

The University of the State of New York

297TH HIGH SCHOOL EXAMINATION

EARTH SCIENCE

Tuesday, June 18, 1946 — 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 ninth-year science, (c) 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 recitations a week for a school year. An unprepared laboratory exercise of two periods counts in place of one recitation. 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. Whenever questions in part II so direct, answers to these questions are to be written on the question 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. [20]

- 1 The terminal moraine of northern Long Island was formed by a(an) ... 1.....
- 2 The difference in standard time between London, England, and New York City is ... hours. 2.....
- 3 The breaking up of rock caused by temperature changes is called ... weathering. 3.....
- 4 Stream valleys are deepened during the ... stage of their development. 4.....
- 5 Explosive volcanoes develop cones that have ... slopes. 5.....
- 6 Sedimentary rock that is altered by heat and pressure forms ... rock. 6.....
- 7 On March 21 there are ... hours of daylight at the Arctic Circle. 7.....
- 8 The pointed extension of a barrier beach, formed by shore currents, is called a .... 8.....
- 9 As the temperature of a mass of air increases, its capacity to hold moisture .... 9.....
- 10 The submerged portion of the eastern coast of the United States is called the .... 10.....
- 11 The seismograph is used to detect and record .... 11.....
- 12 The boundary between air masses of different characteristics is called a(an) .... 12.....
- 13 The portion of the atmosphere in which air temperature is relatively constant is called the .... 13.....
- 14 The earth is nearest the sun during our ... season. 14.....
- 15 As the land along a coast sinks, the coastline tends to become more .... 15.....
- 16 A river that has no flood plain is in its ... stage of development. 16.....
- 17 The heat equator is a line that connects places that have the ... temperature at any one time. 17.....
- 18 The break in bedrock along which earth movements have occurred is called a(an) .... 18.....

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- 19 A region that is worn down almost to base level is called a(an) .... 19.....  
 20 Wind is an active agent of erosion where the climate is .... 20.....

Write on the line at the right of *each* statement the *number* preceding the term that best completes the statement. [17]

- 21 Daily rains as characteristic of the (1)doldrum (2)horse latitude  
 (3)trade (4)westerly wind belt. 21.....  
 22 Granite always contains the minerals quartz and (1)calcite (2)feldspar  
 (3)hornblende (4)garnet 22.....  
 23 The lowest temperatures recorded in the United States occurred (1)along  
 the east coast (2)along the west coast (3)in the interior (4)on islands off  
 the coast 23.....  
 24 The rocks of which dikes and sills are composed are (1)unconsolidated  
 (2)igneous (3)metamorphic (4)sedimentary 24.....  
 25 A large flat-topped area with steep sides and horizontal rock structure is called a  
 (1)butte (2)mesa (3)monadnock (4)volcanic neck 25.....  
 26 The dark gray clouds that form a complete overcast on rainy days are called  
 (1)alto-stratus (2)cirrus (3)cumulus (4)nimbo-stratus 26.....  
 27 Monsoons are winds that (1)always blow from the sea (2)always blow  
 from the land (3)blow only during the day (4)change direction with change  
 in season 27.....  
 28 Monadnocks are found (1)in limestone caverns (2)in young mountain  
 regions (3)on peneplains (4)on the continental shelf 28.....  
 29 The Grand Canyon is cut through a (1)mountain region (2)peneplain  
 (3)plain (4)plateau 29.....  
 30 Dilute hydrochloric acid is used to identify (1)granite (2)marble  
 (3)sandstone (4)shale 30.....  
 31 The winds that blow from the horse latitudes toward the equator are the  
 (1)northwesterlies (2)polar easterlies (3)southwesterlies (4)trades 31.....  
 32 The clouds within which severe turbulence usually occurs are (1)cirro-stratus  
 (2)cirrus (3)cumulo-nimbus (4)stratus 32.....  
 33 The horizontal rock structure of the Catskills indicates that they are  
 (1)a dissected plateau (2)a peneplain (3)old mountains (4)volcanic mountains 33.....  
 34 One half of the lighted portion of the moon is visible at the phase known as  
 (1)first quarter (2)full moon (3)new crescent (4)new moon 34.....  
 35 The air along a cold front (1)ascends (2)descends (3)moves  
 horizontally (4)remains stationary 35.....  
 36 As the relative humidity of the surrounding air increases, the rate at which  
 water evaporates from exposed surfaces (1)becomes very rapid (2)decreases  
 (3)increases (4)remains unchanged 36.....  
 37 A degree of latitude is roughly the same distance as a degree of longitude  
 (1)at the equator (2)at the poles (3)at the tropic of Cancer (4)midway  
 between the equator and the poles 37.....

In *some* of the following statements the term in *italics* 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 Masses of rock and metal that enter our atmosphere from outer  
 space are called *comets*. 38.....  
 39 Earthquakes occur most frequently in *young* mountain regions. 39.....  
 40 The Milky Way is a *constellation*. 40.....  
 41 Rock fragments that make a river muddy are carried in *suspension*. 41.....

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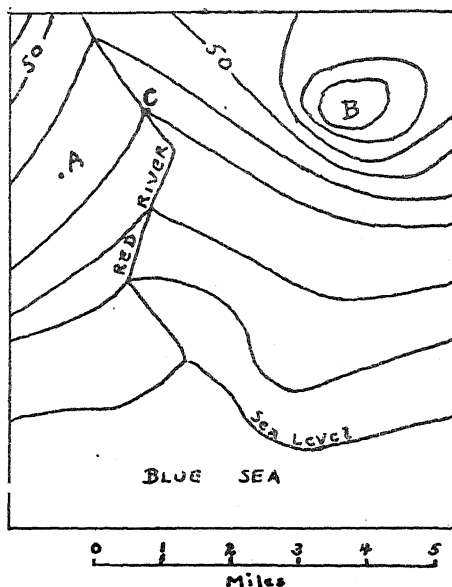
42 The more rapid the rate of cooling of igneous rocks, the <i>smaller</i> the rock crystals that are formed.	42.....
43 Oval-shaped hills formed by glacial action are called <i>eskers</i> .	43.....
44 The planetoids revolve about the <i>planets</i> .	44.....
45 Marble is a metamorphic rock formed from <i>granite</i> .	45.....
46 The period of revolution of the planet <i>Mars</i> is less than 365 days.	46.....
47 An atmospheric pressure of 29.92 inches is equivalent to a pressure of 1013.2 millibars.	47.....
48 A condition necessary for the formation of ground or radiation fog is a (an) <i>overcast</i> sky.	48.....
49 The international date line corresponds, generally, with the <i>prime</i> meridian.	49.....
50 The water from an artesian well comes from a (an) <i>impervious</i> layer.	50.....

Part II

Answer five questions from part II.

- 1 a State, *definitely*, the location of the center of the ice accumulation that affected New York State during the ice age. [1]
- b Describe the formation of striae by glaciers. State the significance of striae to earth scientists. [2]
- c Name *two* depositional features formed by glaciers and describe briefly their formation. [4]
- d What was the effect of the advancing continental glacier on (1) New York State hill-tops, (2) the Hudson valley, (3) the Mohawk valley? [3]
  
- 2 a State the relationship between (1) Atmospheric pressure and wind direction [2] (2) Isobars and wind velocity [2]
- b How are the planetary winds of each hemisphere affected by the rotation of the earth? [2]
- c Account for the direction of movement of the summer monsoon of India. [2]
- d State *one* difference and *one* similarity between hurricanes and tornadoes. [2]
  
- 3 a Name *two* types of bodies, other than the sun and the planets, that are members of our solar system and state how they differ from each other. [4]
- b State *two* differences between planets and stars. [2]
- c Why does a constellation appear in different parts of the sky during the same night? [2]
- d What causes a total eclipse of the moon? [2]
  
- 4 a (1) Name *two* air masses that affect the weather of New York State. [2] (2) Name the source region of *each* air mass named. [2] (3) State *one* characteristic of *each* air mass at its source. [2]
- b Name the two types of surfaces that determine air-mass characteristics and state the letter symbol used to designate each type. [2]
- c (1) Name a third air mass. [1] (2) State the letter symbol used to indicate that an air mass is colder than the surface over which it is moving. [1]

- 5 *a* State the contour interval used on this map and find the elevation of point *A*. [2]
- b* How is steepness of slope indicated on contour maps? Make an *X* on this map where the slope is steepest. [2]
- c* Name the feature shown at *B* and find the highest possible elevation of *B*. [2]
- d* Find the distance, to the nearest half-mile, along the river from *C* to the mouth of the river. [2]
- e* Find the average slope of the river, in feet per mile, from *C* to the mouth of the river. [2]



- 6 The rock structure of the earth's crust is disturbed when mountains are formed.
- a* Make fully labeled diagrams that represent the rock structure of
- (1) A domed mountain [2]
  - (2) A block (faulted) mountain [2].
- b* Name an example of *each* of these mountain types. [2]
- c* Distinguish between anticlines and synclines. [2]
- d* State *two* differences between young and mature mountains. [2]
- 7 Describe simple experiments that may be used for each of *five* of the following: [10]
- a* To indicate that evaporation is a cooling process
  - b* To indicate that dark-colored surfaces absorb insolation better than do light-colored surfaces
  - c* To demonstrate that a barometer may be used to measure altitude
  - d* To determine the dew point of the air in the laboratory
  - e* To indicate the effect of changes in the temperature of a liquid on the rate at which the liquid evaporates
  - f* To indicate the effect of changes in air temperature on the movement of the air
- 8 Explain each of *five* of the following: [10]
- a* The latitude of Labrador and that of the British Isles are approximately the same, but the climates of the two are very different.
  - b* There is very little precipitation in polar areas.
  - c* At the same latitude, the period in which crops grow is longer in a coastal area than in an inland area.
  - d* Tides of great range occur at the time of the new moon phase.
  - e* Ascending air currents may cause precipitation.
  - f* Sinkholes seldom occur in regions in which the underlying rock is sandstone.