 10^{-34} \text{ Js } C = 3 \times 10^8 \text{ ms}^{-1} R = 8.314 \text{J} mol^{-1} K^{-1}$ Answer all questions by selecting the most possible answer out of the given. | | | | |
| 1) | Number of elements with mel 1. 5 2. 2 | ting point less than 25 3. 11 | 5° C at 1 atm 4. | 13 | 5. 15 |
| 2) | The energy of the first energy series in H – emission spectru | v level of H atom is-2 m. | 2.18 x 10 ⁻¹⁸ | 3 J. The lowest v | wavelength line of Lyman |
| | 1. 91 nm 2. 109 nn | n 3. 145 nm | 4. | 434 nm | 5. 987 nm |
| 3) | Which of the following statement is true regarding Lithium? Though Li react with steam, it does not react with hot water. Li react with excess air at high temperature and produce Li₃N, Li₂O₂ and LiO₂. Li₂CO₃ is thermally stable. LiHCO₃ cannot be obtained at solid state. Thermal decomposition of LiNO₃ produces LiNO₂ and O₂ | | | | O ₂ . |
| 4) | Which one of the following is 1. $K_2Cr_2O_7 + 3H_2SO_4 + 4HO$ 2. $Fe_3O_4 + 8HC1 \longrightarrow F$ 3. $NH_4NO_3 N_2O +$ 4. $2HC1 + Na_2S_2O_3 \longrightarrow$ 5. $2H_2O_2 \longrightarrow 2H_2O +$ | the most possible exactly $3K_2SO_4 - 3K_2SO_4 - 5eCl_2 + 2FeCl_3 + 4H_2Cc_2H_2O_2$ $2NaCl + S + SO_2 + H_2O_2$ | umple for dis + 3H ₂ O + 2O) H ₂ O | proportionation CrO ₂ Cl ₂ | reaction? |
| 5) | The first five successive ioniz which of the following could | ation energies of elem be the formula of oxid | ent X (in kJ le of X? | mol ⁻¹) are 801, 2 | 2427, 3660, 25025, 32866 |
| 6) | 1. XO2. X_2O Correct increasing order of C1. $C_2H_2 < C_2H_4 < CH_3CN <$ 3. Diamond $< C_2H_2 < CH_3C$ 5. $CH_3CN < C_2H_4 < Diamon$ | 3. XO_2 - C bond length of the Diamond N < C ₂ H ₄ nd < C ₂ H ₂ | 4. e following. 2. Diamon 4. C ₂ H ₂ < 0 | X ₂ O ₃ d < CH ₃ CN < C CH ₃ CN < C ₂ H ₄ | 5. X_2O_5 $P_2H_2 < C_2H_4$ < Diamond |
| 7) | When $CO_{(g)}$ is passed through this Fe ₃ O ₄ was completely co 15.6 g. What is the mass perce (Fe ₂ O ₃ - 160 g mol ⁻¹ , FeO - 1. 10 2. 25 | $Fe_2 O_3$ under hot con powerted to FeO. If the entage of decomposed 72 g mol ⁻¹) 3. 40 | ditions, part ne mass of H l Fe ₂ O ₃ ? 4. | of Fe ₂ O ₃ was Fe ₂ O ₃ taken was 50 | converted to Fe ₃ O ₄ . Then s 16g and final mass was 5. 60 |

| 8) | One mol of N ₂ H ₄ initial compound a 13 | forms the compo re present in com 22 | ound Y by removing 1 pound Y. What is the 3. +1 | 0 moles of Electrons. If a oxidation number of N ato 4. +3 | ll the N atoms in the om in Y? 5. +5 |
|-----|--|---|--|--|---|
| 9) | P) Consider the following A. The pressure of an ideal gas is always greater than the pressure of a real gas having equal volume, equal amount at same temperature. B. Compressibility factor of a real gas is always lesser than that of an Ideal gas. C. The unit of constant 'a' of Vander Waal's equation is Nm⁴mol⁻². D. Vander Waal's equation can't be used to an ideal gas. E. Vander Waal's equation is given by (P + n²a²/v²) (v - nb) = nRT. Which of the above is / are true, | | | | |
| | | 2. 0, 0 | 5. c only | 4. C Only | J. a, U |
| 10) | How many stable r | esonance structu | res are possible For N ₂ | O ₅ ? | |
| | 1. 5 | 2.3 | 3. 2 | 4.4 | 5.6 |
| 11) | Consider the follow Tests A. Added to cold B. BaCl₂ added to solution from A C. Mg(NO₃)₂ add Relevant species construction 1. NaHCO₃, Na, 14 4. Na Na₂CO₃ Na | wing tests & obse water > resultant A. ed to resultant so orresponds to abo Na ₂ CO ₃ JaOH | ervation regarding a soo • Gas • Wh olution from B. • Wh ove test A, B & C. 2. Na ₃ N, NaHCO ₃ , N 5. NaOH Na Na ₂ CO | dium piece kept exposed to Observation s evolution with hissing so hite solid, soluble in dilute hite solid residue obtained. Ma ₂ CO ₃ 3. Na, Na ₂ CO ₃ | o atmosphere. ound. acids is obtained. |
| 12) | 0 2.32 mg of Fe ₃ O ₄ made up to $1 \text{dm}^3 \text{ b}$ 1. 1.12 | was dissolved w by adding distilled 2. 16.8 | well in H_2SO_4 and shak d water. The concentrat 3. 1.68 | ten well with KI for comp tion of Fe ²⁺ in ppm? (Fe-5 4. 0.168 | plete reaction. It was 6, O - 16) 5. 11.2 |
| 13) | The standard enthat kJmol ⁻¹ respectivel 186 kJmol ⁻¹ 4. + 86 kJmol ⁻¹ | alpies of combus y. The standard e | tion of $C_{(s)}$, $H_{2(g)}$ and c enthalpy of formation of 2100 kJmol ⁻¹ 5 90 kJmol ⁻¹ | $C_2H_{6(g)}$ are -394 kJmol ⁻¹ , of $C_2H_{6(g)}$ 3. + 100 kJmol | -284 kJmol ⁻¹ , -1540 l ⁻¹ |
| 14) | In which of the f tendencies? | following groups | the Atomic number | and 2 nd ionization energ | y are in increasing |
| 15) | When 10g of a solution was obtained as the of Cr_2O_3 in solid m | id mixture of Cr(e solid product. 7 nixture? | O_3 and Cr_2O_3 is heated The loss in mass when | until a constant mass is o heating is 1.92g. What is | btained. Only Cr_2O_3 the mass percentage |
| | 1. 10 | 2. 20 | 5.40 | 4. 00 | 5. 80 |

✤ Summary of instructions for question from 16 – 20.

| $\frac{1}{\text{only a,b correct}} = \frac{2}{\text{only c,d correct}} = \frac{3}{\text{only c,d correct}} = \frac{4}{\text{only a,d correct}} = \frac{5}{\text{Any other answer}}$ 16) Root mean square velocity of ideal gases can be given by $\sqrt{C^2} = \sqrt{\frac{32}{d}}$ (d – density). Which of the following statement/s are true? a) With increase of pressure velocity of ideal gas increases. b) For different ideal gases under same temperature and pressure, speed varies. c) Velocity of H ₂₀₀ at 50°C is higher than that of O ₂₀₀ at 100°C. d) With increase of density of given gas, velocity of gas decreases 17) Which statements (s) is / are incorrect regarding K* and Cu*? a) Both have unpaired electrons. b) Both have unpaired electrons. b) Both have unpaired electrons. b) Both have same nuclear charge. c) Ionic radius of K* is greater than Cu*. d) Electron affinity of Cu* is less than K*. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine b) Standard enthalpy of combustion of CH ₃ OH ₀ . 2 (CH ₃ OH ₀) + 3O ₂₍₀) \rightarrow 2CO ₂₍₀) + 6H ₂ O ₀ . c) Standard enthalpy of MgBr ₂₀₀ d) Enthalpy of atomization of O ₃₍₂₎ $y = \frac{x}{y} = C = C = C = C = C = H$ Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sphybridized Carbon atoms, and 1 sp ² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H ₄ = C ₄ = H ₃ bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric optential. d) Mass | | | | | | | |
|--|--|--|---|---------------------------------|--|------------------------------------|--|
| $16) \text{ Root mean square velocity of ideal gases can be given by \sqrt{C^2} = \sqrt{\frac{3P}{d}} (d - density). Which of the following statement is are true?a) With increase of pressure velocity of ideal gas increases.b) For different ideal gases under same temperature and pressure, speed varies.c) Velocity of H2(p) at 50°C is higher than that of O2(p) at 100°C.d) With increase of density of given gas, velocity of gas decreases17) Which statements (s) is / are incorrect regarding K* and Cu*?a) Both have unpaired electrons.b) Both have same nuclear charge.c) Ionic radius of K* is greater than Cu*.d) Electron affinity of Cu* is less than K'.18) In which of the Following the given enthalpy change is correctly described?Enthalpy changeRelevant reactiona) Standard enthalpy of sublimation of iodineb) Standard enthalpy of combustion of CH3OH0c) Standard lattice enthalpy of MgBr2(0)d) Enthalpy dato atomization of O2(p)y H \longrightarrow a = C = C - C \equiv C - H = H = \frac{1}{H} \frac{1}{R}Consider the above compound, which of the following statement/s is / are correct.a) There are 2 sp hybridized Carbon atoms, and 1 sp2 hybridized Carbon atom.b) Carbon atoms c, d, e are in straight line.c) Hx - Cx - Hy bond angle is approximately 120°.d) Hydrogen atoms attached to Carbon atoms a and c are in same plane.20) Which of the following is/are intensive property?a) Heat capacity.b) Activation energy.c) Electric potential.d) Mass$ | | 1 | 2 | 3 | 4 | 5 | |
| 16) Root mean square velocity of ideal gases can be given by √C²/C² = √^{SP}/d (d - density). Which of the following statement /s are true? a) With increase of pressure velocity of ideal gas increases. b) For different ideal gases under same temperature and pressure, speed varies. c) Velocity of H_{2(s)} at 50°C is higher than that of O_{2(s)} at 100°C. d) With increase of density of given gas, velocity of gas decreases 17) Which statements (s) is / are incorrect regarding K* and Cu*? a) Both have unpaired electrons. b) Both have same nuclear charge. c) Ionic radius of K* is greater than Cu*. d) Electron affinity of Cu' is less than K'. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I_{2(s)} → 2I_(s) b) Standard enthalpy of MgBr_{2(s)} d) Enthalpy of atomization of O_{2(s)} Mg²⁺(_g) + 2Br⁻(_g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(s)} O_{2(s)} → 2O_(s) 19) x^H/x = C = C = C = C = C = H H = Carbon atoms, c, d, e are in straight line. c) H_s - C_s - H_b ohd angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | only a,b correct | only b,c correct | only c,d correct | only a,d correct | Any other answer | |
| following statement /s are true? a) With increase of pressure velocity of ideal gas increases. b) For different ideal gases under same temperature and pressure, speed varies. c) Velocity of H _{2cp} at 50°C is higher than that of O _{2cp} at 100°C. d) With increase of density of given gas, velocity of gas decreases 17) Which statements (s) is / are incorrect regarding K ⁺ and Cu ⁺ ? a) Both have unpaired electrons. b) Both have nupaired electrons. b) Both have same nuclear charge. c) Ionic radius of K ⁺ is greater than Cu ⁺ . d) Electron affinity of Cu ⁺ is less than K ⁻ . 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change a) Standard enthalpy of sublimation of iodine b) Standard enthalpy of combustion of CH ₃ OH ₄₀ 2CH ₃ OH ₄₀ + 3O _{2cp} \rightarrow 2CO _{2cp} + 6H ₂ O ₄₀ c) Standard enthalpy of mgBr _{2(a)} Mg ²⁺ (_a) + 2Br(_a) \rightarrow MgBr _{2(a)} d) Enthalpy of atomization of O _{2cp} $O_{2cp} \rightarrow 2O_{qp}$ 19) $x H \longrightarrow a = b = c - c = c - H = H = C - c = c - H = H = Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp2 hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) Hx - Cx - Hy bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass$ | 16) | Root mean squa | re velocity of ideal g | ases can be given t | by $\sqrt{\overline{C^2}} = \sqrt{\frac{3P}{d}}$ (d - | - density). Which of th | |
| b) For different ideal gases under same temperature and pressure, speed varies. c) Velocity of H _{2(g)} at 50°C is higher than that of O _{2(g)} at 100°C. d) With increase of density of given gas, velocity of gas decreases 17) Which statements (s) is / are incorrect regarding K* and Cu*? a) Both have unpaired electrons. b) Both have same nuclear charge. c) Ionic radius of K* is greater than Cu*. d) Electron affinity of Cu* is less than K*. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I ₂₍₀₎ $\rightarrow 2I_{(g)}$ b) Standard enthalpy of combustion of CH ₂ OH ₀ 2CH ₂ OH ₀ + 3O _{2(g)} $\rightarrow 2CO_{2(g)^+}$ 6H ₂ O ₁₀ c) Standard lattice enthalpy of MgBr _{2(s)} Mg ²⁺ _(g) $\rightarrow 2G_{(g)} \rightarrow MgBr_{2(s)}$ d) Enthalpy of atomization of O _{2(g)} $O_{2(g)} \rightarrow 2O_{(g)}$ 19) $x H \rightarrow C_a = C = C - C \equiv C - H H R + R + R + R + R + R + R + R + R +$ | | following statem a) With increas | ent /s are true? e of pressure velocity | of ideal gas increase | s. | | |
| c) Velocity of H_{2tg1} at 50°C is higher than that of O_{2tg1} at 100°C. d) With increase of density of given gas, velocity of gas decreases 17) Which statements (s) is / are incorrect regarding K⁺ and Cu⁺? a) Both have sum nuclear charge. c) Ionic radius of K⁺ is greater than Cu⁺. d) Electron affinity of Cu⁺ is less than K⁺. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine l_{2(s)} → 2l_{4(g)} b) Standard enthalpy of my Br_{2(s)} Mg²⁺_(g) + 2Br'_(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H C = C = C - C = C - H / L d e / L Mg²⁺ (g) + 2Br'(g) → MgBr_{2(s)} Mg²⁺ (g) + 2D_{1(g)} 19) x H C = C = C - C = C - H / L d e / L Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | b) For different | ideal gases under sam | e temperature and p | ressure, speed varies | s. | |
| d) With increase of density of given gas, velocity of gas decreases 17) Which statements (s) is / are incorrect regarding K⁺ and Cu⁺? a) Both have unpaired electrons. b) Both have same nuclear charge. c) Ionic radius of K⁺ is greater than Cu⁺. d) Electron affinity of Cu⁺ is less than K⁺. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I_{2(a)} → 2I_(g) b) Standard enthalpy of combustion of CH₃OH₀ 2CH₃OH₀ + 3O_{2(g)} → 2CO_{2(g)}+ 6H₂O₀ c) Standard lattice enthalpy of MgBr_{2(a)} Mg2⁺(g) + 2Br(g) → MgBr_{2(a)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H C = C = C - C = C - H H → C a = b - C - C = C - H H → C a = b - C - C = C - H H → C a - b - C - d - e + H 20) Carbon atoms c, d, e are in straight line. c) H₄ - C_a - H₃ bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | c) Velocity of I | $H_{2(g)}$ at 50°C is higher | than that of $O_{2(g)}$ at | 100°C. | | |
| 17) Which statements (s) is / are incorrect regarding K⁺ and Cu⁺? a) Both have unpaired electrons. b) Both have same nuclear charge. c) Ionic radius of K⁺ is greater than Cu⁺. d) Electron affinity of Cu⁺ is less than K⁺. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I_{2(s)} → 2I_{4(g)} b) Standard enthalpy of combustion of CH₃OH₀ 2CH₃OH₀ + 3O_{2(g)} → 2CO_{2(g)} + 6H₂O₀ c) Standard lattice enthalpy of MgBr_{2(s)} Mg²⁺(g) + 2Br⁺(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H C = C = C - C = C - H H H Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | d) With increas | e of density of given g | as, velocity of gas d | ecreases | | |
| b) Both have same nuclear charge. c) Ionic radius of K⁺ is greater than Cu⁺. d) Electron affinity of Cu⁺ is less than K⁺. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I_{2(s)} → 2I_(g) b) Standard enthalpy of combustion of CH₃OH₀ 2CH₃OH₍₀ + 3O_{2(g)} → 2CO_{2(g)} + 6H₂O₀ c) Standard lattice enthalpy of MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} Mg²⁺(g) + 2Br'(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H / Ca = C / C = C - C = C - H / H Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | 17) | Which statement a) Both have u | ts (s) is / are incorrect r npaired electrons. | regarding K ⁺ and Cu | +? | | |
| c) Ionic radius of K⁺ is greater than Cu⁺. d) Electron affinity of Cu⁺ is less than K⁺. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I₂₍₆₎ → 2I_(g) b) Standard enthalpy of combustion of CH₃OH₍₀ 2CH₃OH₍₀+ 3O_{2(g)} → 2CO_{2(g)}+ 6H₂O₍₀) c) Standard lattice enthalpy of MgBr_{2(s)} Mg²⁺_(g) + 2Br_(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H / Ca = C = C - C = C - H / H Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | b) Both have sa | me nuclear charge. | | | | |
| d) Electron affinity of Cu⁺ is less than K⁺. 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I₂₍₆₎ → 2I₍₆₎ b) Standard enthalpy of combustion of CH₃OH₍₁₎ 2CH₃OH₍₁₎ + 3O₂₍₂₎ → 2CO₂₍₂₎ + 6H₂O₍₁₎ c) Standard lattice enthalpy of MgBr_{2(s)} Mg²⁺_(g) + 2Br'_(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H C = C = C - C = C - H H C = b - 1C - C = C - H H C = a - b - 1C - C = C - H H C = a - B - 1C - C = C - H H C = a - H b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | c) Ionic radius | of K ⁺ is greater than C | u ⁺ . | | | |
| 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I_{2(s)} → 2I_(g) b) Standard enthalpy of combustion of CH₃OH₍₁₎ 2CH₃OH₍₁₎ + 3O_{2(g)} → 2CO_{2(g)} + 6H₃O₍₁₎ c) Standard lattice enthalpy of MgBr_{2(s)} Mg²⁺_(g) + 2Br_(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} → 2O_(g) 19) x H C = C = C - C = C - H H + C = b = c - d - e H H + H + H + H + H + H + H + H + H + H + | | d) Electron affi | nity of Cu ⁺ is less than | I K ⁺ . | | | |
| b) Standard enthalpy of combustion of CH₃OH₍₁₎ 2CH₃OH₍₁₎ + 3O_{2(g)} → 2CO_{2(g)} + 6H₂O₍₁₎ c) Standard lattice enthalpy of MgBr_{2(s)} Mg²⁺(g) + 2Br⁻(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} O_{2(g)} → 2O_(g) 19) x H C = C = C - C = C - H H - C = b C - C = C - H H - C = c H - C = C - C = C - H H - C = c H - C = C - C = C - H H - C = C - C = C - H H - C = C - C = C - H Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | 18) In which of the Following the given enthalpy change is correctly described? Enthalpy change Relevant reaction a) Standard enthalpy of sublimation of iodine I_{2(s)} → 2I_(g) | | | | | | |
| c) Standard lattice enthalpy of MgBr_{2(s)} Mg²⁺(g) + 2Br'(g) → MgBr_{2(s)} d) Enthalpy of atomization of O_{2(g)} O_{2(g)} O_{2(g)} → 2O(g) 19) x H C = C = C - C = C - H H Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | b) Standard ent |) Standard enthalpy of combustion of $CH_3OH_{(1)}$ | | $2CH_3OH_{(l)} + 3O_{2(g)} \longrightarrow 2CO_{2(g)} + 6H_2O_{(l)}$ | | |
| d) Enthalpy of atomization of O_{2(g)} O_{2(g)} →2O_(g) 19) x H → C = C = C - C = C - H y H → C = C = C - C = C - H H Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | c) Standard latt | Standard lattice enthalpy of MgBr _{2(s)} | | $Mg^{2+}_{(g)} + 2Br_{(g)}$. | \rightarrow MgBr _{2(s)} | |
| 19) x H → C = C = C - C ≡ C - H → H → C = C - C ≡ C - H → H → C = C - C ≡ C - H → H → C = C → C = C - H → H → C = C → C = C → C = C → H → C = C → C → | | d) Enthalpy of | Enthalpy of atomization of $O_{2(g)}$ | | $O_{2(g)} \longrightarrow 2O_{(g)}$ | | |
| $\sum_{y \in H} \sum_{a \in b} C = C = C = C = H$ Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp ² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) $H_x - C_a - H_y$ bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | 19) | 19) ~ H . | | | | | |
| Consider the above compound, which of the following statement/s is / are correct. a) There are 2 sp hybridized Carbon atoms, and 1 sp² hybridized Carbon atom. b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | $\int_{y}^{H} \int_{a}^{C} = C = C - C \equiv C - H$ H | | | | | |
| b) Carbon atoms c, d, e are in straight line. c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | Consider the abo a) There are 2 s | onsider the above compound, which of the following statement/s is / are correct. There are 2 sp hybridized Carbon atoms, and 1 sp ² hybridized Carbon atom. | | | | |
| c) H_x - C_a - H_y bond angle is approximately 120°. d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | b) Carbon atom |) Carbon atoms c, d, e are in straight line. | | | | |
| d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | c) $H_x - C_a - H_y$ | c) $H_x - C_a - H_y$ bond angle is approximately 120°. | | | | |
| 20) Which of the following is/are intensive property? a) Heat capacity. b) Activation energy. c) Electric potential. d) Mass | | d) Hydrogen at | d) Hydrogen atoms attached to Carbon atoms a and c are in same plane. | | | | |
| b) Activation energy.c) Electric potential.d) Mass | 20) | Which of the fol a) Heat capacit | lowing is/are intensive y. | property? | | | |
| c) Electric potential.d) Mass | | b) Activation e | nergy. | | | | |
| d) Mass | | c) Electric pote | ntial. | | | | |
| | | d) Mass | | | | | |

| First statement | Second statement | Response |
|-----------------|---|----------|
| True | True and correctly explains the first statement | 1 |
| True | True, but does not explain the first statement | 2 |
| True | False | 3 |
| False | True | 4 |
| False | False | 5 |

✤ Following the introduction given for question21 – 25.

| | First Statement | Second Statement |
|-----|---|---|
| 21. | By heating of Lithium Carbonate, Li ₂ O and | On heating of Group IA metal carbonates, their |
| | CO_2 are obtained as products. | respective metal oxides can be obtained. |
| 22. | Compressibility of an ideal gas can be | NH _{3(g)} does not behave as an ideal gas at high |
| | given as $Z = \frac{PV}{nRT}$. | pressure and low temperature. |
| 23. | AlF ₃ is an ionic compound, but AlCl ₃ is a | Radius of F^- is less than radius of Cl^- and the |
| | covalent compound. | polarizing power of F^- is greater than Cl^- |
| 24. | C_2F_4 Molecule has polar bonds. | Planar molecules are nonpolar. |
| 25. | Spontaneous reactions occurring in an | The overall effect of ΔH and ΔS is given by the |
| | isolated system always take place with an | Gibb's free energy change ΔG as |
| | increasing entropy. | $\Delta G = \Delta H + T \Delta S.$ |