UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION 2009/10

TITLE OF PAPER: INTRODUCTORY CHEMISTRY I

COURSE NUMBER: C111

TIME: THREE (3) HOURS

INSTRUCTIONS:

(i) Answer **all questions** in section A (total 50 marks)
(ii) Answer **any 2 questions** in section B (Each question is 25 marks)

Non-programmable electronic calculators may be used.

A data sheet, a periodic table and answer sheet for section A are attached

Detach the answer sheet from the question paper.

DO NOT OPEN THIS PAPER UNTIL PERMISSION TO DO SO IS GRANTED BY THE CHIEF INVIGILATOR.

SECTION A (50 Marks)

This section consists of multiple choice questions. Correct answer must be indicated by putting a circle around the letter for that answer on the answer sheet provided. If you change your answer, please cancel the wrong answer with a cross and then put a circle around the correct one. If more than one option has a circle around it a zero will be given for that question. Attempt all 50 questions.

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1. The nucleus of an atom contains _____.
   (A) electrons (B) protons and electrons (C) protons
   (E) protons and neutrons (D) protons, neutrons, and electrons

2. Which group in the periodic table contains only nonmetals?
   (A) 1 (B) 16 (C) 12 (D) 2 (E) 18

3. Magnesium reacts with a certain element to form a compound with the general formula MgX. What would the most likely formula be for the compound formed between potassium and element X?
   (A) K_2X (B) KX_2 (C) K_2X_3 (D) K_2X_2 (E) KX

5. The correct name for K_2S is _____.
   (A) potassium sulfate (B) potassium disulfide (C) potassium bisulfide
   (D) potassium sulfide (E) dipotassium sulfate

6. The correct name for SO is _____.
   (A) sulfur oxide (B) sulfur monoxide (C) sulfoxide
   (D) sulfate (E) sulfite

7. The correct name for N_2O_5 is _____.
   (A) nitrous oxide (B) nitrogen pentoxide (C) dinitrogen pentoxide
   (D) nitric oxide (E) nitrogen oxide

8. The correct name for $HClO_2$ is _____.
   (A) perchloric acid (B) chloric acid (C) hypochlorous acid
   (D) hypychloric acid (E) chlorous acid

9. What is the correct formula for ammonium sulfide?
   (A) NH_4SO_3 (B) $(NH_4)_2SO_4$ (C) $(NH_4)_2S$ (D) NH_3S (E) N_2S_3

10. The name of the ionic compound V_2O_3 is _____.
    (A) vanadium(III) oxide (B) vanadium oxide (C) vanadium(II) oxide
    (D) vanadium(III) trioxide (E) divanadium trioxide

11. When the following equation is balanced, the coefficients are _____.

$$Al(NO_3)_3 + Na_2S \rightarrow Al_2S_3 + NaNO_3$$

(A) 2, 3, 1, 6 (B) 2, 1, 3, 2 (C) 1, 1, 1, 1 (D) 4, 6, 3, 2 (E) 2, 3, 2, 3

12. A 2.25-g sample of magnesium nitrate, Mg(NO3)2, contains ____ mol of this compound.
(A) 38.4 (B) 65.8 (C) 148.3 (D) 0.0261 (E) 0.0152

13. The formula weight of magnesium fluoride (MgF_2), rounded to one decimal place, is ___ u.
(A) 86.6 (B) 43.3 (C) 62.3 (D) 67.6 (E) 92.9

14. Combining aqueous solutions of BaI_2 and Na_2SO_4 affords a precipitate of $BaSO_4$. Which ion(s) is/are spectator ions in the reaction?
(A) Ba^{2+}only (B) Na^+only (C) $Ba^{2+}$and SO_4^{2-}
(D) $Na^+$and I^- (E) $SO_4^{2-}$and I^-

15. The balanced net ionic equation for precipitation of $CaCO_3$ when aqueous solutions of Na_2CO_3 and $CaCl_2$ are mixed is _____.
(A) $2Na^+(aq) + CO_3^{2-}(aq) \rightarrow Na_2CO_3(aq)$
(B) $2Na^+(aq) + 2Cl^-(aq) \rightarrow 2NaCl(aq)$
(C) $Na^+(aq) + Cl^-(aq) \rightarrow NaCl(aq)$
(D) $Ca^{2+}(aq) + CO_3^{2-}(aq) \rightarrow CaCO_3(s)$
(E) $Na_2CO_3(aq) + CaCl_2(aq) \rightarrow 2NaCl(aq) + CaCO_3(s)$

16. In which reaction does the oxidation number of hydrogen change?
(A) $HCl(aq) + NaOH(aq) \rightarrow NaCl(aq) + H_2O(l)$
(B) $2Na(s) + 2H_2O(l) \rightarrow 2NaOH(aq) + H_2(g)$
(C) $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(s)$
(D) $2HClO_4(aq) + CaCO_3(s) \rightarrow Ca(ClO_4)_2(aq) + H_2O(l) + CO_2(g)$
(E) $SO_2(g) + H_2O(l) \rightarrow H_2SO_3(aq)$

17. Oxidation is the _____ and reduction is the _____.
(A) gain of oxygen, loss of electrons
(B) loss of oxygen, gain of electrons
(C) loss of electrons, gain of electrons
(D) gain of oxygen, loss of mass
(E) gain of electrons, loss of electrons

18. What is the frequency (s^{-1}) of electromagnetic radiation that has a wavelength of 0.53 m?
(A) 5.7×10^{8} (B) 1.8×10^{-9} (C) 1.6×10^{8} (D) 1.3×10^{-33} (E) 1.3×10^{33}

19. The energy of a photon that has a wavelength of 9.0 m is _____ J.
(A) 2.2×10^{-26} (B) 4.5×10^{25} (C) 6.0×10^{-23} (D) 2.7×10^{9} (E) 4.5×10^{-25}

20. The de Broglie wavelength of an electron is 8.7×10^{-11}m. The mass of an electron is 9.1×10^{-31}kg. The velocity of this electron is _____ m/s.
(A) 8.4×10^{3} (B) 1.2×10^{-7} (C) 6.9×10^{-5} (D) 8.4×10^{6} (E) 8.4×10^{-3}

21. There are _____ orbitals in the second shell.
(A) 1 (B) 2 (C) 4 (D) 8 (E) 9

22. Each p-subshell can accommodate a maximum of _____ electrons.
(A) 6 (B) 2 (C) 10 (D) 3 (E) 5

23. The ground state electron configuration of Fe is _____.
(A) $1s^2 2s^2 3s^2 3p^6 3d^6$ (B) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^6 4s^2$ (C) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
(D) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^6$ (E) $1s^2 2s^2 3s^2 3p^{10}$

24. There are _____ unpaired electrons in a ground state fluorine atom.
(A) 0 (B) 1 (C) 2 (D) 3 (E) 4

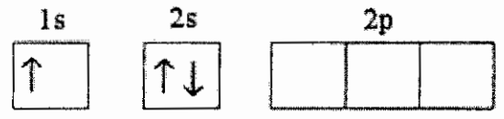
25. The elements in the _____ period of the periodic table have a core-electron configuration that is the same as the electron configuration of neon.
(A) first (B) second (C) third (D) fourth (E) fifth

26. Which group in the periodic table contains elements with the valence electron configuration of ns^2np^1?
(A) 1 (B) 2 (C) 13 (D) 14 (E) 18

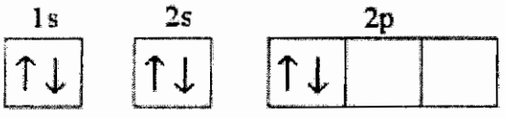
27. Which one of the following is an incorrect orbital notation?
(A) 2s (B) $3p_y$ (C) 3f (D) 4d (E) 6s

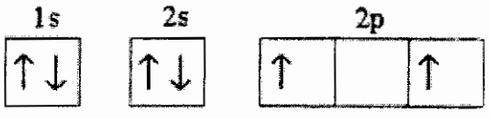
28. Which one of the following represents an acceptable possible set of quantum numbers (in the order n, l, m_l, and m_s) for an electron in an atom?
(A) 2, 1, -1, 1/2 (B) 2, 1, 0, 0 (C) 2, 2, 0, 1/2
(D) 2, 0, 1, -1/2 (E) 2, 0, 2, +1/2

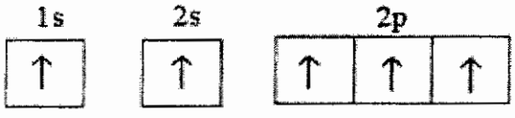
29. Which electron configuration represents a violation of the Pauli exclusion principle?

A) 

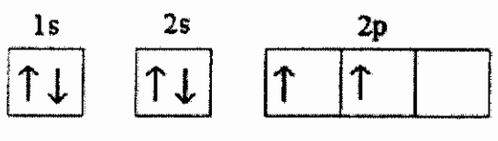
B) 

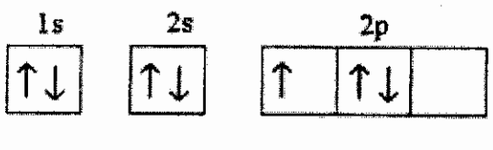
C) 

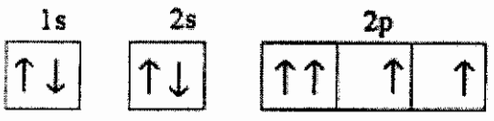
D) 

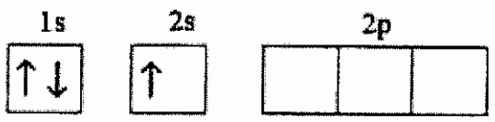
E) 

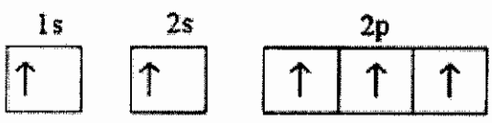
30. Which electron configuration represents a violation of Hund's rule for an atom in its ground state?

A) 

B) 

C) 

D) 

E) 

31. The first ionization energies of the elements _____ as you go from left to right across a period of the periodic table, and _____ as you go from the bottom to the top of a group in the table.
(A) increase, increase (B) increase, decrease (C) decrease, increase
(D) decrease, decrease (E) are completely unpredictable

32. In which set of elements would all members be expected to have very similar chemical properties?
(A) O, S, Se (B) N, O, F (C) Ca, Ba, Cs
(D) S, Se, Si (E) Ar, Na, Mg

33. Which element would be expected to have chemical and physical properties closest to those of Ca?
(A) K (B) Ba (C) Al (D) Ga (E) Na

34. The atomic radius of main-group elements generally increases down a group because ___
(A) effective nuclear charge increases down a group
(B) effective nuclear charge decreases down a group
(C) effective nuclear charge zigzags down a group
(D) the principal quantum number of the valence orbitals increases
(E) both effective nuclear charge increases down a group and the principal quantum number of the valence orbitals increases

35. Which one of the following atoms has the largest radius?

(A) Sr (B) Ca (C) K (D) Rb (E) Y

36. Which of the following is an isoelectronic series?

(A) B^{5-},Sr^{4-},As^{3-},Te^{2-} (B) F^-,Cl^-,Br^-,I^- (C) S, Cl, Ar, K
(D) Si^{2-},P^{2-},S^{2-},Cl^{2-} (E) O^{2-},F^- Ne,Na^+

37. Of the following atoms, which has the largest first ionization energy?
(A) Br (B) O (C) C (D) P (E) I

38. Which of the following correctly represents the second ionization of phosphorus?
(A) $P^+(g) + e^- \rightarrow P^{2+}(g)$ (B) $P(g) \rightarrow P^+(g) + e^-$ (C) $P^-(g) + e^- \rightarrow P^{2-}(g)$
(D) $P^+(g) \rightarrow P^{2+}(g) + e^-$ (E) $P^+(g) + e^- \rightarrow P(g)$

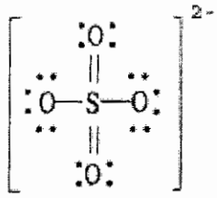
39. In the Lewis symbol for a fluorine atom, there are _____ paired and _____ unpaired electrons.
(A) 4, 2 (B) 4,1 (C) 2, 5 (D) 6, 1 (E) 0, 5

40. Based on the octet rule, magnesium most likely forms a _____ ion.
(A) Mg^{2+} (B) Mg^{2-} (C) Mg^{6-} (D) Mg^{6+} (E) Mg^-

41. Which one of the following species has the electron configuration $[Ar]3d^4$?
(A) Mn^{2+} (B) Cr^{2+} (C) V^{3+} (D) Fe^{3+} (E) K^+

42. Electronegativity _____ from left to right within a period and _____ from top to bottom within a group.
(A) decreases, increases (B) increases, increases (C) increases, decreases
(D) stays the same, increases (E) increases, stays the same

43. The formal charge on sulfur in SO_4^{2-} is ____, where the Lewis structure of the ion is:



(A) -2 (B) 0 (C) +2 (D) +4 (E) -4

44. How many equivalent resonance forms can be drawn for SO_2 without expanding octet on the sulfur atom (sulfur is the central atom)?
(A) 0 (B) 2 (C) 3 (D) 4 (E) 1

45. The molecular geometry of the H_3O^+ ion is _____.
(A) linear (B) tetrahedral (C) bent (D) trigonal pyramidal (E) octahedral

46. Of the following substances, only _____ has London dispersion forces as the only intermolecular force.
(A) CH_3OH (B) NH_3 (C) H_2S (D) Kr (E) HCl

47. Of the following substances, _____ has the highest boiling point.
(A) H_2O (B) CO_2 (C) CH_4 (D) Kr (E) NH_3

48. The ease with which the charge distribution in a molecule can be distorted by an external electrical field is called the _____.

(A) electronegativity (B) hydrogen bonding (C) polarizability
(D) volatility (E) viscosity

49. Hydrogen bonding is a special case of _____.

(A) London-dispersion forces (B) ion-dipole attraction
(C) dipole-dipole attractions (D) ion-ion interactions
(E) none of the above

50. The intermolecular force(s) responsible for the fact that CH_4 has the lowest boiling point in the set $CH_4, SiH_4, GeH_4, SnH_4$ is/are _____.

(A) hydrogen bonding
(B) dipole-dipole interactions
(C) London dispersion forces
(D) mainly hydrogen bonding but also dipole-dipole interactions
(E) mainly London-dispersion forces but also dipole-dipole interactions

Please insert your answer sheet inside the answer book used for section B.

SECTION B (50 Marks)

There are three questions in this section. Each question is worth 25 marks. Answer any two questions.

Question 1 (25 marks)

(a) Lithium and nitrogen react in a combination reaction to produce lithium nitride:

$$6Li\,(s) + N_2\,(g) \rightarrow 2Li_3N\,(s)$$

In a particular experiment, 3.50-g samples of each reagent are reacted. What is the theoretical yield of lithium nitride? [6]

(b) Caffeine, a primary stimulant in coffee, has molar mass 194.19 g/mol and mass composition 49.48% C, 5.19% H, 28.85 % N and 16.48% O. What is the molecular formula of caffeine? [7]

(c) A chemist wants to extract the gold from 15.0 g of gold(II) chloride dihydrate, $AuCl_2{\cdot}2H_2O$, by electrolysis of an aqueous solution.

(i) What mass of gold could be obtained from this sample?

(ii) How many moles of $Cl_2(g)$ will be collected? [6]

(d) Identify the isotope that has the following atoms (give the chemical symbol and name of element)

(i) 6 neutrons, 5 protons and 5 electrons

(ii) 32 neutrons, 28 protons and 28 electrons

(iii) 46 neutrons, 36 protons and 36 electrons [6]

Question 2 (25marks)

(a) Consider the following elements: magnesium, carbon, and chlorine.

(i) Write the ground state electron configuration of each element

(ii) Use an appropriate pair of the above elements and their Lewis symbols to illustrate covalent bond formation.

(iii) Use an appropriate pair of the above elements and their Lewis symbols to illustrate ionic bond formation. [7]

(b) Consider the following molecules: CF_4 and SF_4

(i) Write the Lewis structure of each.

(ii) Predict the shape of the molecule using VSEPR model.

(iii) Predict, giving reasons, which molecule has the higher boiling point. [10]

(c) For the molecule N_2O

(i) Write the Lewis structures that contribute to its resonance hybrid. (skeleton is N-N-O)

(ii) Calculate the formal charges on all atoms in the above structures.

(iii) Select the structure that is likely to make a dominant contribution to the resonance hybrid. [8]

Question 3 (25marks)

(a) 12.0 kg of SO_2 and 8.00 kg of H_2S are allowed to react according to the reaction:

$$8\ SO_2(g) + 16\ H_2S(g) \rightarrow 3\ S_8(s) + 16\ H_2O(l)$$

(i) Identify the oxidizing and reducing agent in the reaction

(ii) Determine the liming reactant and mass of sulphur produced. [8].

(b) A student prepared a solution containing 7.112 g Na_2CO_3 in a 250.0 mL volumetric flask. He transferred some of the solution into a buret. What volume of the solution should be dispensed from the buret to provide

(i) 5.112×10^{-3} mol Na_2CO_3?

(ii) 3.451×10^{-3} mol Na^+? [7]

(c) When 0.236 g of aspirin (a compound of carbon, hydrogen and oxygen) is burned in excess oxygen, 0.0945 g of water and 0.519 g of carbon dioxide are formed.

(i) Determine the empirical and molecular formulas of aspirin.

(ii) Write the balanced equation for the combustion reaction. [10]

General data and fundamental constants

Quantity	Symbol	Value
Speed of light	c	$2.997\ 924\ 58 \times 10^{8}$ m s^{-1}
Elementary charge	e	$1.602\ 177 \times 10^{-19}$ C
Faraday constant	$F = N_A e$	9.6485×10^{4} C mol^{-1}
Boltzmann constant	k	$1.380\ 66 \times 10^{-23}$ J K^{-1}
Gas constant	$R = N_A k$	8.314 51 J K^{-1} mol^{-1}
		$8.205\ 78 \times 10^{-2}$ dm^3 atm K^{-1} mol^{-1}
		6.2364×10 L Torr K^{-1} mol^{-1}
Planck constant	h	$6.626\ 08 \times 10^{-34}$ J s
	$\hbar = h/2\pi$	$1.054\ 57 \times 10^{-34}$ J s
Avogadro constant	N_A	$6.022\ 14 \times 10^{23}$ mol^{-1}
Atomic mass unit	u	$1.660\ 54 \times 10^{-27}$ Kg
Mass		
electron	m_e	$9.109\ 39 \times 10^{-31}$ Kg
proton	m_p	$1.672\ 62 \times 10^{-27}$ Kg
neutron	m_n	$1.674\ 93 \times 10^{-27}$ Kg
Vacuum permittivity	$\varepsilon_o = 1/c^2\mu_o$	$8.854\ 19 \times 10^{-12}$ J^{-1} C^2 m^{-1}
	$4\pi\varepsilon_o$	$1.112\ 65 \times 10^{-10}$ J^{-1} C^2 m^{-1}
Vacuum permeability	μ_o	$4\pi \times 10^{-7}$ J s^2 C^{-2} m^{-1}
		$4\pi \times 10^{-7}$ T^2 J^{-1} m^3
Magneton		
Bohr	$\mu_B = e\hbar/2m_e$	$9.274\ 02 \times 10^{-24}$ J T^{-1}
nuclear	$\mu_N = e\hbar/2m_p$	$5.050\ 79 \times 10^{-27}$ J T^{-1}
g value	g_e	2.002 32
Bohr radius	$a_o = 4\pi\varepsilon_o\hbar/m_e e^2$	$5.291\ 77 \times 10^{-11}$ m
Fine-structure constant	$\alpha = \mu_o e^2 c/2h$	$7.297\ 35 \times 10^{-3}$
Rydberg constant	$R_\infty = m_e e^4/8h^3 c\varepsilon_o^2$	$1.097\ 37 \times 10^{7}$ m^{-1}
Standard acceleration of free fall	g	9.806 65 m s^{-2}
Gravitational constant	G	$6.672\ 59 \times 10^{-11}$ N m^2 Kg^{-2}

Conversion factors

1 cal	=	4.184 joules (J)	1 erg	=	1×10^{-7} J
1 eV	=	$1.602\ 2 \times 10^{-19}$ J	1 eV/molecule	=	96 485 kJ mol^{-1}

Prefixes

f	p	n	μ	m	c	d	k	M	G
femto	pico	nano	micro	milli	centi	deci	kilo	mega	giga
10^{-15}	10^{-12}	10^{-9}	10^{-6}	10^{-3}	10^{-2}	10^{-1}	10^{3}	10^{6}	10^{9}

PERIODIC TABLE OF ELEMENTS

GROUPS

PERIODS	1 IA	2 IIA	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8	9 VIIIB	10	11 IB	12 IIB	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA
1	1.008 **H** 1																	4.003 **He** 2
2	6.941 **Li** 3	9.012 **Be** 4											10.811 **B** 5	12.011 **C** 6	14.007 **N** 7	15.999 **O** 8	18.998 **F** 9	20.180 **Ne** 10
3	22.990 **Na** 11	24.305 **Mg** 12											26.982 **Al** 13	28.086 **Si** 14	30.974 **P** 15	32.06 **S** 16	35.453 **Cl** 17	39.948 **Ar** 18
4	39.098 **K** 19	40.078 **Ca** 20	44.956 **Sc** 21	47.88 **Ti** 22	50.942 **V** 23	51.996 **Cr** 24	54.938 **Mn** 25	55.847 **Fe** 26	58.933 **Co** 27	58.69 **Ni** 28	63.546 **Cu** 29	65.39 **Zn** 30	69.723 **Ga** 31	72.61 **Ge** 32	74.922 **As** 33	78.96 **Se** 34	79.904 **Br** 35	83.80 **Kr** 36
5	85.468 **Rb** 37	87.62 **Sr** 38	88.906 **Y** 39	91.224 **Zr** 40	92.906 **Nb** 41	95.94 **Mo** 42	98.907 **Tc** 43	101.07 **Ru** 44	102.91 **Rh** 45	106.42 **Pd** 46	107.87 **Ag** 47	112.41 **Cd** 48	114.82 **In** 49	118.71 **Sn** 50	121.75 **Sb** 51	127.60 **Te** 52	126.90 **I** 53	131.29 **Xe** 54
6	132.91 **Cs** 55	137.33 **Ba** 56	138.91 ***La** 57	178.49 **Hf** 72	180.95 **Ta** 73	183.85 **W** 74	186.21 **Re** 75	190.2 **Os** 76	192.22 **Ir** 77	195.08 **Pt** 78	196.97 **Au** 79	200.59 **Hg** 80	204.38 **Tl** 81	207.2 **Pb** 82	208.98 **Bi** 83	(209) **Po** 84	(210) **At** 85	(222) **Rn** 86
7	223 **Fr** 87	226.03 **Ra** 88	(227) ****Ac** 89	(261) **Rf** 104	(262) **Ha** 105	(263) **Unh** 106	(262) **Uns** 107	(265) **Uno** 108	(266) **Une** 109	(267) **Uun** 110								

Atomic mass → 10.811
Symbol → **B**
Atomic No. → 5

TRANSITION ELEMENTS

***Lanthanide Series**	140.12 **Ce** 58	140.91 **Pr** 59	144.24 **Nd** 60	(145) **Pm** 61	150.36 **Sm** 62	151.96 **Eu** 63	157.25 **Gd** 64	158.93 **Tb** 65	162.50 **Dy** 66	164.93 **Ho** 67	167.26 **Er** 68	168.93 **Tm** 69	173.04 **Yb** 70	174.97 **Lu** 71
****Actinide Series**	232.04 **Th** 90	231.04 **Pa** 91	238.03 **U** 92	237.05 **Np** 93	(244) **Pu** 94	(243) **Am** 95	(247) **Cm** 96	(247) **Bk** 97	(251) **Cf** 98	(252) **Es** 99	(257) **Fm** 100	(258) **Md** 101	(259) **No** 102	(260) **Lr** 103

( ) indicates the mass number of the isotope with the longest half-life.

UNIVERSITY OF SWAZILAND

C111 SECTION A ANSWER SHEET

STUDENT ID NUMBER:_____ DATE:_____

Correct answer must be indicated by putting a circle around the letter for that answer on the answer sheet provided. If you change your answer, please cancel the wrong answer with a cross and then put a circle around the correct one. If more than one option has a circle around it a zero will be given for that question.

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)

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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)