

Directions: Choose the BEST answer from among those given. 100 questions.

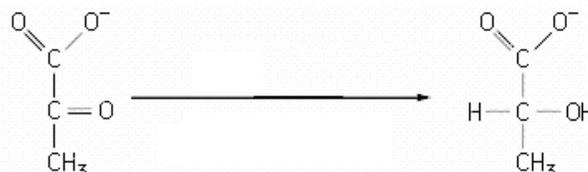
Part 1: Old material - Mallery (41 questions)

- 01) What would be the effect on the pH of the mitoplasm by reducing the oxygen supply?
a) no change at all b) raising the pH c) lowering the pH d) none of these is correct
- 02) Of the following structures, which is more likely to be the largest?
a) a viroid b) a hydrogen atom c) a bacterium d) a lysosome e) none of these
- 03) Of the following, which is likely the most primitive?
a) virus b) eukaryote c) Archaea d) mitochondria e) none of these
- 04) The cell theory includes all of the following except?
a) All organisms are composed of one or more cells b) The cell is surrounded by a membrane
c) The cell is the structural unit of life d) Cells arise spontaneously e) none of these is correct
- 05) Which of the following characteristics do not apply to water?
a) The water molecule is asymmetric
b) The water molecule readily forms hydrophobic interactions
c) The covalent bonds in water are highly polarized
d) All three atoms in the water molecule readily form hydrogen bonds
e) choose this answer none of these apply to water
- 06) If you were to take a triacylglycerol molecule and chemically break the ester bonds, you would end up with two different kinds of molecules. What is the name of the one kind of molecule that would likely be soluble in water?
a) fatty acid b) steroid c) glycogen d) glycerol e) none of these is correct
- 07) Which of the following has been used as circumstantial evidence that primitive life forms may have lacked both DNA and enzymes?
a) RNA can both code genetic information and act as a catalyst
b) DNA and enzymes are only present in the most advanced cells
c) Advanced cells lack RNA d) none of these is correct
- 08) The different orders of protein structure are determined by all of the following chemical bond types except?
a) peptide bonds b) phosphodiester bonds c) disulfide bridges d) hydrogen bonds e) none of these
- 09) A small aliquot (0.1 ml sample) of a 20.0 ml homogenate of tumor tissue is shown to contain 3.0 mg of RAS protein by the Bradford protein assay and to convert 15.0 micromoles of GTP to GDP + P per minute at 37°C.
What is the specific activity of this enzyme?
a) 1,000 units/mg protein b) 13.33 micromoles
c) 5.0 units/mg protein d) 45 micromoles/mg protein e) none of these is the best choice
- 10) For a reaction with a standard free energy change of + 0.7 kcal/mole, which of the following statements is true?
a) The reaction is exergonic b) The reaction would occur spontaneously
c) The reaction could be made to occur by altering the concentrations of reactants and products from equilibrium
d) None of the above
- 11) Which of the following experimental result does NOT support Mitchell's chemiosmosis theory?
a) Electron transport in isolated mitochondria was shown to result in acidification of the medium
b) Addition of dinitrophenol, a hydrogen uncoupler, to isolated mitochondria was shown to inhibit electron transport, but had no effect on ATP synthesis
c) An artificial proton gradient across the inner mitochondrial membrane drives ATP synthesis in the absence of electron transport
d) choose this answer if all of these do support chemiosmosis
- 12) Which of the following classes of enzymes does not catalyze a reaction within the Krebs Cycle ?
a) dehydrogenases (as malate dehydrogenase) b) thiokinases (as succinyl thiokinase)
c) synthetases (as citrate synthetase) d) carboxylases (PEP carboxylase)
e) choose this answer if all of the above catalyze Krebs Cycle reactions

- 28) When a peptide bond is formed between 2 amino acids?
 a) the R groups occur on opposite sides of the bond
 b) free rotation of R-groups is removed
 c) the new bond length is shorter than a C-C
 d) a carboxyl end & an amino end are linked together
 e) choose this answer if all of the above are correct

- 29) The basic amino acids are those that are positively charged at pH's below 4.0, are hydrophilic, and contain ionic side groups? a) true b) false

- 30) Which molecule (A or B) is the more oxidized one?
 a) A b) B c) neither d) none of these



- 31) From the given list, the protein(s) in which the amino acid sequenced is most conserved throughout evolution, (i.e., has the most an invariant sequence over vast periods of time) is?
 a) cytochrome-C b) insulin c) histones d) collagen e) none of these is correct
- 32) The native conformation of most enzymes is?
 a) fibrous b) globular c) only β -sheets d) only α -helix e) none of these
- 33) To separate one protein from all others based primarily upon molecular size, the best procedure of those listed is?
 a) SDS-PAGE b) high pressure liquid chromatography c) gel filtration chromatography
 d) differential centrifugation e) none of these is a correct choice
- 34) A negative allosteric modulator of enzyme activity will bind to an enzyme's?
 a) active site b) substrate c) product d) site other than the active site
- 35) The final metabolite product produced by glycolysis is best given as?
 a) acetyl-CoA b) pyruvate c) 3-phosphoglycerate d) fatty acid e) none of these
- 36) Mammalian skeletal muscle cells convert pyruvate to lactate. What purpose does this seem to serve for an organism?
 a) it is an efficient way to regenerate NAD^+ b) it allows the organism to grow anaerobically
 c) it allows more energy to be extracted from citrate d) it is an important way to prevent heat loss
- 37) The photolysis of water? a) requires Mn ions b) occurs in the PS I system c) releases CO_2
 d) consumes ATP directly e) none of these is correct
- 38) In 1944 Avery, MacLeod, and McCarty identified the Transforming Principle of Griffith as DNA, but the real significance of their work was?
 a) they were first to use radioisotopes b) they were first to describe structure of DNA
 c) they were to use digestive enzymes to test biological activity d) none of these is a correct choice
- 39) Mitchell's chemiosmotic hypothesis?
 a) moves electrons directly across the outer mitochondrial membrane into the cytosol
 b) has protons accumulating within the mitochondrial matrix
 c) applies only to substrate level phosphorylation
 d) moves e's from H_2O to NAD^+ to synthesize ATP
 e) choose this answer if none of these is correct
- 40) The Calvin-Benson Cycle of photosynthesis consumes 3 ATP and 2 NADPH per CO_2 reduced into carbohydrate?
 a) true b) false
- 41) The proton motive force of the Chemiosmosis Hypothesis of Mitchell has H^+ ions moving through which portion of ATP synthase?
 a) F_0 subunit b) F_1 subunit c) the 6 α and β polypeptides d) the NADH-Q reductase
 e) choose this answer if none of these is correct

Part 2: Old material - Glaser (28 questions)

42. A given regulatory protein may: a) Control expression of a single gene b) Can control expression of multiple genes

43. A table showing the genetic code identified 61 triplets that code for amino acids, it follows from that:
- there must be 61 different tRNAs
 - some tRNAs recognize more than one code word
 - if a tRNA recognizes more than one code word it is due to a non canonical (non-Watson-Crick) base pair in the third portion
 - b and c are correct
44. The regulatory sequence that influences the level of expression of a eukaryotic gene is:
- all clustered immediately preceding the start of transcription
 - multiple regulatory sequences can be a large distance away from the start of transcription
45. In order for transcription to take place, the structure of the nucleosome must be changed. Before transcription is initiated you expect:
- the promoter region of a gene has highly acetylated histones
 - the promoter region of a gene has low levels of histone acetylation
 - acetylation does not affect nucleosome structure
46. Chaperones are proteins that:
- Hydrolyze proteins to amino acids
 - Assist proteins to fold properly, or in some cases to remain unfolded
 - Require ATP
 - b and c apply
 - a and b apply
47. A mutation removes three successive nucleotides from the coding region of a gene (think very carefully). The most likely effect is:
- The gene codes for a shorter protein
 - The gene does not code for a functional protein
48. The concentration of amino acids in liver cells is generally higher than in extracellular fluid. In the presence of ouabain, which inhibits Na^+/K^+ ATPase you expect to find for the amino acid alanine (Ala)
- $\text{Ala}_{\text{inside}} \leq \text{Ala}_{\text{outside}}$
 - $\text{Ala}_{\text{inside}} \geq \text{Ala}_{\text{outside}}$
49. Ribosomal RNA is: (select the most complete answer)
- Synthesized in the nucleus
 - Synthesized in the nucleolus
 - Assembled into ribosomes in the cytoplasm
 - assembled into ribosomes in the nucleolus
50. The dideoxy nucleotide method for sequencing DNA is based upon:
- The chain termination of DNA polymerase action after a dideoxy nucleotide is incorporated into DNA
 - The separation of DNA molecules that differ in length by one nucleotide
 - The knowledge of the beginning sequence of the DNA to synthesize a primer
 - a and b apply
 - a, b and c apply
51. Small interfering RNA's can:
- In some case prevent mRNA translation
 - In other case target the mRNA to destruction
 - Both apply
52. Insulators are proteins that:
- bind to specific sequences in DNA
 - make sure that regulatory proteins can only affect one gene
 - control the spread of heterochromatin
 - all apply
53. You wish to use E. Coli to synthesize human growth hormone. You use a plasmid that contains the cDNA sequence of human growth hormone and a gene for penicillin resistance. You select E. Coli cells that are resistant to penicillin and none of them make human growth hormone or it's mRNA. This is because:
- E. Coli RNA polymerase cannot transcribe a human DNA sequence
 - You forgot to insert a eukaryotic control sequence
 - You forgot to insert a prokaryotic control sequence
54. Prokaryotic mRNA's start with a:
- Methyl G cap
 - A nucleoside triphosphate
55. You want to develop a "genetic cure" for a disease that is the result of a mutation in one specific gene. You clone the gene and insert it into a retrovirus, which has also been engineered to not reproduce in human cells, but can infect these cells. The inserted sequence should minimally include
- The full sequence of the gene including introns and exons
 - A binding site for transcription factors and RNA polymerase
 - The full set of regulatory sequences for tissue specific expressions of the gene
 - a and c apply
 - a, b and c apply

56. To create a transgenic cow that would synthesize a human protein in milk, you would:
- Inject total human DNA into the mammary gland
 - Select embryonal stem cells (ES) transfected with human gene under control of a promoter expressed in all somatic cells
 - Select ES cells transfected with a human gene under control of a DNA sequence specific for proteins secreted in milk such as lactalbumin and transfer these cells to early blastulas
 - None of the above
57. The effect of cholesterol on a lipid bilayer is to: a) Make it more fluid b) Restrict mobility
58. Transposons (pick the most complete answer):
- Function by removing a section of DNA from one location to another in the genome
 - Sometimes function by removing a section of DNA from one location to another in the genome but other transposons are first replicated and the replicated DNA is inserted at a new location in the genome
 - Some transposons are first copied (transcribed) into RNA and use reverse transcriptase to make the DNA that will be inserted elsewhere in the genome
 - a and b apply e) b and c apply
59. Hematopoietic stem cells could initially be identified because:
- they display a number of antigens collectively unique to these cells
 - these antigens could be identified with monoclonal antibodies
 - the cells that bind any one of these antibodies labeled with a fluorescent dye could be separated with a fluorescent cell sorter
 - a, b and c apply
60. Eukaryotic cells are divided into different compartments. Could the cell functions of some compartment disappear if their enzymes would be permanently located in the cytoplasm? a) yes b) no
61. Nuclear transfer of a somatic cell nucleus into the cytoplasm of an egg demonstrates that:
- the nucleus of a somatic cell contains all the genetic information of the organism
 - the regulatory and epigenetic changes in the nucleus of a differentiated cell can be reversed at modest frequency
 - a and b apply
62. The nucleus contains structures that under the microscope appear as pores:
- transit through the pores is possible for some molecules, protein, or RNA of appropriate dimension
 - transit in and out of the nucleus depends on specific carrier molecules and requires energy (hydrolysis of GTP)
 - both a and b apply
63. Some mutations within exons are silent, i.e., they have no phenotype. This is because: (Pick the most likely answer)
- A change in the amino acid is irrelevant to the structure and function of the protein
 - The mRNA still codes for the same amino acid sequence
64. Regulatory proteins bind to DNA this requires unwinding of the helix at the binding site: a) True b) False
65. When you examine the sequence of a eukaryotic mRNA you expect the 3' before the poly A tail to:
- code for the last amino acid at the C terminal end of the protein
 - code for the last amino acid at the N terminal end of the protein
 - not code for a protein sequence but have a regulatory function
66. You clone the upstream region of DNA that precedes a site for initiation of transcription for Phosphofructokinase & you link this to the coding region for green fluorescent protein in a plasmid that you use to transfect liver cells. You delete portions of the upstream region and replace them with a random sequence of the same bases. You expect to find:
- A single short nucleotide sequence that controls transcription of this gene
 - multiple regions that control gene transcription

The next two questions are related

67. You wish to generate ewe's (female sheep) that secrete factor IX, a human blood coagulation protein in their milk. To accomplish this you isolate fibroblasts from a ewe and stably(permanently) transfect them with a plasmid that contains the gene for factor IX linked to:
- Its normal upstream region
 - The regulatory region of ewe lactalbumin (a milk protein)
 - An antibiotic resistance gene
 - a and c apply
 - b and c apply

68. You obtain fibroblasts that contain the genetic construct you selected in the previous question and you transfer their nucleus to oocytes and eventually obtain a ewe as a result of *in vitro* fertilization. You wish to obtain more ewes that can secrete factor IX, so you mate this ewe with one of your prize sheep. The ewe delivers a baby and its milk actually contain factor IX. You obtain several ewes from this and subsequent matings and you expect:
- All of the offspring will secrete factor IX in their milk
 - Only some may secrete factor IX in their milk
69. During DNA synthesis the DNA polymerase:
- Is released after the addition of each nucleotide
 - Remains linked to the DNA strand which it is replicated

Part 3: New Material - Glaser (30 questions)

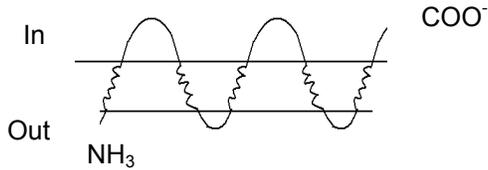
70. A variety of lipid soluble hormones influence gene transcription because:
- they can diffuse into cells and if the cell contains a receptor for these hormones it can be then activate gene transcriptions
 - the genes that are activated are the same for all hormones
 - the hormone receptors have similar structures and differ in their ability to bind hormones
 - the hormone receptors have similar structures and differ in their ability to bind specific DNA sequences
 - a, c and d all apply
71. The Ames test measures a chemical for:
- Its tumorigenicity
 - Its mutagenicity
72. Many tumors have mutations in the gene coding for Ras, you expect the mutation to be:
- Deletion of Ras
 - Changes in Ras that abolish its GTPase activity
73. Subsequent to the bending of LDL to its receptor in the hepatocytes, the LDL is:
- Internalized and degraded in lysosomes
 - Degraded in a reaction that requires ubiquitin
 - Cholesterol is removed from the LDL and the remaining proteins and lipids are released into the cytoplasm
74. High levels of glucose in blood elicit insulin secretion by the β cells of the pancreas, they do this by:
[pick the best answer]
- Increasing the level of glucose in the β cells
 - Increasing intracellular Ca^{++}
 - Increasing the level of ATP in the β cells
 - all of these apply
75. The activity of cyclin dependent protein kinases is controlled by:
- Synthesis of cyclins
 - Degradation of the cyclin dependent kinase at specific points in the cell cycle
 - Degradation of the cyclin at specific points in the cell cycle
 - a and c apply
 - b and c apply
76. The concentration of cAMP in cells is: (pick the most complete answer):
- Invariant
 - Determined by the activity of Adenyl-cyclase
 - Reflects the balance between the rate of Adenyl-cyclase and the rate of cAMP phosphodiesterase
77. When a hormone binds to a receptor on the surface of a cell, the cell will:
- Receive an intracellular signal as long as the hormone is present
 - The receptor's activity may be diminished by modification, such as phosphorylation or binding of inhibitory proteins
 - The receptor may be internalized and degraded
 - b and c apply
78. To generate a polarized cell membrane, vesicles leaving the trans Golgi to go to the cytoplasmic membrane must be:
- Uniform (i.e., the same)
 - Different
 - Have different v snares
 - b and c apply
79. When glucose is transported from the intestinal lumen to the blood by intestinal epithelial cells:
- You expect no net movement of Na^+ from the intestinal lumen to the blood
 - You expect a net movement of Na^+ to the blood
80. Which of the following events are likely to predispose a cell to become a cancer cell:
- Loss of p53 gene
 - Loss of DNA repair protein
 - Decrease in cellular ATP levels
 - a and c apply
 - a and b apply
81. In order for a symport to function the change of orientation of the binding site for the ligands occurs:
- When either of the binding sites is occupied
 - When no binding site is occupied
 - When both sites are occupied
 - a and c apply
 - b and c apply

82. An antibody to the EGF receptor (epidermal growth factor) when added to cells, mimics the action of EGF. You isolate very rapidly the EGF receptor from antibody stimulated cells, you expect to find
- The receptor is phosphorylated on serine residues
 - The receptor is phosphorylated on multiple tyrosine residues
83. Oncogenes act as dominant agents that control cell growth. You expect a mutation in the retinoblastoma gene to behave as a:
- Dominant mutation
 - Recessive mutation
84. When phosphatidyl ethanolamine is present in a lipid bilayer you expect the ethanolamine to be:
- At the center of the bilayer
 - In the aqueous phase
85. Glucose and mannose are monosaccharides of identical size (Mol wt. 180) yet glucose readily enters muscle cells & mannose does not. The concentration of glucose in the intracellular fluid (cytoplasm) is never higher than in extracellular fluid and often lower. Based on these observations, you expect glucose entry into muscles to be:
- Via a pore
 - By a glucose specific carrier (facilitated diffusion)
 - by a Na^+ /glucose cotransporter (symport)
86. Some proteins form pores/channels that allow entry or exit of hydrophilic (water soluble) molecules from cellular compartments. You expect such proteins to traverse membranes:
- Once
 - Twice
 - Multiple times
87. Complex carbohydrates are covalently linked to many proteins on asparagine residues. Which of the following statements is correct?
- The carbohydrates are built by adding one sugar residue at a time to the protein in the ER
 - The carbohydrates are preassembled on a lipid (dolichol) and then transferred to protein in the ER
88. Caffeine is an inhibitor of cAMP phosphodiesterase. Would you expect that it:
- Inhibits the effect of low concentrations of ACTH on the adrenal cortex
 - Stimulates the effect of low concentration of ACTH on the adrenal cortex
89. The classical experiments of E. Sutherland led to the discovery that:
- cAMP directly activates glycogen phosphorylase
 - cAMP acts by activation of a protein kinase
 - cAMP only acts in liver cells to activate glycogen degradation
90. After endocytosis, the LDL receptor:
- Returns to cytoplasmic membrane
 - Is degraded
91. In response to hormonal stimulation Ca^{++} level increase in cells, this requires:
- activation of a specific phospholipase A
 - activation of a specific phospholipase C
 - increase levels of inositol 1, 4, 5 triphosphate
 - a and c apply
 - b and c apply
92. Which of the following statements is correct regarding ATP driven pumps:
- the only ATP driven pump is the Na^+/K^+ ATPase
 - eukaryotic cells contain a variety of ATP driven pumps including Na^+/K^+ ATPase, Ca^{++} ATPase and H^+ ATPase
 - all ATP driven pumps are in the cytoplasmic membrane
 - b and c are correct
93. When proteins destined to be secreted are misfolded in the ER they are directed to lysosomes for destruction:
- true
 - false
94. The Ca^{++} ATPase functions to transport Ca^{++} from the cytoplasm to the lumen of the ER:
- to accomplish this ATP is hydrolyzed in the lumen of the ER
 - ATP initially phosphorylates a serine residue in the enzyme
 - ATP phosphorylates an aspartic residue in the enzyme
95. If cells controlled the activity of glycogen phosphorylase but did not simultaneously control the glycogen synthesis, this would:
- be of no importance
 - result in a futile cycle
 - the futile cycle arises because there is a common intermediate in glycogen synthesis and glycogen degradation on glucose-1- phosphate
96. The lumen of the lysosome as well as that of primary endocytotic vesicles has pH 5. Protons are moved from the cytoplasm to the lumen of the lysosome to lower its pH. You expect Cl^- to also move into the lumen to make this happen:
- true
 - false

97. Mitochondrial proteins coded by nuclear genes are:
 a) Inserted into mitochondrial membranes cotranslationally
 b) Inserted into mitochondrial membranes post-translationally
98. Membrane proteins are always inserted into membranes cotranslationally and there are no exceptions to this rule:
 a) true b) false
99. A protein has the following structure in the cytoplasmic membrane. As this protein was inserted into the ER membrane you expect that it had the following signals:

STA= Internal Stop Transfer Anchor

SA= Internal Signal Anchor



- a)
-
- b)
-

100. In "Medical Terminology" for the Layman which of the following is correct?

- a) CAESAREAN SECTION is a district in Rome
 b) CAT SCAN is a search pattern for a kitty
 c) DILATE is to live long
 d) FESTER is a member of the Addams family
 e) none of the above is correct - you must **PICK** this choice (e) to receive credit for this question.

the end

		2nd base in codon					
		U	C	A	G		
1st base in codon	U	Phe Phe Leu Leu	Ser Ser Ser Ser	Tyr Tyr STOP STOP	Cys Cys STOP Trp	U C A G	3rd base in codon
	C	Leu Leu Leu Leu	Pro Pro Pro Pro	His His Gln Gln	Arg Arg Arg Arg	U C A G	
	A	Ile Ile Ile Met	Thr Thr Thr Thr	Asn Asn Lys Lys	Ser Ser Arg Arg	U C A G	
	G	Val Val Val Val	Ala Ala Ala Ala	Asp Asp Glu Glu	Gly Gly Gly Gly	U C A G	

SIGNATURE _____ DATE _____

ON MY HONOR, I HAVE NEITHER GIVEN NOR RECEIVED AID ON THIS EXAMINATION.

SIGNATURE 255207 Final F2 DATE 5/8/07

SIDE 1

1	A B C D E ① ② ③ ④ ⑤	11	A B C D E ① ② ③ ④ ⑤	21	A B C D E ① ② ③ ④ ⑤	31	A B C D E ① ② ③ ④ ⑤	41	A B C D E ① ② ③ ④ ⑤
2	A B C D E ① ② ③ ④ ⑤	12	A B C D E ① ② ③ ④ ⑤	22	A B C D E ① ② ③ ④ ⑤	32	A B C D E ① ② ③ ④ ⑤	42	A B C D E ① ② ③ ④ ⑤
3	A B C D E ① ② ③ ④ ⑤	13	A B C D E ① ② ③ ④ ⑤	23	A B C D E ① ② ③ ④ ⑤	33	A B C D E ① ② ③ ④ ⑤	43	A B C D E ① ② ③ ④ ⑤
4	A B C D E ① ② ③ ④ ⑤	14	A B C D E ① ② ③ ④ ⑤	24	A B C D E ① ② ③ ④ ⑤	34	A B C D E ① ② ③ ④ ⑤	44	A B C D E ① ② ③ ④ ⑤
5	A B C D E ① ② ③ ④ ⑤	15	A B C D E ① ② ③ ④ ⑤	25	A B C D E ① ② ③ ④ ⑤	35	A B C D E ① ② ③ ④ ⑤	45	A B C D E ① ② ③ ④ ⑤
6	A B C D E ① ② ③ ④ ⑤	16	A B C D E ① ② ③ ④ ⑤	26	A B C D E ① ② ③ ④ ⑤	36	A B C D E ① ② ③ ④ ⑤	46	A B C D E ① ② ③ ④ ⑤
7	A B C D E ① ② ③ ④ ⑤	17	A B C D E ① ② ③ ④ ⑤	27	A B C D E ① ② ③ ④ ⑤	37	A B C D E ① ② ③ ④ ⑤	47	A B C D E ① ② ③ ④ ⑤
8	A B C D E ① ② ③ ④ ⑤	18	A B C D E ① ② ③ ④ ⑤	28	A B C D E ① ② ③ ④ ⑤	38	A B C D E ① ② ③ ④ ⑤	48	A B C D E ① ② ③ ④ ⑤
9	A B C D E ① ② ③ ④ ⑤	19	A B C D E ① ② ③ ④ ⑤	29	A B C D E ① ② ③ ④ ⑤	39	A B C D E ① ② ③ ④ ⑤	49	A B C D E ① ② ③ ④ ⑤
10	A B C D E ① ② ③ ④ ⑤	20	A B C D E ① ② ③ ④ ⑤	30	A B C D E ① ② ③ ④ ⑤	40	A B C D E ① ② ③ ④ ⑤	50	A B C D E ① ② ③ ④ ⑤

51	A B C D E ① ② ③ ④ ⑤	61	A B C D E ① ② ③ ④ ⑤	71	A B C D E ① ② ③ ④ ⑤	81	A B C D E ① ② ③ ④ ⑤	91	A B C D E ① ② ③ ④ ⑤
52	A B C D E ① ② ③ ④ ⑤	62	A B C D E ① ② ③ ④ ⑤	72	A B C D E ① ② ③ ④ ⑤	82	A B C D E ① ② ③ ④ ⑤	92	A B C D E ① ② ③ ④ ⑤
53	A B C D E ① ② ③ ④ ⑤	63	A B C D E ① ② ③ ④ ⑤	73	A B C D E ① ② ③ ④ ⑤	83	A B C D E ① ② ③ ④ ⑤	93	A B C D E ① ② ③ ④ ⑤
54	A B C D E ① ② ③ ④ ⑤	64	A B C D E ① ② ③ ④ ⑤	74	A B C D E ① ② ③ ④ ⑤	84	A B C D E ① ② ③ ④ ⑤	94	A B C D E ① ② ③ ④ ⑤
55	A B C D E ① ② ③ ④ ⑤	65	A B C D E ① ② ③ ④ ⑤	75	A B C D E ① ② ③ ④ ⑤	85	A B C D E ① ② ③ ④ ⑤	95	A B C D E ① ② ③ ④ ⑤
56	A B C D E ① ② ③ ④ ⑤	66	A B C D E ① ② ③ ④ ⑤	76	A B C D E ① ② ③ ④ ⑤	86	A B C D E ① ② ③ ④ ⑤	96	A B C D E ① ② ③ ④ ⑤
57	A B C D E ① ② ③ ④ ⑤	67	A B C D E ① ② ③ ④ ⑤	77	A B C D E ① ② ③ ④ ⑤	87	A B C D E ① ② ③ ④ ⑤	97	A B C D E ① ② ③ ④ ⑤
58	A B C D E ① ② ③ ④ ⑤	68	A B C D E ① ② ③ ④ ⑤	78	A B C D E ① ② ③ ④ ⑤	88	A B C D E ① ② ③ ④ ⑤	98	A B C D E ① ② ③ ④ ⑤
59	A B C D E ① ② ③ ④ ⑤	69	A B C D E ① ② ③ ④ ⑤	79	A B C D E ① ② ③ ④ ⑤	89	A B C D E ① ② ③ ④ ⑤	99	A B C D E ① ② ③ ④ ⑤
60	A B C D E ① ② ③ ④ ⑤	70	A B C D E ① ② ③ ④ ⑤	80	A B C D E ① ② ③ ④ ⑤	90	A B C D E ① ② ③ ④ ⑤	100	A B C D E ① ② ③ ④ ⑤