UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION 2010/11

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

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 symbol for the element mercury is _____.
   (A) Me (B) Pb (C) Sn (D) Hg (E) none of these

2. A small amount of salt dissolved in water is an example of a _____.
   (A) homogeneous mixture (B) heterogeneous mixture (C) compound
   (D) pure substance (E) solid

3. Which one of the following has the element name and symbol correctly matched?
   (A) S, sodium (B) Tn, tin (C) Fe, iron (D) N, neon (E) B, bromine

4. Which one of the following is a pure substance?
   (A) concrete (B) wood (C) salt water (D) elemental copper
   (E) milk

5. Which of the following are chemical processes?
   1. rusting of a nail
   2. freezing of water
   3. decomposition of water into hydrogen and oxygen gases
   4. compression of oxygen gas

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

6. Accuracy refers to _____.
   (A) how close a measured number is to zero
   (B) how close a measured number is to the calculated value
   (C) how close a measured number is to other measured numbers
   (D) how close a measured number is to the true value
   (E) how close a measured number is to infinity

7. Which atom has the smallest number of neutrons?
   (A) carbon-14 (B) nitrogen-14 (C) oxygen-16 (D) fluorine-19
   (E) neon-20

8. There are _____ electrons, _____ protons, and _____ neutrons in an atom of $^{132}_{54}Xe$.
   (A) 132, 132, 54 (B) 54, 54, 132 (C) 78, 78, 54 (D) 54, 54, 78
   (E) 78, 78, 132

9. The element X has two naturally occurring isotopes. The masses (amu) and % abundances of the isotopes are given in the Table below. The average atomic mass of the element is _____ amu.

Isotope	Abundance (%)	Mass (amu)
^{31}X	35.16	31.16
^{34}X	64.84	34.30

(A) 30.20 (B) 33.20 (C) 34.02 (D) 35.22 (E) 32.73

10. Of the following, only _____ is **not** a metalloid.
(A) B (B) Al (C) Si (D) Ge (E) As

11. An element in the upper right corner of the periodic table _____.
(A) is either a metal or metalloid (B) is definitely a metal
(C) is either a metalloid or a non-metal (D) is definitely a non-metal
(E) is definitely a metalloid

12. Which one of the following molecular formulas is also an empirical formula?
(A) $C_6H_6O_2$ (B) C_2H_6SO (C) H_2O_2 (D) $H_2P_4O_6$ (E) C_6H_6

13. Which species has 54 electrons?
(A) $^{132}_{54}Xe^{+}$ (B) $^{128}_{52}Te^{2-}$ (C) $^{118}_{50}Sn^{2+}$ (D) $^{112}_{48}Cd$ (E) $^{132}_{54}Xe^{2+}$

14. Which of the following compounds would you expect to be ionic?
(A) SF_6 (B) H_2O (C) H_2O_2 (D) NH_3 (E) CaO

15. Which species below is the nitride ion?
(A) Na^+ (B) NO_3^- (C) NO_2^- (D) NH_4^+ (E) N^{3-}

16. Which formula/name pair is **incorrect**?
(A) $FeSO_4$ iron(II) sulphate (B) $Fe_2(SO_3)_3$ iron(III) sulphite
(C) FeS iron(II) sulphide (D) $FeSO_3$ iron(II) sulphite
(E) $Fe_2(SO_4)_3$ iron(III) sulphide

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

$$NH_3\,(g) + O_2\,(g) \rightarrow NO_2\,(g) + H_2O\,(g)$$

(A) 1, 1, 1, 1 (B) 4, 7, 4, 6 (C) 2, 3, 2, 3 (D) 1, 3, 1, 2
(E) 4, 3, 4, 3

18. There are _____ hydrogen atoms in 25 molecules of $C_4H_4S_2$.
(A) 25 (B) 3.8×10^{24} (C) 6.0×10^{25} (D) 100 (E) 1.5×10^{25}

19. The formula of nitrobenzene is $C_6H_5NO_2$. The molecular weight of this compound is _____ amu.
(A) 107.11 (B) 43.03 (C) 109.10 (D) 123.11 (E) 3.06

20. The mass % of H in methane (CH_4) is _____.
(A) 25.13 (B) 4.032 (C) 74.87 (D) 92.26 (E) 7.743

21. One mole of _____ contains the largest number of atoms.
(A) S_8 (B) $C_{10}H_8$ (C) $Al_2(SO_4)_3$ (D) Na_3PO_4 (E) Cl_2

22. A sample of CH_2F_2 with a mass of 19 g contains _____ atoms of F.
(A) 2.2×10^{23} (B) 38 (C) 3.3×10^{24} (D) 4.4×10^{23} (E) 9.5

23. How many grams of sodium carbonate contain 1.773×10^{17} carbon atoms?
(A) 3.121×10^{-5} (B) 1.011×10^{-5} (C) 1.517×10^{-5}
(D) 9.100×10^{-5} (E) 6.066×10^{-5}

24. Which of the following are strong electrolytes?
HCl, $HC_2H_3O_2$, NH_3, KCl
(A) HCl, KCl (B) HCl, NH_3, KCl (C) HCl, $HC_2H_3O_2$, NH_3, KCl
(D) HCl, $HC_2H_3O_2$, KCl (E) $HC_2H_3O_2$, KCl

25. What are the spectator ions in the reaction between KOH (aq) and HNO_3(aq)?
(A) $K^+$and H^+ (B) $H^+$and OH^- (C) $K^+$and NO_3^- (D) $H^+$and NO_3^-
(E) OH^-only

26. 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) $Na_2CO_3(aq)+CaCl_2(aq)\rightarrow 2NaCl(aq)+CaCO_3(s)$

27. The concentration (M) of an aqueous methanol produced when 0.200 L of a 2.00 M solution was diluted to 0.800 L is _____M.
(A) 0.800 (B) 0.200 (C) 0.500 (D) 0.400 (E) 8.00

28. A radio station broadcasts at 103.5 MHz. The wavelength of the signal is _____ m.
(A) 3.10 (B) 2.90 (C) 4.71 (D) 2.75 (E) 3.84

29. What is the de Broglie wavelength (m) of a 2.0 kg object moving at a speed of 50 m/s?
(A) 6.6×10^{-36} (B) 1.5×10^{35} (C) 5.3×10^{-33} (D) 2.6×10^{-35} (E) 3.8×10^{34}

30. 12) All of the orbitals in a given subshell have the same value of the ____ quantum number.
(A) principal (B) azimuthal (C) magnetic (D) A and B (E) B and C

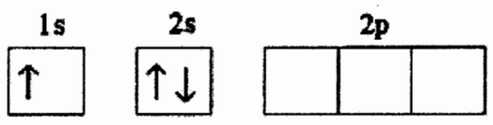
31. Which of the subshells below do <u>not</u> exist due to the constraints upon the azimuthal quantum number?
(A) 4f (B) 4d (C) 4p (D) 4s (E) none of the above

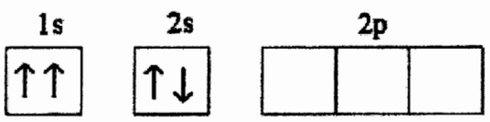
32. An electron cannot have the quantum numbers n = _____, l = _____, m_l = _____.
(A) 6, 1, 0 (B) 3, 2, 3 (C) 3, 2, -2 (D) 1, 0, 0 (E) 3, 2, 1

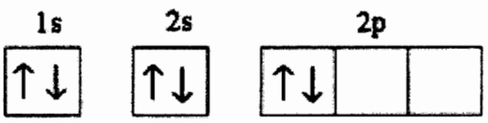
33. Which set of three quantum numbers (n, l, m_l) corresponds to a 3d orbital?
(A) 3, 2, 2 (B) 3, 3, 2 (C) 3, 2, 3 (D) 2, 1, 0 (E) 2, 3, 3

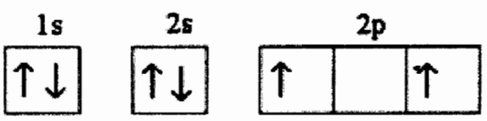
34. Which of the following is a valid set of four quantum numbers?(n, l, m_l, m_s)
(A) 2, 1, 0, +1/2 (B) 2, 2, 1, -1/2 (C) 1, 0, 1, +1/2 (D) 2, 1, +2, +1/2
(E) 1, 1, 0, -1/2

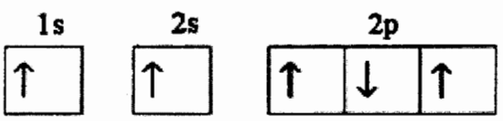
35. Which electron configuration denotes an atom in its ground state?

(A)


(B)


(C)


(D)


(E)


36. The ground state electron configuration of Ga is _____.
(A) $1s^2 2s^2 3s^2 3p^6 3d^{10} 4s^2 4p^1$ (B) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^1$
(C) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^1$ (D) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4d^1$
(E) $[Ar]4s^2 3d^{11}$

37. The ground state configuration of fluorine is _____.
(A) $[He]2s^2 2p^2$ (B) $[He]2s^2 2p^3$ (C) $[He]2s^2 2p^4$ (D) $[He]2s^2 2p^5$
(E) $[He]2s^2 2p^6$

38. Which two elements have the same ground-state electron configuration?
(A) Pd and Pt (B) Cu and Ag (C) Fe and Cu (D) Cl and Ar
(E) No two elements have the same ground-state electron configuration.

39. Which element would be expected to have chemical and physical properties closest to those of fluorine?
(A) S (B) Fe (C) Ne (D) O (E) Cl

40. Of the following, which gives the correct order for atomic radius for Mg, Na, P, Si and Ar?
(A) Mg > Na > P > Si > Ar (B) Ar > Si > P > Na > Mg
(C) Si > P > Ar > Na > Mg (D) Na > Mg > Si > P > Ar
(E) Ar > P > Si > Mg > Na

41. 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^+

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

43. The ion with the smallest diameter is _____.
(A) Br^- (B) Cl^- (C) I^- (D) F^- (E) O^{2-}

44. The acidity of carbonated water is due to the _____.
(A) presence of sulfur (B) reaction of CO_2 and H_2O (C) addition of acid
(D) nonmetal oxides (E) none of the above

45. Based on the octet rule, phosphorus most likely forms a _____ ion.
(A) P^{3+} (B) P^{3-} (C) P^{5+} (D) P^{5-} (E) P^+

46. Which of the following would have to gain two electrons in order to achieve a noble gas electron configuration?
O Sr Na Se Br
(A) Br (B) Sr (C) Na (D) O, Se (E) Sr, O, Se

47. What is the electron configuration for the Co^{2+} ion?
(A) $[Ar]4s^13d^6$ (B) $[Ar]4s^03d^7$ (C) $[Ar]4s^03d^5$ (D) $[Ar]4s^23d^9$
(E) $[Ne]3s^23p^{10}$

48. The Lewis structure of PF_3 shows that the central phosphorus atom has _____ nonbonding and _____ bonding electron pairs.
(A) 2, 2 (B) 1, 3 (C) 3, 1 (D) 1, 2 (E) 3, 3

49. The molecular geometry of the CS_2 molecule is _____.
(A) linear (B) bent (C) tetrahedral (D) trigonal planar (E) T-shaped

50. Of the molecules below, only _____ is polar.
(A) SbF_5 (B) AsH_3 (C) I_2 (D) SF_6 (E) CH_4

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. In all calculations answers must have the correct number of significant figures.

Question 1 (25 marks)

(a) A certain alcohol contains only three elements, carbon, hydrogen, and oxygen. Combustion of a 50.00 gram sample of the alcohol produced 95.50 grams of CO_2 and 58.70 grams of H_2O. What is the empirical formula of the alcohol? [9]

(b) Potassium superoxide, KO_2, is often used in masks by fire-fighters because KO_2 reacts with CO_2 to release molecular oxygen. Experiments indicate that 2 mol KO_2(s)reacts with each mole of CO_2(g). The products are K_2CO_3(s) and O_2(g).
(i) Write a balanced equation for the reaction of KO_2(s) and CO_2(g0.
(ii) What mass of KO_2 is needed to consume 18.0 g CO_2?
(iii) What mass of O_2 is produce during this reaction? [10]

(c) Draw the Lewis structures of the following species
(i) SbF_5 (ii) TeF_4 [6]

Question 2 (25 marks)

(a) A 3.82-g sample of magnesium nitride is reacted with 7.73 g of water.

$$Mg_3N_2 + 3H_2O \rightarrow 2NH_3 + 3MgO$$

The yield of MgO is 3.60 g. What is the percent yield in the reaction? [9]

(b) Barium azide is 62.04% Ba and 37.96% N. Each azide ion has a net charge of -1.
(i) Determine the chemical formula the azide ion.
(ii) Write three resonance structures of the azide ion.
(iii) Which structure is most important? [7]

(c) Consider the following molecules or ions of sulphur: SO_2, SO_3, and SO_3^{2-}
(i) For each species write a single Lewis structure that obeys the octet rule.
(ii) Calculate the oxidation number of S in each species
(iii) Calculate the formal charges on all atoms in each species..
(iv) Arrange these molecules/ions in order of increasing S-O bond distance. [9]

Question 3 (25 marks)

(a) The rays of the Sun that cause tanning and burning are in the ultraviolet portion of the electromagnetic spectrum. These rays are classified by wavelength. UV-A radiation has wavelengths in the range of 320 – 380 nm, whereas the UV-B radiation has wavelengths in the range 290 - 320 nm.

(i) Calculate the frequency of radiation that has wavelength 320 nm.

(ii) Calculate the energy of a mole of 320 nm photons.

(iii) Which are more energetic, photons of UV-A or UV-B radiation?

(iv) UV-B radiation is considered a greater cause of sunburn in humans than UV-A radiation. Is this observation consistent with your answer to (iv)? [6]

(b) (i) Arrange the following in order of increasing size F, K, Br, Rb

(ii) Arrange the following in order of increasing first ionization energy: Al, Si, S, Cl, Ar.

(iii) Arrange the following in order of increasing size: K^+, Ca^{2+}, Cl^-, Ar [6]

(c) The figure below shows the ball and stick drawings of an AF_4 molecule.

(i) (ii) (iii)

(i) For each shape, give the electron domain geometry on which the molecular geometry is based.

(ii) For each shape, how many nonbonding electron domains are there on atom A?

(iii) Which of the following molecules will lead to an AF_4 molecule with the shape in (iii): Be, C, S, Se, Si, Xe?

(iv) Name an element A that is expected to lead to the structure in (i). Explain your reasoning.

(v) Indicate which molecular geometry will give a polar and which give a non-polar molecule. [13]

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

PERIODS	GROUPS 1 IA	2 IIA	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8 VIIIB	9 VIIIB	10 VIIIB	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								

TRANSITION ELEMENTS

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

***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:_____

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)