Hohete Tibeb Share Company
Education and Technology Team
Ethio-Parents' Schools: Addis Ababa (Gerji/Gullele) and Hawassa.
Chemistry centralized worksheet 15 for Grade 12

June, 2020

Name _____ *Section* _____ *Campus* _____

General Directions:

1. **READ THE INSTRUCTIONS VERY CAREFULLY. IF YOU HAVE ANY QUESTIONS ASK THE INVIGILATOR BEFORE THE TEST BEGINS. NO QUESTIONS WILL BE ANSWERED AFTER THE TEST HAS BEGUN.**

   YOU HAVE EXACTLY 2:30 HOURs TO WORK ON THIS EXAMINATION.

2. **THIS EXAMINATION CONTAINS A TOTAL OF 80 MULTIPLE CHOICE QUESTIONS. THERE IS ONLY ONE BEST ANSWER FOR EACH QUESTION. CHOOSE THE BEST ANSWER FROM THE SUGGESTED OPTIONS AND BLACKEN THE LETTER OF YOUR CHOICE ON THE ANSWER SHEET PROVIDED. YOUR ANSWER MARK SHOULD BE HEAVY AND DARK, COVERING THE ANSWER SPACE COMPLETELY.**
3. **USE PENCIL ONLY TO BLACKEN THE ANSWER SPACE ON THE ANSWER SHEET.IF YOU CHOOSE CHOICE "B", FOR EXAMPLE, MARK THE SECOND SPACE LIKE THE FOLLOWING:**

   A ▭ **B** ▬ **C** ▭ **D** ▭

4. **IF YOU WANT TO CHANGE YOUR ANSWER, RUB OUT YOUR FIRST CHOICE COMPLETELY, THEN BLACKEN THE RECTANGLE OF YOUR FINAL CHOICE WITH PENCILE.**

5. **MAKE SURE THAT YOU HAVE WRITTEN ALL THE REQUIRED INFORMATION ON THE ANSWER SHEET BEFORE YOU WORK ON THE EXAMINATION.**

6. **BEFORE MAKING EFFORTS AT YOUR BEST ON THE QUESTIONS FROM THE SELF-ASSESSMENT EXAMINATION, DO NOT RUSH TO LOOKING AT THE CENTRALIZED NOTE OR THE TEXT BOOK AS THEY MAY REDUCE YOUR UNDERSTANDING OF THE CONCEPTS.**

Refer to the following data and table when you work on problems related to the given information

1. Physical Constants

- **Gas constant: R = 8.314 J mol^{-1} K^{-1}, 0.0821 L- atm mol^{-1} K^{-1},**
- **Faraday's constant: (F) = 9.6485309 x 10^4 Coulombs/mol**
- **Rydberg's constant: R_H = 2.18 x 10^{-18}J**
- **Mass of an electron: m_e = 9.11 x 10^{-28} g**
- **Mass of Proton: m_p = 1.672 x 10^{-27} Kg**
- **Velocity of light: C = 3.00 x 10^8 m/s**
- **Plank's constant: h = 6.626 x10^{-34} J.s or 6.626 x10^{-34} Kg.m^2/s**

2. SI Units And Conversion Factors

- $1A^o = 10^{-10}$ m

3. Atomic number (Z) And Atomic Mass (A)

Element	Be	B	C	N	O	F	Ne	Na	S	Cl
Z	4	5	6	7	8	9	10	11	16	17
A	9	11	12	14	16	19	20.2	23	32.1	35.5

Element	Ca	Cr	Cs	Fe	Cu	Zn	Sr
Z	20	24	55	26	29	30	38
A	40.1	51.9	134	55.9	63.5	65.4	87.6

1. Which of the following statement is correct about **ideal** solution?
   A. The solute solvent interaction is stronger than that of the solute – solute and solvent- solvent interaction.
   B. The solute solvent interaction is weaker than that of the solute – solute and solvent-solvent interaction.
   C. The solute – solvent interaction is equal to that of the solute – solute and solvent-solvent interaction.
   D. There is expansion and contraction on mixing of components of solution.
2. A 100 mL solution of H_2SO_4 0.4M is titrated with NaOH solution of unknown concentration. The end point against phenolphthalein indicators was signaled when 40 mL of NaOH was added. What is the concentration of NaOH solution?
   A. 0.4M
   B. 2M
   C. 4M
   D. 3M

3. Oil and water are immiscible, because water is
   A. polar
   B. non-polar
   C. denser than oil
   D. water is less dense than oil

4. A procedure of preparing less concentrated solution from a more concentrated is
   A. Dilution
   B. concentrating
   C. sublimation
   D. hydration

5. What is the normality of 0.5M $Al_2(CO_3)_3$?
   A. 3N
   B. 6N
   C. 0.5N
   D. 2N

6. The amount of heat involved in the synthesis of 1 mole of a compound from its elements, with all substances in their standard states at 25°C is
   A. enthalpy
   B. heat of reaction
   C. standard heat of formation
   D. heat of solidification

7. Which combination of compounds can form **buffer** solution?
   A. CH_3COOH and CH_3COONa
   B. CH_3COOH and NaCl
   C. HCland CH_3COONa
   D. NH_3 and HCl

8. What is the percentage dissociation in 1 M solution of HCOOH containing $[H^+]$ = $2.7x10^{-2}$M?
   A. 2.7%
   B. 27%
   C. 0.027%
   D. 37%

9. Given reaction and their respective enthalpy changes:
   a. $C_2H_2(g) + 5/2O_2(g) \rightarrow 2CO_2(g) + H_2O(l)$; $\Delta H = -1296.6kJ$
   b. $C(s) + O_2(g) \rightarrow CO_2(g)$ $\Delta H = -393.5kJ$
   c. $H_2(g) + 1/2O_2(g) \rightarrow H_2O(l)$ $\Delta H = -285.9kJ$

   What would be the enthalpy change of $2C(s) + H_2(g) \rightarrow C_2H_2(g)$?
   A. 223.7kJ
   B. 373.7kJ
   C. 273.7kJ
   D. 172.7kJ

10. For a reaction to shift towards the product direction, which of the following condition is true?
   A. $Q_C < K_C$
   B. $Q_C = K_C$
   C. $Q_C > K_C$
   D. $Q_C = K_C = 0$

11. If the following reaction is at equilibrium, which one of the following changes will shift the equilibrium to the left?

$$N_2 + 3H_2 \rightleftharpoons 2NH_3 + \text{heat}$$

   A. Increasing the volume of the reaction container
   B. Adding more N_2 and H_2
   C. Increase pressure
   D. Decreasing temperature

12. Given the equation $Fe^{3+}(aq) + 3OH^-(aq) \rightleftharpoons Fe(OH)_3(s)$. The expression for K_c is
   A. $[Fe^{3+}]\,[OH^-]$.
   B. $\frac{1}{[Fe^{3+}][OH^-]^3}$.
   C. $[OH^-]$.
   D. $\frac{[Fe(OH)_3]}{[Fe^{3+}][OH^-]^3}$.

13. When an ester is treated with ($\underline{\mathbf{LiAlH_4/H^+}}$) , the product will be
    A. carboxylic acid.
    B. secondary alcohols.
    C. primary alcohol.
    D. monocarboxylic acid.

14. When the following substances are arranged in the order of increasing melting point the correct order is
    A. $CH_3CH_2CH_3$, CH_3COCH_3, $CH_3CHCOOH$, $CH_3CH_2CH_2OH$.
    B. $CH_3CH_2CH_2OH$,$CH_3CHCOOH$,$CH_3CH_2CH_3$, CH_3COCH_3.
    C. $CH_3CHCOOH$,$CH_3CH_2CH_2OH$,CH_3COCH_3,$CH_3CH_2CH_3$.
    D. $CH_3CH_2CH_3$, CH_3COCH_3 ,$CH_3CH_2CH_2OH$,$CH_3CHCOOH$.

15. For the reaction

$$2\,X + Y \rightarrow Z$$

The following experimental results were obtained:

Experiment	[X]	[Y]	Rate (mol $L^{-1}s^{-1}$)
1	0.50	0.50	0.300
2	0.50	0.25	0.075
3	0.25	0.25	0.075

What is the value of rate constant?
    A. 1.2 L mol^{-1} s^{-1}
    B. 0.60 L $mol^{-1}s^{-1}$
    C. 2.4mol$L^{-1}s^{-1}$
    D. 0.6 mol $L^{-1}s^{-1}$

16. In which of the following system will the position of equilibrium shift to the left upon an increase in pressure, but to the right up on an increase in temperature?
    A. $2SO_2\,(g) + O_2\,(g) \rightleftharpoons 2SO_3\,(g)$, $\Delta H < 0$
    B. $CO_2(g) + H_2\,(g) \rightleftharpoons CO(g) + H_2O(g)$, $\Delta H > 0$
    C. $C_2H_6\,(g) \rightleftharpoons H_2H_4(g) + H_2\,(g)$, $\Delta H > 0$
    D. $C_2H_4(g) + H_2O(g) \rightleftharpoons C_2H_5OH\,(g)$, $\Delta H < 0$

17. Which compound has the highest boiling point?
    A. Butanoic acid
    B. Heptanoic acid
    C. Octanoic acid
    D. Propanoic acid

18. Which of the following substances would be formed when C_2H_5OH and CH_3COOH are chemically combined?
    A. C_2H_5OH
    B. $CH_3COOC_2H_5$
    C. $CH_3COC_2H_5$
    D. $CH_3CH_2CH_3$

19. One of the following is true about the expression for second-order reaction.
    A. Rate=k[A][B]
    B. Rate=k[A][B][C]
    C. Rate=k[A]
    D. Rate=$[A][B]^2$

20. Le-Chatelier's principle stats that
    A. neither temperature nor pressure has a major effect on chemical equilibrium.
    B. reaction equilibrium is obtained only in a certain condition of temperature and pressure.
    C. increasing temperature while reducing pressure at the same time enhances equilibrium.

D. stress applied to system at equilibrium , shifts the system in such a way as to relieve the stress.

21. Which one of the following is Amalgam solution?
    A. NaCl
    B. $CaCO_3$
    C. $AlCl_3$
    D. HgPb

22. Which one of the following is correctly express spontaneous reaction?
    A. $\Delta G^o>0$, K<1, E^o Cell=0
    B. $\Delta G^o<0$, K>1, E^o Cell=0
    C. $\Delta G^o<1$, K>1, E^o Cell>0
    D. $\Delta G^o<1$, K<1, E^o Cell<0

23. What mass of silver (Ag) will be deposited when a current of 6A is passed through $AgNO_3$ solution for 30 mints?
    A. 111g
    B. 0.48g
    C. 12.1 g
    D. 0.12g

24. In the reaction
    $2KBr + Cl_2 \longrightarrow 2KCl + Br_2$, Which one is reduced?
    A. K^+
    B. Cl_2
    C. Br^-
    D. Br_2

25. Which one of the following polymer is formed by condensation polymerization?
    A. polyethylene
    B. polyester
    C. PVC
    D. Teflon

26. Which one of the following is not thermoplastic polymer?
    A. PVC
    B. polypropylene
    C. Polyethylene
    D. Bakelite

27. Which one of the following is NOT a secondary battery?
    A. Lithium ion battery
    B. Le-Clanche battery
    C. Lead storage battery
    D. Nickel-Cadmium battery

28. For the reaction
    $Zn(s) + Cu^{2+}(aq) \longrightarrow Zn^{2+}(aq) + Cu(s)$, E^o Cell=1.1v
    $[Zn^{2+}]$= 0.4M, $[Cu^{2+}]$= 0.4M .What will be E cell?
    A. 0.2
    B. 2.8
    C. 1.1
    D. 31

29. Which of the following NOT a characteristic of the electrolysis cell containing aqueous solution of NaCl used in manufacture of sodium hydroxide?
    A. Oxidation takes place at anode during electrolysis.
    B. The production of chlorine gas occurs at the anode.
    C. Hydrogen gas is produce at the cathode.
    D. The electrolyte must be dilute solution of NaCl.

30. Mercury boils at 657^0F.what is the temperature in degree celecius?
    A. -38.9
    B. -83.9
    C. 47
    D. -47

31. A student was asked to determine the density of block aluminum and reported as 2.63g/cm^3.what is the error and percentage error respectively (ρ of Al=2.73g/cm^3)
    A. 2.6 and 0.07
    C. 0.1 and 3.6

B. 6.2 and 0.7 D. 7 and 26

32. The Pauli Exclusion Principle describe_____.
   A. the energy of the electron
   B. the shape of electrons
   C. the position in space of an electron
   D. Limit the number of electrons in an orbital in two

33. How many orbitals are there in a shell with the quantum number n=5 and l=4?
   A. 7 C. 9
   B. 11 D. 5

34. Which set is arranged in order of decreasing radii?
   A. $Na>Na^{+}>Mg^{2+}>Al^{3+}$ C. $Na>Mg^{2+}>Na^{+}>Al^{3+}$
   B. $Na^{+}>Na>Mg^{2+}>Al^{3+}$ D. $Al^{3+}>Mg^{2+}>Na^{+}>Na$

35. In which of the following molecule the central atom violates the octet rule?
   A. NH_4^{+} C. H_2O
   B. BCl_3 D. SO_2

36. An aqueous solution contains 0.10 M H_2S and 0.20 M HCl. If the equilibrium constants for the formation of HS^{-} from H_2S is 1.0×10^{-7} and that of S^{2-} from HS^{-} ions is 1.2×10^{-13} then the concentration of S^{2-} ions in aqueous solution is
   A. 3×10^{-20}. C. 6×10^{-21}.
   B. 5×10^{-19}. D. 5×10^{-8}.

37. Dissolve 18.00 g of glucose in 150.0 g of water. Solution has boiling point 100.34 °C at 1 atm. What would be the molar mass of glucose?
   A. 18 g/mole C. 180 g/mole
   B. 178 g/mole D. 1.8 g/mole

38. An aqueous solution is 0.907 M $Pb(NO_3)_2$. What is the molality of $Pb(NO_3)_2$, in this solution? [The density of the solution is 1.252 g/mL]
   A. 1.952 m C. 3 m
   B. 0.345 m D. 0.953 m

39. What would be the pH of a buffer that is 0.020 M in NH_3 and 0.020 M in NH_4Cl. K_b of NH_3 is 1.0×10^{-10}?
   A. 10 C. 9
   B. 4 D. 3

40. In which of the following is hydrolysis of salt the solution will be neutral?
   A. NH_4NO_3 C. $NaNO_3$
   B. NH_4Cl D. $Ca(NH_4)_2$

41. A 250 g of sample of water is heated from 22^0c to 98^0c.How much heat is required to raise the temperature in kJ?
   A. 79.42kJ C. 79.42 x 10^{-2}kJ
   B. 7942kJ D. 79.42 x 10^{2}kJ

42. Which one of the following is NOT colligative property of solution?
   A. Boiling point C. Vapor pressure lowering
   B. Osmotic pressure D. Freezing point depression

43. Which one of the following is correct about conjugate acid–base pairs?
    A. Conjugate acid contains one less hydrogen atom than the base.
    B. Acid contains one more minus charge than its conjugate base.
    C. Conjugate base contains one more minus charge than the acid.
    D. Base contains one less minus charge than its conjugate acid.

44. The rate constant for the formation of hydrogen iodide from the elements , $H_2(g) + I_2(g) \rightarrow 2HI(g)$ is $2.7x10^{-4}$ L/mol.s at 600K and $3.5 x10^{-3}$ L/mol.s at 650 K . What is the activation energy for this reaction?
    A. $1.60 X10^{8}$ $Jmol^{-1}$
    B. $11.0 X10^{-3}$ $Jmol^{-1}$
    C. $17.7 X 10^{7}$ $Jmol^{-1}$
    D. $1.66 X 10^{5}$ $Jmol^{-1}$

45. For a chemical reaction to be a spontaneous process; which of the following is correct?
    A. If $\Delta H>0$ and $\Delta S<0$ at all temperature
    B. If $\Delta H<0$ and $\Delta S>0$ at all temperature
    C. $\Delta H>0$ and $\Delta S<0$ at low temperature
    D. If $\Delta H <0$ and $\Delta S<0$ at high temperature

46. Which of the following property of a piece of copper foil is extensive physical property?
    A. Specific gravity
    B. density
    C. thickness
    D. smell

47. Which of the following is NOT a state function?
    A. Internal energy
    B. work
    C. Enthalpy
    D. pressure

48. Which one the following is NOT the measure of strength of acid?
    A. Dissociation constant
    B. % ionization
    C. Taste of acid
    D. pH

49. Which one of the following is **TRUE** about chemical equilibrium?
    A. At equilibrium the rate of forward and reverse reaction are equal
    B. At equilibrium the concentration of reactant and product are get equal
    C. The macroscopic properties like temperature, pressure, volume and concentration change with time.
    D. The equilibrium is static in nature.

50. Which one of the following factor **NOT** affected the rate of chemical reaction?
    A. Surface area of the reactant
    B. Nature of the reactant
    C .Effective nuclear charge
    D. Presence of a Catalyst

51. As temperature increase rate of reaction increase due to
    A. numerical value of the rate constant of the reaction.
    B. activation energy of the reaction.
    C. extent of molecular dissociation.
    D. frequency of collision of the reacting species.

52. Toluene can be converted into benzoic acid by its reaction with
    A. carbon dioxide.
    B. Potassium permanganate.
    C. potassium hydroxide.
    D. sodium metal.

53. What is a valid rate expression for the following reaction?

$2NO + 2H_2 \rightarrow N_2 + 2H_2O$

A. $\frac{-\Delta[N_2]}{\Delta t}$

B. $\frac{-1\Delta[NO]}{2\Delta t}$

C. $\frac{\Delta[H_2]}{2\Delta t}$

D. $\frac{-\Delta[N_2]}{2\Delta t}$

54. A first order reaction has a half – life of 10μs. What is the value of K for this reaction?

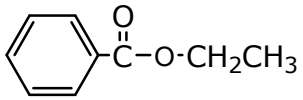
A. 75.6 X 10^4 s

B. 6.05 X 10^6 s^{-1}

C. 6.93 X 10^4 s^{-1}

D. 0.006 s^{-1}

55. What is the name of the following compounds?



A. Benzoic acid

B. Ethyl benzoate

C. phenyl butyrate

D. Ethyl benzyl ketone

56. The equilibrium partial pressure of SO_2, O_2 and SO_3 are 0.1, 0.25 and 0.5 atm respectively from the reaction SO_3 (g) ⇌ SO_2(g) + ½O_2(g). What will be the equilibrium constant for the above reaction?

A. 25

B. 10

C. 0.005

D. 0.1

57. Which of the following compounds reacts with sodium bicarbonate?

A. $CH_3–CH_2–CH_3$

B. $CH_3–COO–CH_3$

C. $CH_3–CH_2–OH$

D. $CH_3–COOH$

58. Which one of the following elements exists in native state in nature?

A. oxygen

B. calcium

C. Gold

D. sodium

59. Which one of the following are not the characteristics of Vulcanized rubber?

A. It is hard &sticky

B. It has high tensile strength

C. not oxidized readily

D. has higher elasticity

60. Oxidation reduction processes involve the transfer of electrons from

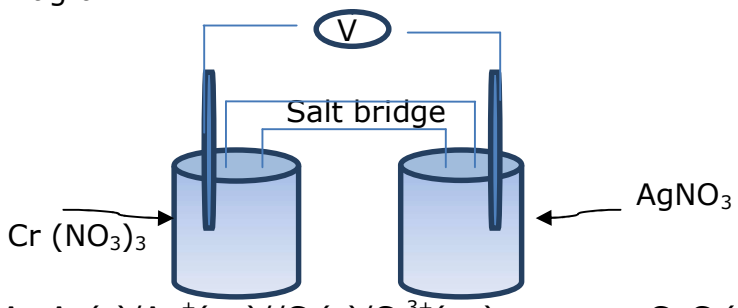
A. reducing agent to oxidizing agent.

B. cathode to anode electrode.

C. oxidizing agent to reducing agent.

D. from anode electrode to the solution.

61. Which one of the following is the correct expression of Cell notation from the following Diagram?



A. Ag(s)/Ag^+(aq)//Cr(s)/Cr^{3+}(aq)

B. Cr(s)/Ag^+(aq)//Ag/Cr^{3+}(aq)

C. Cr(s)/Cr^{3+}(aq)//Ag^+(aq)/Ag(s)

D. Ag^+(aq)/Ag(s)//Cr^{3+}(aq)/Cr(s)

62. Proteins are polymers of ∝-amino acids which is linked by_____.
    A. coordinate bond
    B. peptide bond
    C. triple bond
    D. hydrogen bond

63. The strength of styrene butadiene rubber polymer is improved by _____process.
    A. condensation
    B. heating
    C. vulcanization
    D. evaporating

64. Which one of the following is not characteristic of thermoset polymers?
    A. They are cross linked structure
    B. They are strong and brittle
    C. They are remolded again
    D. They are not recycled

65. Which of the following processes is suitable for converting atmospheric Nitrogen to Nitrogen containing compounds?
    A. Lightning
    B. Bacterial decomposition
    C. Haber process
    D. Contact process

66. Which one of the following is used to reduce Tungsten oxide to Tungsten Metal?
    A. C
    B. H_2O
    C. H_2
    D. S_2

67. Which one of the following methods of concentrating the ore is differ from others by its property?
    A. Leaching
    B. magnetic separation
    C. Amalgamation
    D. Froth floatation

68. The breaking down of radioactive atom with common types of radioactive emission is _____.
    A. radioactive element
    B. radioactive isotope
    C. radioactive decay
    D. Isotope

69. The blue light has a frequency of 6.4 X 10^{14}Hz and consists of a stream of photon the energy per photon_____.
    A. 2.4 X 10^{-19}J
    B. 4.2 X 10^{-19} J
    C. 24X10^{-19}J
    D. 42X10^{-19}J

70. In which of the following London dispersion force is dominant?
    A. CO_2
    B. CH_3Cl
    C. H_2S
    D. NH_3

71. The number of lone pair of electrons in PCl_5 molecule is
    A. two.
    B. one.
    C. three.
    D. zero.

72. What is the radius of an electron in the n=5 level (a_0=0.53A^0)?
    A. 1.325 X 10^{-9}m
    B. 3.125 X 10^{-9}m
    C. 1325 X 10^{-9}m
    D. 13.2m

73. The wavelength of Balmar series lines in hydrogen spectrum is 4.10 x 10^{-7}m. What is the value of n_2 for this line?
    A. 5
    B. 7
    C. 6
    D. 4

74. The heat of formation of KF(S) is -563KJ mol^{-1} the ionization energy of k(g) is 419 $KJmol^{-1}$ and the heat of sublimation of k(s) is 88$KJmol^{-1}$. The electron affinity of fluorine (g) is -322 KJ mol^{-1} and F-F bond dissociation is 158KJ mol^{-1}. Calculate the lattice energy of KF(S).

A. -1036 $KJmol^{-1}$
B. -906 KJ mol^{-1}
C. -563 $KJmol^{-1}$
D. -739 KJ mol^{-1}

75. Which one of the following covalent molecules is polar?

A. CO_2
B. NH_3
C. CH_4
D. CCl_4

76. The bond formed when one atom contributes a pair of electron for sharing is

A. hydrogen bond.
B. dative bond.
C. ionic bond.
D. covalent bond.

77. In which of the following do hydrogen bonding occurs?

A. CH_3COOH.
B. H_2SO_4.
C. HNO_3.
D. CH_3COCH.

78. The hybridization scheme of the central atom in the molecule BF_3 is

A. Sp^3
B. SP^3d
C. Sp^2
D. Sp

79. The molecular shape of the molecule ClF_3 is

A. trigonal planar
B. T- shape
C. square pyramidal
D. see-saw shape

80. Which one of the following substance conducts electricity?

A. $C_5H_{12}(\ell)$
B. NaCl(s)
C. $Ca(NO_3)_2(aq)$
D. $CO_2(s)$

Ethio-Parents' School
ethioparentsgu@ethionet.et
ethio-par@ethionet.et

Fax: +251-116-295034

Gerji (A.A) +251-116-512325
Gullele (A.A) +251-112-593747/48
Hawassa 0462122582

Answer Sheet - Gr. 12

PRINT YOUR PERSONAL INFORMATION HERE.

NAME _____ F. NAME _____ G.F. NAME _____

GRADE _____ SECTION _____ Roll No. _____ CAMP _____

Chemistry Self-Assessment Examination
Answer Sheet

Instruction:
Mark your answers only with a pencil.
Make sure your marks are heavy and cover the answer box completely.
Erase all unnecessary markings from the answer sheet completely.

1	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
2	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
3	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
4	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
5	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
6	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
7	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
8	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
9	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
10	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
11	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
12	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
13	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
14	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
15	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
16	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
17	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
18	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
19	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
20	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
21	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
22	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
23	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
24	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
25	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
26	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
27	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
28	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
29	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
30	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝

31	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
32	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
33	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
34	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
35	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
36	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
37	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
38	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
39	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
40	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
41	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
42	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
43	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
44	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
45	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
46	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
47	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
48	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
49	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
50	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
51	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
52	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
53	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
54	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
55	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
56	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
57	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
58	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
59	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
60	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝

61	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
62	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
63	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
64	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
65	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
66	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
67	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
68	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
69	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
70	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
71	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
72	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
73	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
74	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
75	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
76	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
77	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
78	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
79	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
80	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
81	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
82	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
83	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
84	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
85	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
86	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
87	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
88	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
89	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
90	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝

91	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
92	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
93	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
94	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
95	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
96	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
97	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
98	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
99	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
100	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
101	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
102	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
103	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
104	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
105	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
106	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
107	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
108	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
109	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
110	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
111	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
112	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
113	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
114	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
115	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
116	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
117	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
118	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
119	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜E⌝
120	⌜A⌝	⌜B⌝	⌜C⌝	⌜D⌝	⌜ ⌝