

New York State Documents

Regents Examinations

EARTH SCIENCE

January 1957

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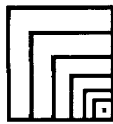


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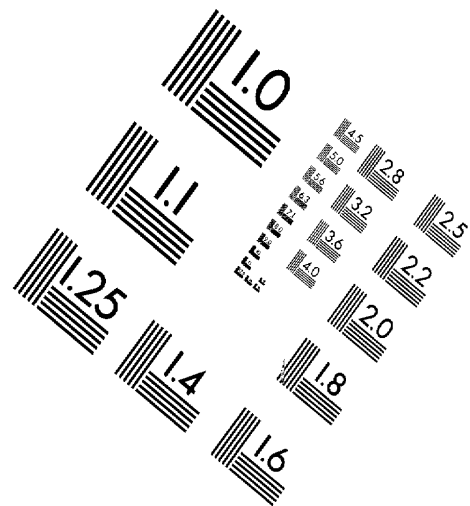
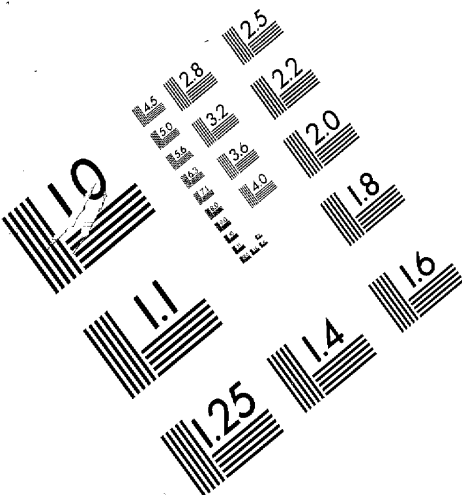
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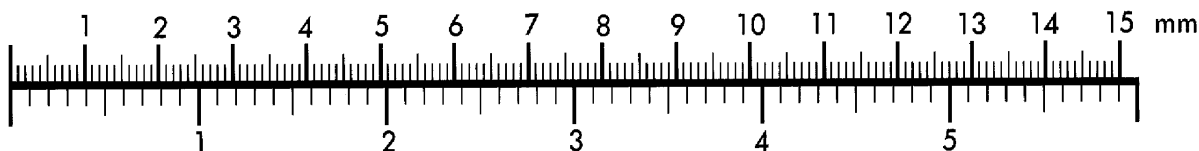


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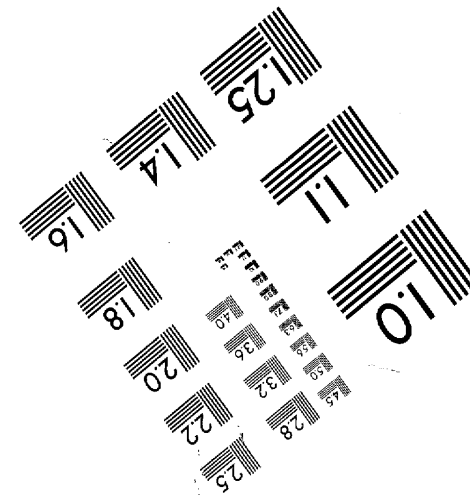
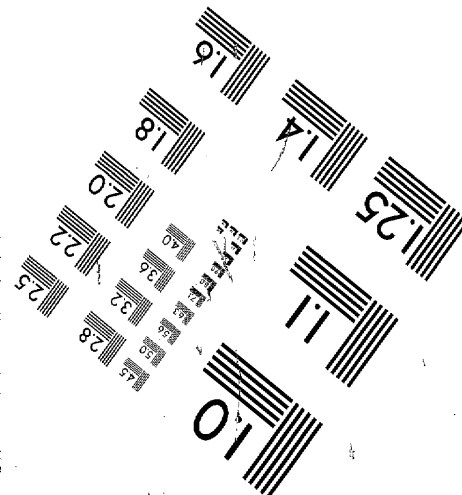
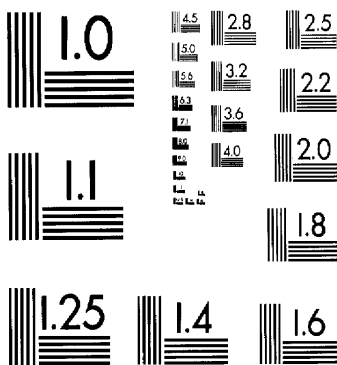
MS303-1980



Centimeter



Inches



The University of the State of New York

329TH HIGH SCHOOL EXAMINATION

EARTH SCIENCE

Monday, January 21, 1957 — 1:15 to 4:15 p.m., only

Write at top of first page of answer paper (a) name of school where you have studied, (b) number of weeks and recitations a week in earth science. Give either the total number of laboratory periods in earth science and the length of such periods or the number of laboratory exercises performed. A paper lacking the statement of laboratory work will not be accepted at a standing of less than 75 credits.

The minimum time requirement is five periods per week for a school year, including at least one prepared laboratory period or its equivalent. [Two unprepared laboratory periods are considered the equivalent of one prepared laboratory period. At least 30 laboratory exercises are required.]

Name of pupil.....Name of school.....

Part I

Answer all questions in this part.

Write on the line at the right of each statement or question the number preceding the word or expression that best completes the statement or answers the question. [27]

- 1 Drumlins are found in the states of Wisconsin and (1)Arizona
(2)New York (3)West Virginia (4)Texas 1.....
- 2 From which type of cloud do thunderheads develop? (1)cirrus
(2)cumulus (3)nimbostratus (4)stratus 2.....
- 3 Fossils are most likely to be found in (1)granite (2)marble
(3)obsidian (4)shale 3.....
- 4 No place on earth has a longitude greater than (1) 30° (2) 60°
(3) 90° (4) 180° 4.....
- 5 The troposphere receives most of its heat (1)by compression of the air
(2)by compression of water vapor (3)directly from the sun (4)through
contact with the earth's surface 5.....
- 6 The area of precipitation is usually largest (1)ahead of the cold front
(2)ahead of the warm front (3)behind the cold front (4)behind the warm
front 6.....
- 7 What was the chief cause of the California earthquake of 1906? (1)cave-ins
(2)faulting (3)jointing (4)volcanic activity 7.....
- 8 Which two minerals are always found in granites? (1)halite and hornblende
(2)mica and calcite (3)quartz and feldspar (4)talc and hematite 8.....
- 9 Circular star trails indicate that the (1)earth is revolving (2)earth is
rotating (3)stars are revolving (4)stars are rotating 9.....
- 10 Of the following, the star nearest the earth is (1)Arcturus (2)Betelgeuse
(3)Proxima Centauri (4)Sirius 10.....
- 11 At the time of the summer solstice, insolation is greatest at the (1)Arctic
Circle (2)Equator (3)Tropic of Cancer (4)Tropic of Capricorn 11.....
- 12 An isotherm is a line that connects places which, at a given time, have the
same (1)elevation (2)air pressure (3)temperature (4)wind speed 12.....
- 13 The ground directly below the water table is always (1)below sea level
(2)drier than the ground above the water table (3)impervious (4)saturated
with water 13.....
- 14 Magma that cools very slowly is likely to form (1)granite (2)obsidian
(3)pumice (4)scoria 14.....
- 15 The aquifer of an artesian formation may be (1)granite (2)sandstone
(3)marble (4)gneiss 15.....

EARTH SCIENCE — *continued*

- 16 Which of these cities has the greatest annual range in temperature?
 (1) Boston (2) Minneapolis (3) New York City (4) New Orleans 16.....
- 17 At which phase of the moon do spring tides occur? (1) first quarter
 (2) new crescent (3) new gibbous (4) new moon 17.....
- 18 Which shore line feature is produced chiefly by deposition? (1) bay
 (2) sea arch (3) sea cliff (4) spit 18.....
- 19 Quiet types of volcanoes form (1) gently-sloping cinder cones (2) gently-
 sloping lava cones (3) steep cinder cones (4) steep lava cones 19.....
- 20 A moraine formed when an ice front remains stationary for a long period of
 time is called a (1) ground moraine (2) lateral moraine (3) medial moraine
 (4) terminal moraine 20.....
- 21 The deposition of clay particles may eventually form (1) limestone
 (2) pumice (3) sandstone (4) shale 21.....
- 22 Which is a low, formless dark cloud that gives continuous rain or snow?
 (1) altocumulus (2) altostratus (3) cirrocumulus (4) nimbostratus 22.....
- 23 An atmospheric pressure of 14.7 pounds per square inch may be recorded as a
 pressure of (1) 29.92 mb. (2) 1013.2 mb. (3) 1031 mb. (4) 1470 mb. 23.....
- 24 Where does a degree of longitude have about the same length as a degree of
 latitude? (1) Arctic Circle (2) Equator (3) North Pole (4) Tropic of Cancer 24.....
- 25 Generally, a volcanic neck is a visible feature of a volcano which is (1) active
 (2) explosive (3) recently formed (4) very old 25.....
- 26 In a desert in the Northern Hemisphere, where the wind blows steadily from
 the east, the sand dunes have slopes which are generally steepest on the (1) east side
 (2) north side (3) south side (4) west side 26.....
- 27 Balloons that rise at known rates are usually used by weather observers to
 determine (1) air pressure (2) ceiling (3) dewpoint (4) visibility 27.....

Write on the line at the right of *each* statement the word or expression that, when inserted in the blank, will make the statement true. [10]

- 28 The color of the hottest stars is 28.....
- 29 A type of lake found on old flood plains is a (an) ... lake. 29.....
- 30 The relatively quiet body of water between an offshore bar and the
 mainland is called a (an) 30.....
- 31 The loose assortment of rock fragments and soil which usually covers
 the bedrock of the earth is called ... rock. 31.....
- 32 At latitude 43° N., the North Star has an altitude of ... degrees above
 the horizon. 32.....
- 33 As dry air rises, it is cooled at the rate of 5.5° F. per ... feet. 33.....
- 34 The ratio of the absolute humidity of a mass of air to its capacity is
 called 34.....
- 35 The small ponds common to limestone regions are formed in depres-
 sions called 35.....
- 36 The name of the planet that has the smallest orbit is 36.....
- 37 The process by means of which block mountains are formed is
 called 37.....

EARTH SCIENCE — *continued*

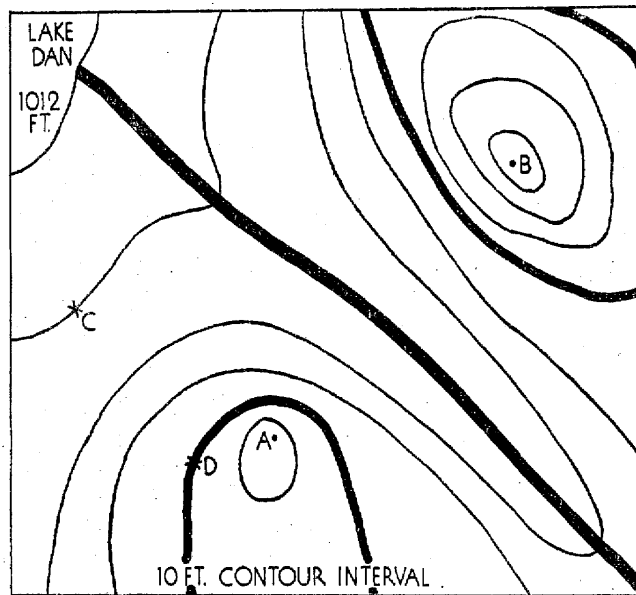
In *some* of the following statements the italicized term makes the statement incorrect. For each *incorrect* statement, write on the line at the right the term that must be substituted for the italicized term to make the statement correct. For each *correct* statement, write the word *true* on the line at the right. [13]

- 38 The mP air mass usually brings *humid* weather to the eastern United States. 38.....
- 39 A river forms a *gorge* when the rate of downcutting is more rapid than the rate at which the sides of the valley weather. 39.....
- 40 The Adirondacks are composed mainly of *sedimentary* rocks. 40.....
- 41 Rain which freezes as it falls is known as *sleet*. 41.....
- 42 In the Northern Hemisphere, winds blow out from the center of a (an) *cyclonic area* in a clockwise direction. 42.....
- 43 In its *young* stage a river has many tributaries. 43.....
- 44 Stream *piracy* results when one stream "captures" the headwaters of another stream. 44.....
- 45 Heavy rainfall is characteristic of the *trade winds* belt. 45.....
- 46 When a descending current of air compresses and warms, the amount of water vapor it can hold *decreases*. 46.....
- 47 The pressure gradient determines wind *velocity*. 47.....
- 48 The level below which a stream cannot erode its bed is called the *base level* of the stream. 48.....
- 49 A type of mountain caused chiefly by an igneous intrusion is a *folded* mountain. 49.....
- 50 Wind velocities usually *decrease* with altitude. 50.....

Part II

Answer five questions from this part. Answers should be numbered and lettered to correspond with questions.

1 The following questions refer to the map below.



- a On the map shade in the area that will be submerged if the lake level rises 8 feet. [2]
 - b Which hill is 1,089 feet high? [2]
 - c The river is flowing north. Which hill is to the west of the river? [2]
 - d The distance from the river mouth to the first contour line is one mile. What is the length of the river shown on this map, to the nearest mile? [2]
 - e What is the slope in feet per mile from C to D? [2]

- 2 The United States consists mostly of plains and plateaus.
 - a Mention one way in which plains are similar to plateaus. [1]
 - b Mention one way in which plains are different from plateaus. [1]
 - c Plains are produced in different ways. Name one type of plain found in New York State and explain how this plain was formed. [2]
 - d Both mesas and monadnocks are remnants of formerly higher land which has been worn down almost to base level.
 - (1) What is the name given to large areas of land which have been worn down almost to base level? [1]
 - (2) What is the difference in rock structure between a mesa and a monadnock? [2]
 - e Name one plateau in the United States which consists chiefly of igneous rocks. [1]
 - f Name one plateau in the United States which is in the young stage of development. Describe how this is different from a plateau in the mature stage of development. [1, 1]

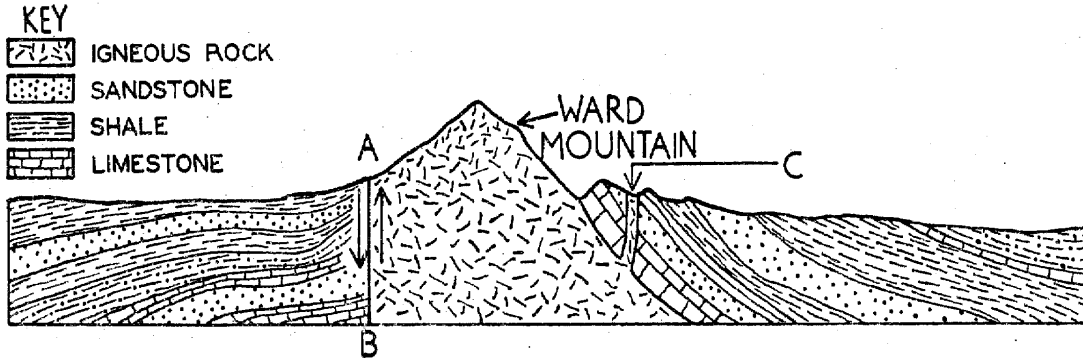
- 3
 - a Describe a procedure by which dewpoint may be determined. [2]
 - b Explain why the dewpoint is valuable in weather forecasting. [2]
 - c Explain why radiation fog disappears after sunrise. [2]
 - d Account for the formation of frost. [2]
 - e Explain why rising air currents may cause condensation of water vapor. [2]

EARTH SCIENCE — *continued*

4 Below are six groups of terms having to do with land forms produced by glaciers. Each group contains one word or expression which is *not* related to the others in the group. For *five* of the groups, write the *unrelated* word or expression opposite the proper letter on your answer paper. [10]

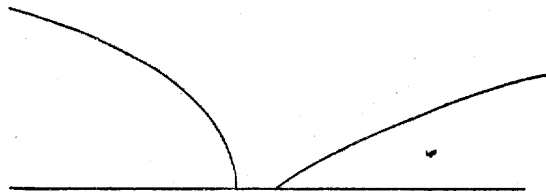
- a U-shaped valleys, moraines, cirques, hanging valleys
- b Great Lakes, tarns, potholes, Finger Lakes
- c erratic, till, drumlin, matterhorn
- d Greenland, Alaska, the Alps, the Andes
- e eskers, kames, crevasses, outwash plains
- f North America, Africa, Australia, Europe

5 The following questions refer to the diagram below.



- a Describe the origin of Ward Mountain. [2]
- b Name *two* additional ways that mountains may be formed. [2]
- c What does line *AB* represent? [1]
- d Explain why some metamorphic rock may occur along line *AB*. [2]
- e Explain why the region to the right of Ward Mountain would be a suitable location for drilling artesian wells. [2]
- f What is the name of the feature labeled *C*? [1]

6 The accompanying diagram represents a vertical section of a cyclonic area. *Copy this diagram* on your answer paper.



- a Label the warm front and the cold front. [2]
- b Indicate by arrows *on the diagram* the direction of movement of the warm air along both fronts. [2]
- c Explain how the fronts shown may form an occluded front. [2]
- d Explain why clouds and precipitation usually occur along or near fronts. [2]
- e The air mass designated *mTw* occurs frequently over the eastern United States. Explain the designation *mTw*. [2]

[5]

[OVER]

EARTH SCIENCE — *concluded*

- 7 A total eclipse of the moon was visible throughout the United States on November 17, 1956.
- a Diagram the relative positions of the sun, the moon and the earth at this eclipse. Include the umbra and the penumbra. [3]
 - b Why does a lunar eclipse last for hours? [2]
 - c Name the phase of the moon at which a lunar eclipse occurs. [1]
 - d The "evening star" visible on these dates was Mars. Compare Mars and the earth with respect to *each* of the following: (1) period of revolution, (2) temperature, (3) distance from the sun, (4) size. [4]
- 8 Give a physiographic explanation for each of *five* of the following: [10]
- a At Nome, Alaska, there are about three hours of daylight on December 21.
 - b Iceland has a higher average winter temperature than Labrador.
 - c The sun is never seen in the zenith in New York State.
 - d All heavenly bodies appear to rise in the east.
 - e The Northern Hemisphere has winter when the earth is closest to the sun.
 - f The orbits of the planets do not change.

FOR TEACHERS ONLY

ESc

INSTRUCTIONS FOR RATING EARTH SCIENCE

Monday, January 21, 1957 — 1:15 to 4:15 p.m., only

Use only *red* ink or pencil in rating Regents papers. Do not attempt to *correct* the pupil's work by making insertions or changes of any kind.

Part I

Allow a total of 50 credits on part I, one credit for each correct answer. For questions 28-50, a variation will be accepted if the answer is scientifically correct. However, in questions 38-39, 41, 43-44 and 47-48 for which *true* is the correct answer, no variations will be allowed.

- | | |
|--------|------------------------|
| (1) 2 | (26) 4 |
| (2) 2 | (27) 2 |
| (3) 4 | (28) white |
| (4) 4 | (29) oxbow |
| (5) 4 | (30) lagoon |
| (6) 2 | (31) mantle |
| (7) 2 | (32) 43 |
| (8) 3 | (33) 1,000 |
| (9) 2 | (34) relative humidity |
| (10) 3 | (35) sink-hole ponds |
| (11) 3 | (36) Mercury |
| (12) 3 | (37) faulting |
| (13) 4 | (38) true |
| (14) 1 | (39) true |
| (15) 2 | (40) igneous |
| (16) 2 | (41) true |
| (17) 4 | (42) anticyclone |
| (18) 4 | (43) true |
| (19) 2 | (44) true |
| (20) 4 | (45) doldrums |
| (21) 4 | (46) increases |
| (22) 4 | (47) true |
| (23) 2 | (48) true |
| (24) 2 | (49) domed |
| (25) 4 | (50) increase |