

The University of the State of New York

306TH HIGH SCHOOL EXAMINATION

EARTH SCIENCE

Tuesday, June 21, 1949 — 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.....

Answer all questions in part I and five questions from part II. Answers to the questions in part I should be written on the question paper as directed and handed in with the other answer paper. Answers should be numbered and lettered to correspond with the questions.

Part I

Answer all questions in part I.

Write on the line at the right of *each* statement the word or expression which, when inserted in the blank, will make the statement true. [16]

- 1 The name of a rock composed of cemented gravel is 1.....
- 2 The ratio of the amount of water vapor in the air to the amount of water vapor in saturated air is called 2.....
- 3 Sideward pressure on the earth's crust causes the formation of the ... type of mountain. 3.....
- 4 The altitude of Polaris is used to find the approximate ... of an observer in the Northern Hemisphere. 4.....
- 5 In the classification of air masses the letter *m* means 5.....
- 6 When the moon comes directly between the earth and the sun, an eclipse of the ... occurs. 6.....
- 7 If a river completely cuts off a meander, a (an) ... results. 7.....
- 8 Glaciers now present in the United States are of the ... type. 8.....
- 9 At noon on June 21 the sun was directly overhead at ... degrees north latitude. 9.....
- 10 Masses of rock and metal that enter our atmosphere from outer space are called 10.....
- 11 If on a contour map the fifth contour line above sea level is marked 250 feet, the contour interval is ... feet. 11.....
- 12 Loose rock material found at the base of steep cliffs is called 12.....
- 13 At night the earth loses heat by 13.....
- 14 We receive no light from the moon during the ... phase of the moon. 14.....
- 15 A meandering stream deposits sediment on the ... side of a curve. 15.....
- 16 The belt of calms or light variable winds between the trade wind belts is called the ... 16.....

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Write on the line at the right of *each* statement the *number* preceding the term that best completes the statement. [19]

- 17 The continent on which there are no glaciers is (1) Asia (2) Australia
(3) Europe (4) South America 17.....
- 18 The Catskills are a part of (1) a mature mountain (2) a mature plateau
(3) a peneplane (4) an old mountain 18.....
- 19 A game of baseball begins in Chicago at 2 p. m. The start of the game can be
seen on a television screen in New York at (1) 1 p. m. (2) 2 p. m.
(3) 3 p. m. (4) 4 p. m. 19.....
- 20 The Palisades of the Hudson is an example of a (1) batholith (2) dike
(3) laccolith (4) sill 20.....
- 21 Air descending a mountain becomes compressed and therefore (1) colder
(2) foggy (3) more humid (4) warmer 21.....
- 22 A wind of 8 to 12 miles per hour is represented by the Beaufort number
(1) 1 (2) 8 (3) 3 (4) 12 22.....
- 23 Physical and chemical action on exposed rock surfaces by atmospheric agencies
is called (1) corrosion (2) erosion (3) suspension (4) weathering 23.....
- 24 Distributaries are found on (1) deltas (2) drumlins (3) flood plains
(4) peneplanes 24.....
- 25 When a mass of air rises, it is cooled chiefly because (1) ice crystals are
formed (2) it expands (3) it mixes with cold air (4) moisture condenses 25.....
- 26 A relatively soft, white crystalline rock is (1) basalt (2) marble (3) obsidian
(4) quartzite 26.....
- 27 The deposits made by a stream where it leaves a mountainous region to flow
across a relatively flat area form (1) a mesa (2) a monadnock (3) an alluvial
fan (4) an outwash plain 27.....
- 28 Sinkholes are the result of the work of (1) glaciers (2) ground water
(3) rivers (4) the wind 28.....
- 29 The planet which is about the same size as the earth is (1) Mars (2) Venus
(3) Mercury (4) Uranus 29.....
- 30 Mountains in the United States which are an example of folded mountains are the
(1) Adirondacks (2) Appalachians (3) Green Mountains (4) White Mountains 30.....
- 31 Clouds are partly classified by their height. The name of a cloud in the middle-
height group is (1) alto-stratus (2) cirro-cumulus (3) strato-cumulus
(4) stratus 31.....
- 32 Weather observers usually use balloons that rise at known rates to determine
(1) air pressure (2) ceiling (3) dew point (4) visibility 32.....
- 33 A planet that goes through phases similar to our moon is (1) Jupiter
(2) Mercury (3) Neptune (4) Pluto 33.....
- 34 Hail is associated with (1) alto-stratus (2) cirro-cumulus (3) cirro-
stratus (4) cumulo-nimbus clouds. 34.....
- 35 The North Star is part of (1) Cassiopeia (2) Orion (3) the Big Dipper
(4) the Little Dipper 35.....

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. [15]

- 36 When air is cooled, its capacity to hold water vapor *remains the same*. 36.....
- 37 Each new day begins at the *prime meridian*. 37.....
- 38 When the air is completely saturated with moisture, the relative
humidity is *zero* per cent. 38.....

EARTH SCIENCE — *continued*

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|--|---------|
| 39 Closely spaced isobars indicate relatively <i>light</i> winds. | 39..... |
| 40 The most common element in the earth's crust is <i>oxygen</i> . | 40..... |
| 41 In the weathering of granite, the insoluble portion of the mineral <i>feldspar</i> becomes clay. | 41..... |
| 42 The <i>Columbia</i> plateau was formed by successive flows of lava. | 42..... |
| 43 Waterfalls occur most commonly in <i>young</i> streams. | 43..... |
| 44 Explosive type volcanoes have <i>steep</i> slopes. | 44..... |
| 45 Ground water containing <i>oxygen</i> in solution dissolves limestone. | 45..... |
| 46 The instrument used to record air pressure is the <i>hygograph</i> . | 46..... |
| 47 Clouds resulting from the passage of colder air over a warmer surface are of the <i>cumulus</i> type. | 47..... |
| 48 The slope of the bed of a stream is steepest during the <i>mature</i> stage of its development. | 48..... |
| 49 Rainfall may be expected every day in the <i>doldrums</i> . | 49..... |
| 50 The steep side of a sand dune is on the <i>leeward</i> side. | 50..... |

Part II

Answer five questions from part II.

1 Each of the following features is the result of the wearing away action or the building up action of an agent of erosion: (1)canyon (2)ground moraine (3)mineral vein (4)natural levee (5)cirque (6)barrier beach (7)sand dune (8)outwash plain (9)stalagmite (10)spit. Place the number of *each* feature in its proper position in the table. [10]

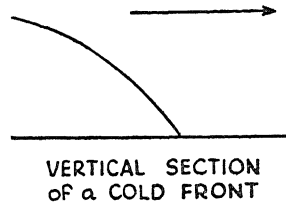
Agents :	Stream	Glacier	Waves and currents	Wind	Ground water
Wearing away action					
Building up action					

- 2 *a* State *three* properties by which a mineral may be identified. [3]
b Explain why some igneous rocks are composed of very small mineral crystals, while others are composed of large mineral crystals. [2]
c State *three* factors that may cause igneous or sedimentary rocks to become metamorphosed. [3]
d In what way does gneiss (1) resemble granite, (2) differ from granite? [2]
- 3 Explain each of *five* of the following: [10]
a Cloudy winter nights are usually warmer than clear winter nights.
b The monsoons of southern Asia blow from sea to land during the summer.
c Many regions over which the trade winds blow have dry climates.
d The same side of the moon is always turned toward the earth.
e The stars appear to change their positions during the night.
f Winter occurs in the Northern Hemisphere when the earth is nearer to the sun than it is in the summer.
- 4 *a* Explain how the air near the earth's surface is heated. [2]
b Explain why the warmest time of the day usually occurs about three hours after noon. [2]
c The polar regions receive insolation continuously during six months. Explain why these regions are not the warmest places on the earth. [2]
d Compare and explain the rate of warming of land and water areas at the same latitude. [2]
e Explain why isotherms tend to be straighter in the Southern Hemisphere than in the Northern Hemisphere. [2]

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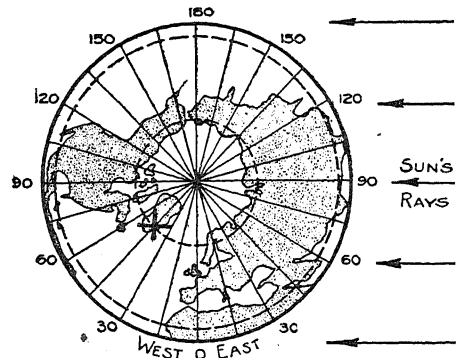
- 5 a Explain why there are so many islands and peninsulas along the irregular coast of Maine. [2]
 b Explain how this shoreline may eventually become regular. [2]
 c State *two* characteristics of a regular shoreline. [2]
 d Account for the formation of the Atlantic Coastal Plain. [2]
 e Explain why the tides along irregular coasts are of greater range than tides along regular coasts. [2]

- 6 a Explain fully the meaning of the *w* in the air mass symbol: *mTw*. [2]
 b State *two* characteristics of a *cPk* air mass at its source region. [2]
 c Copy the accompanying vertical cross section of a cold front. Label the warm air and cold air, and indicate by arrows the direction of movement of both the warm air and the cold air. [4]
 d Explain how an occluded front is formed. [2]



7 The accompanying diagram is a view of the earth as seen from above the North Pole at the time of the equinoxes.

- a What *two* dates are represented by this diagram? [2]
 b Where are the sun's rays vertical on these dates? [1]
 c How many hours of daylight are there at the equator on these dates? [1]
 d Along what meridian is it (1)noon (2)sunrise (3)sunset? [3]
 e What time is it in the Eastern standard time belt? [1]
 f What is the latitude and the longitude of a place at X? [2]



8 The following questions refer to the accompanying map:

- a Distinguish between contour line and contour interval. [2]
 b State the contour interval of this map. [1]
 c What is the *highest possible* elevation of hill A? How much higher or lower is hill B than hill A? [2]
 d What is the approximate elevation of point D? [1]
 e What is the distance from point D to point F? [1]
 f Which side of hill A has the steepest slope? How is this indicated on the map? [2]
 g What does the map symbol at C represent? [1]

