

FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Friday, June 14, 2013 — 9:15 a.m. to 12:15 p.m., only

SCORING KEY AND RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 2 before rating student papers.

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: <http://www.p12.nysed.gov/assessment/> and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Part A and Part B-1

Allow 1 credit for each correct response.

Part A

1 4	10 4	19 2	28 1
2 3	11 1	20 3	29 2
3 2	12 1	21 3	30 4
4 3	13 2	22 2	31 4
5 1	14 1	23 2	32 2
6 2	15 2	24 3	33 4
7 4	16 4	25 4	34 4
8 3	17 1	26 3	35 1
9 1	18 1	27 4	

Part B-1

36 4	40 2	44 3	48 4
37 4	41 3	45 1	49 2
38 2	42 1	46 2	50 3
39 4	43 4	47 1	

Directions to the Teacher

Follow the procedures below for scoring student answer papers for the Regents Examination in Physical Setting/Earth Science. Additional information about scoring is provided in the publication *Information Booklet for Scoring Regents Examinations in the Sciences*.

Do not attempt to correct the student's work by making insertions or changes of any kind. If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the Part B–2 and Part C open-ended questions on a student's paper. Each of these teachers should be responsible for scoring a selected number of the open-ended questions on each answer paper. No one teacher is to score more than approximately one-half of the open-ended questions on a student's answer paper. Teachers may not score their own students' answer papers.

Students' responses must be scored strictly according to the Scoring Key and Rating Guide. For open-ended questions, credit may be allowed for responses other than those given in the rating guide if the response is a scientifically accurate answer to the question and demonstrates adequate knowledge as indicated by the examples in the rating guide. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Fractional credit is *not* allowed. Only whole-number credit may be given for a response. If the student gives more than one answer to a question, only the first answer should be rated. Units need not be given when the wording of the questions allows such omissions.

For hand scoring, raters should enter the scores earned in the appropriate boxes printed on the separate answer sheet. Next, the rater should add these scores and enter the total in the space provided. The student's score for the Earth Science Performance Test should be recorded in the space provided. Then the student's raw scores on the written test and the performance test should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Friday, June 14, 2013. The student's scale score should be entered in the box labeled "Scale Score" on the student's answer sheet. The scale score is the student's final examination score.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

Part B–2

Allow a maximum of 15 credits for this part.

51 [1] Allow 1 credit for condensation.

52 [1] Allow 1 credit if *both* the soil permeability and the land surface slope are correct. Acceptable responses include, but are not limited to:

Soil permeability:

- high
- The soil is unsaturated.
- a soil that allows water to easily or rapidly seep through
- The surface of the soil is not frozen.
- a very permeable soil
- loosely packed large particles

Land surface slope:

- a gentle slope
- a slope that is not steep
- a level slope
- flat/a flat plain

53 [1] Allow 1 credit for chemical weathering and an acceptable characteristic of limestone. Acceptable characteristics include, but are not limited to:

- Acid dissolves limestone.
- The calcite in the limestone chemically reacts with acid.
- Limestone is composed of calcite.

54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

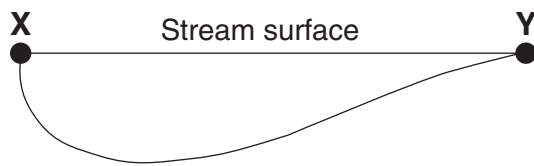
- The heavy rainfall will infiltrate the ground, causing the water table to rise closer to the surface.
- Infiltration will occur.
- The ground becomes more saturated.
- The saturated zone will increase.
- The water table will rise.
- erosion of the land surface

Note: Do *not* allow credit for the process of weathering acting alone.

- 55** [1] Allow 1 credit for position number 1.
- 56** [1] Allow 1 credit for any value from 29 d to 30 d.
- 57** [1] Allow 1 credit for position number 3.
- 58** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The gravitational attraction between the Moon and Earth is least when they are farthest apart.
 - The force of gravity is less.
 - Gravitational attraction is greater when the Moon is closer to Earth.
- 59** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The Moon’s period of rotation and period of revolution are equal.
 - The Moon rotates only once per revolution.
 - The Moon rotates and revolves once in 27.3 days.
 - The Moon rotates and revolves at the same rate.
- 60** [1] Allow 1 credit if the center of the **X** is within the Middle Devonian zone *or* the Early and Middle Devonian zone located northwest of New York City.
- 61** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Allegheny Plateau
 - Appalachian Plateau
 - Appalachian Uplands

62 [1] Allow 1 credit for a streambed that is deeper near the X.

Example of a 1-credit response:



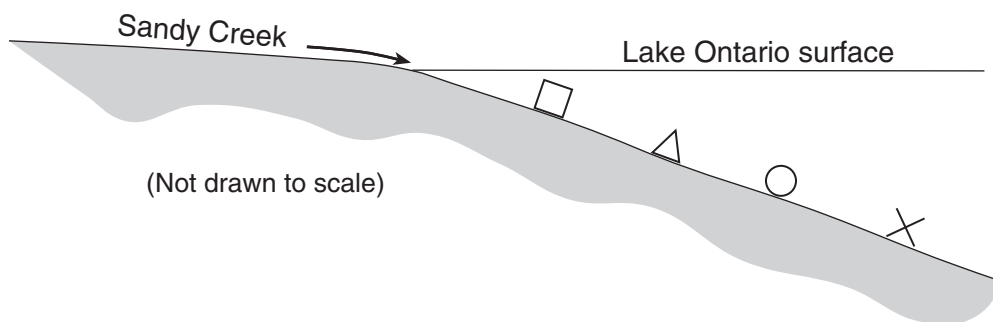
63 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Water velocity decreases, causing some sediment to be dropped.
- The stream slows down as it enters the lake.

64 [1] Allow 1 credit if the relative positions of the symbols or particle names are in the order shown.

Example of a 1-credit response:

Key	
□	Small pebble
△	Sand
○	Silt
×	Clay



65 [1] Allow 1 credit for any value from 80 cm/s to 100 cm/s.

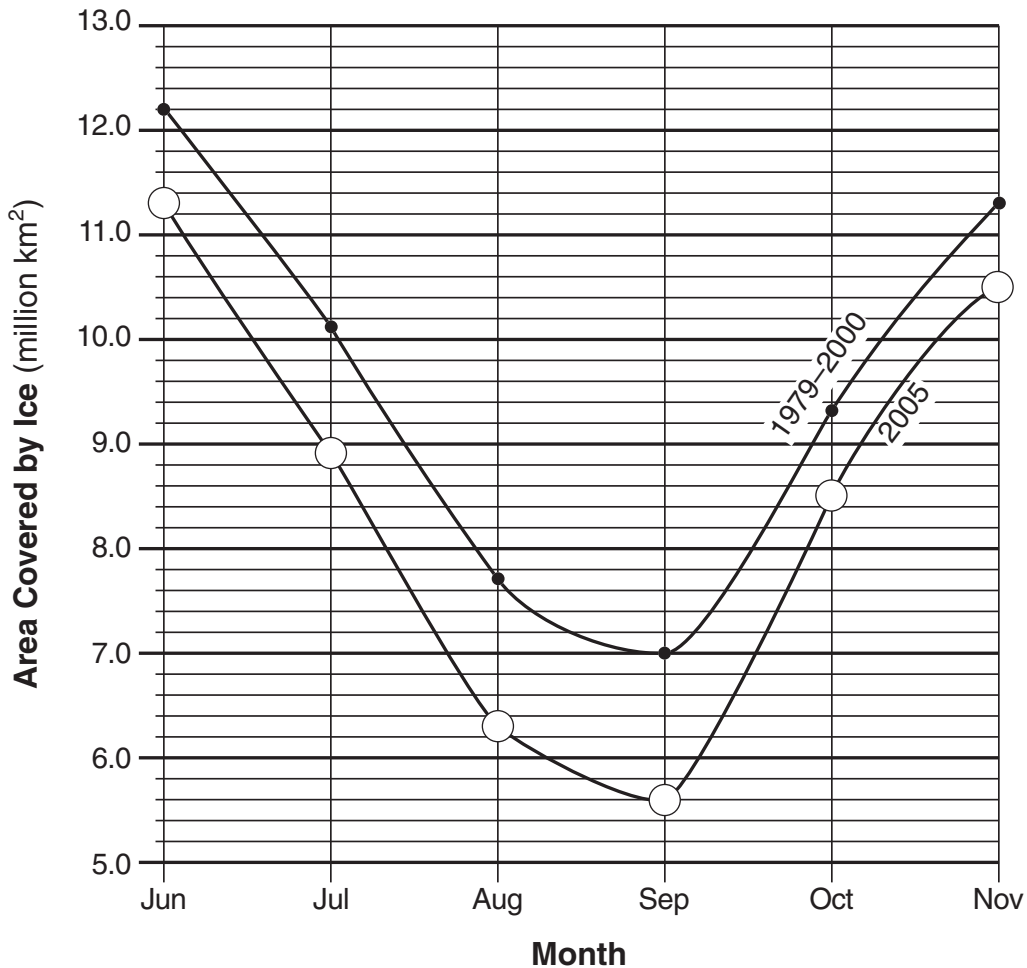
Part C

Allow a maximum of 20 credits for this part.

- 66** [1] Allow 1 credit for *two* of the three correct responses below.
- silicon *or* Si
 - oxygen *or* O
 - aluminum *or* Al
- 67** [1] Allow 1 credit for diorite.
- 68** [1] Allow 1 credit for *two* correct responses. Acceptable responses include, but are not limited to:
- melting
 - cooling
 - solidification/crystallization/hardening
 - heating
- 69** [1] Allow 1 credit for Pliocene Epoch.
- 70** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- southeastward
 - south
 - ESE
 - east
 - SSE
 - to the right
- 71** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- divergent
 - transform
 - mid-ocean ridge
- 72** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Dissolved gases are released from lava as a result of a decrease in pressure.
 - gas/air bubbles trapped in rapidly cooling lava
 - There was an explosive eruption of a volcano.
- 73** [1] Allow 1 credit for any value from 3100°C to 3300°C.

- 74 [1] Allow 1 credit if the centers of *all six* plots are within the circles shown and are correctly connected with a line that passes within each circle.

Note: It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.

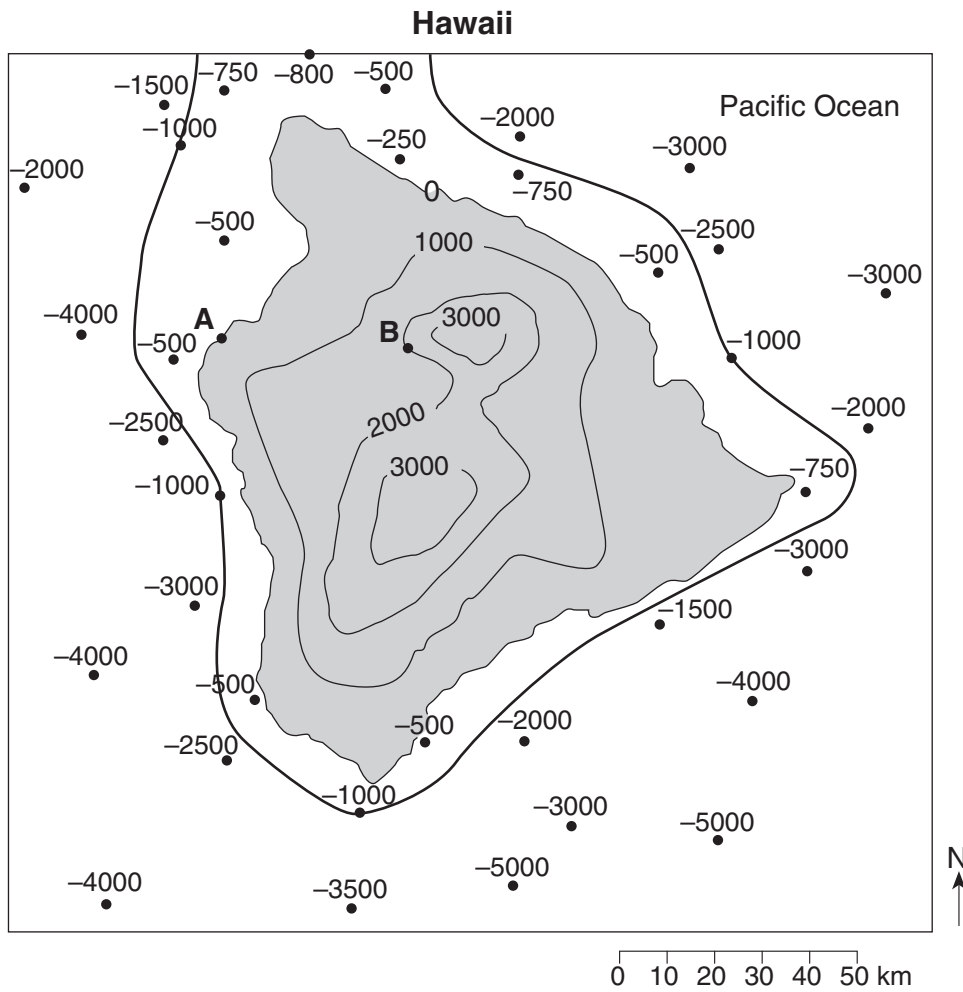


- 75 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The area covered by ice in 2005 was less than the average area covered by ice from 1979 to 2000.
 - The area covered by ice was less, showing evidence of global warming.
 - More ice melted in 2005 than the average that melted from 1979 to 2000.
 - The ice caps were melting, causing less surface ice in 2005.
 - There was less ice in 2005.

- 76 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- carbon dioxide *or* CO₂
 - methane *or* CH₄
 - water vapor *or* H₂O gas
 - nitrous oxide *or* N₂O
 - ozone *or* O₃
 - chlorofluorocarbons *or* CFCs

77 [1] Allow 1 credit if the -1000 isoline is correctly drawn to the edge of the map. If additional isolines are drawn, all isolines must be correct to receive credit.

Example of a 1-credit response:



78 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

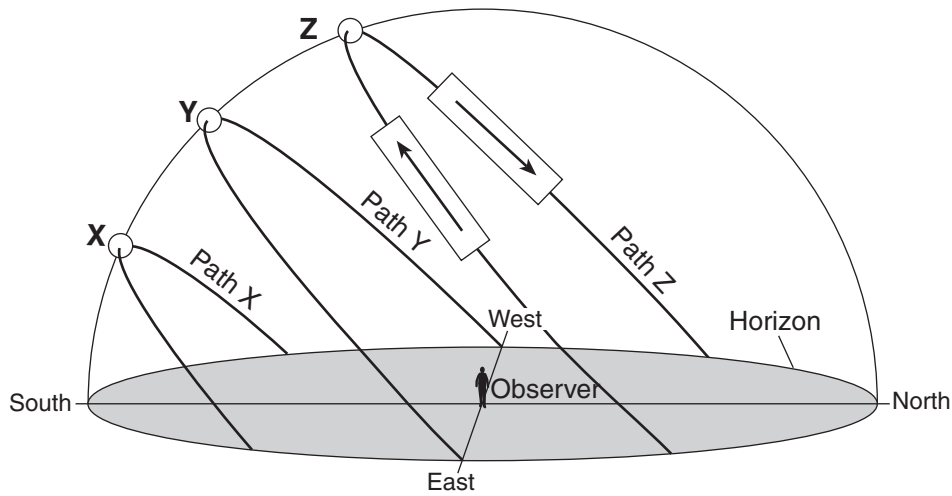
- *B* is higher in elevation.
- Higher elevations have cooler temperatures.
- *B* is in the mountains.

79 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Location *X* is located on the leeward side of a mountain.
- Location *X* is located on the rain shadow side of a mountain.
- Location *Y* is located on the windward side of a mountain.
- Moist air rises over location *Y*, resulting in precipitation.
- orographic effect
- A mountain/volcano barrier separates *X* and *Y*.
- Planetary winds bring moisture to location *Y*, but lack this moisture by the time they get to location *X*.
- Location *X* is farther from the ocean.

80 [1] Allow 1 credit if *both* arrows are correctly drawn.

Example of a 1-credit response:



81 [1] Allow 1 credit if *all three* responses are correct. Acceptable responses include, but are not limited to:

Path X:

- Dec. 20 *or* Dec. 21 *or* Dec. 22
- winter solstice
- first day of winter

Path Y:

- March 20 *or* March 21 *or* March 22
- Sept. 21 *or* Sept. 22 *or* Sept. 23
- autumnal equinox *or* fall equinox
- vernal equinox *or* spring equinox
- an equinox
- first day of spring *or* first day of fall

Path Z:

- June 20 *or* June 21 *or* June 22
- summer solstice
- first day of summer

82 [1] Allow 1 credit for $15^\circ/\text{h}$.

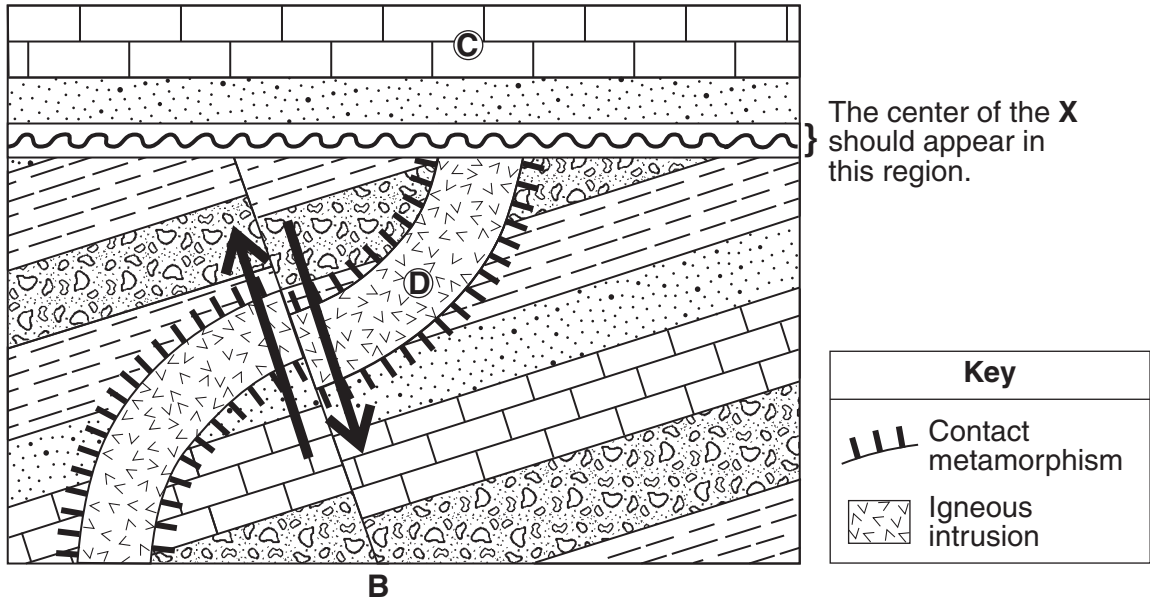
83 [1] Allow 1 credit if the center of the **X** is placed on or near the unconformity (wavy line) within the region indicated in the diagram below.

Note: Allow credit if a symbol other than an **X** is used.

It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.

84 [1] Allow 1 credit for the correct placement of *both* arrows as shown below.

Example of a 2-credit response for questions 83 and 84:



85 [1] Allow 1 credit for a correct response as shown below:

Deposition of rock unit C: 3

Intrusion of rock unit D: 1

Faulting along line AB: 2

Regents Examination in Physical Setting/Earth Science

June 2013

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the June 2013 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Friday, June 14, 2013. Conversion charts provided for previous administrations of the Regents Examination in Physical Setting/Earth Science must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to <http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm>.
2. Select the test title.
3. Complete the required demographic fields.
4. Complete each evaluation question and provide comments in the space provided.
5. Click the **SUBMIT** button at the bottom of the page to submit the completed form.

Map to Core Curriculum

June 2013 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1		45	74
Math Key Idea 2	3, 7, 11, 13, 14, 19, 21	40, 58	73
Math Key Idea 3			
Science Inquiry Key Idea 1	18	40, 41, 43	78, 79, 80
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3	1, 6, 9, 15, 22, 28, 31, 34	36, 48, 50, 59, 65	66, 67, 70, 83, 84
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1		37, 38	
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1	10, 26	39, 42, 49, 52, 53, 63	72
Key Idea 2	8, 16, 17, 21, 24, 29, 30, 31, 33, 35	36, 37, 38, 41, 44, 45, 46, 47, 48, 51, 54, 55, 56, 57, 60, 61, 62	67, 69, 71, 77, 78, 79, 80, 81, 82, 83, 84, 85
Key Idea 3		43, 46	
Key Idea 4		54, 58	
Key Idea 5	5, 33	41, 49, 55, 56, 57, 62, 64	68, 70, 75, 81, 82, 85
Key Idea 6			76
Standard 7			
Key Idea 1			
Key Idea 2			
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 7, 11, 14, 15, 17, 18, 28, 29, 33	39, 40, 41, 49, 50, 51, 52, 54, 55, 56, 57, 58, 59, 60	69, 80, 81, 82, 83, 84, 85
Key Idea 2	6, 8, 9, 10, 12, 13, 20, 21, 22, 23, 24, 25, 26, 27, 30, 31, 32, 35	36, 37, 38, 42, 43, 44, 45, 46, 47, 53, 61, 62, 63, 64, 65	70, 71, 73, 74, 75, 76, 77, 78, 79
Key Idea 3	16, 19, 34	48	66, 67, 68, 72
Reference Tables			
ESRT 2011 Edition (Revised)	1, 6, 7, 8, 9, 13, 14, 15, 16, 19, 21, 22, 30, 31, 34	36, 37, 38, 42, 43, 45, 48, 50, 53, 59, 60, 61, 64, 65	66, 67, 68, 69, 70, 71, 72, 73