

The University of the State of New York

325TH HIGH SCHOOL EXAMINATION

EARTH SCIENCE

Wednesday, August 24, 1955 — 8.30 to 11.30 a. m., only

Write at top of first page of answer paper (a) names of schools where you have studied, (b) number of weeks and recitations a week in earth science previous to entering summer high school, with the total number of laboratory periods and the length of such periods, (c) number of recitations in this subject attended in summer high school of 1955 or number and length in minutes of lessons taken in the summer of 1955 under a tutor licensed in the subject and supervised by the principal of the school you last attended.

The minimum time requirement is five periods a 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.] The summer session will be considered the equivalent of one semester's work during the regular session (five periods a week for half a school year).

For those pupils who have met the time requirement the minimum passing mark is 65 credits; for all others 75 credits.

For admission to this examination attendance on at least 30 recitations in this subject in a registered summer high school in 1955 or an equivalent program of tutoring approved in advance by the Department is 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 this part.

Write on the line at the right of each statement the number preceding the word or expression that best completes the statement. [26]

- 1 An instrument used to identify elements in the sun is the (1)psychrometer  
(2)seismograph (3)sextant (4)spectroscope 1.....
- 2 Vegetation should be left on slopes because (1)peat forms from plants  
(2)plants aid weathering (3)plant roots hold the soil (4)runoff increases 2.....
- 3 Some rivers have about the same volume all year because they flow (1)in  
meanders (2)into ponds (3)out of lakes (4)through deserts 3.....
- 4 A national park famous for its stalactites is (1)Carlsbad (2)Yellowstone  
(3)Yosemite (4)Zion 4.....
- 5 The breaking of minerals along smooth plane surfaces is known as  
(1)cleavage (2)fracture (3)luster (4)streak 5.....
- 6 The letters, cPw, indicate an air mass which formed (1)in the tropics  
(2)in the upper troposphere (3)over land (4)over water 6.....
- 7 The same solar time as that in Chicago occurs at a place (1)15° farther east  
(2)15° farther west (3)with the same latitude (4)with the same longitude 7.....
- 8 Proof that the sun rotates is determined by observing (1)coronas (2)ocean  
tides (3)solar eclipses (4)sunspots 8.....
- 9 Comets are visible from the earth because they (1)are burning (2)are  
self-luminous (3)reflect sunlight (4)revolve about the earth 9.....
- 10 Most of the soil of Long Island is (1)alluvial (2)glacial (3)marine  
(4)residual 10.....
- 11 A rock with a banded appearance is (1)gneiss (2)granite (3)marble  
(4)quartzite 11.....
- 12 Volcanoes that develop steep cones are said to be (1)dormant (2)explosive  
(3)extinct (4)quiet 12.....
- 13 Soil erosion can be reduced by (1)contour plowing (2)dry farming  
(3)grass burning (4)intensive cultivation 13.....

EARTH SCIENCE — *continued*

- 14 A unit of air pressure used on weather maps is the (1) degree (2) isobar  
(3) isotherm (4) millibar 14.....
- 15 The sun may be directly overhead as far south as the (1) Antarctic Circle  
(2) Equator (3) South Pole (4) Tropic of Capricorn 15.....
- 16 The shortest distance between two places on the earth's surface is measured  
along a (1) great circle (2) parallel (3) rhumb line (4) small circle 16.....
- 17 Air that is turbulent because of vertical currents is likely to contain (1) cirrus  
clouds (2) cumulus clouds (3) nimbostratus clouds (4) stratus clouds 17.....
- 18 Road building is easy in large flat areas which are found in (1) anticlines  
(2) mature mountains (3) mature plateaus (4) young plateaus 18.....
- 19 A bar attached to land at one end and extended by currents is (1) an atoll  
(2) a delta (3) an offshore bar (4) a spit 19.....
- 20 Petroleum is usually found in (1) gneiss (2) granite (3) limestone  
(4) sandstone 20.....
- 21 The best estimate of the age of the earth comes from the study of (1) radio-  
active minerals (2) the denudation of the land (3) the total salt content of the  
oceans (4) the total thickness of sedimentary rocks 21.....
- 22 As temperature and dewpoint approach each other, pilots should expect  
(1) clear weather (2) fog (3) strong winds (4) a sudden temperature decrease 22.....
- 23 The air along a warm front is (1) descending (2) being pushed up  
(3) moving horizontally (4) motionless 23.....
- 24 The stars seem to move from east to west because the (1) earth revolves  
(2) earth rotates (3) stars rotate (4) sun revolves 24.....
- 25 Lateral pressure on the earth's crust may cause (1) dissected plateaus  
(2) dome mountains (3) folded mountains (4) volcanic cones 25.....
- 26 Betelgeuse is in the constellation of (1) Cassiopeia (2) Orion  
(3) Ursa Major (4) Ursa Minor 26.....

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. [12]

- 27 Erosion by ... is most active in arid regions. 27.....
- 28 The chief cause of tides is the gravitational pull of the .... 28.....
- 29 Beaches are formed chiefly by the action of .... 29.....
- 30 The top surface of the zone of saturated mantle rock is called the .... 30.....
- 31 A solar eclipse can occur only at the ... phase of the moon. 31.....
- 32 The angle of the North Star above the horizon is approximately equal  
to the ... of the place. 32.....
- 33 A crater lake occurs at the top of a (an) ... mountain. 33.....
- 34 Deep water near peninsulas and bays may indicate ... of the coast. 34.....
- 35 The name of the largest planet is .... 35.....
- 36 Masses of rock and metal that enter our atmosphere from outer space  
are called .... 36.....
- 37 Erosion at the head of a valley may cause a cirque to be produced by  
a (an) .... 37.....
- 38 Rain cannot occur unless the temperature is brought below the .... 38.....

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. [12]

- 39 Winters in mid-continent are *more* severe than on the coast. 39.....
- 40 A peneplane may be produced in a mountain region by a long period of *uplift*. 40.....
- 41 Rocks become discolored on the outside by *wind* action. 41.....
- 42 Thunderstorms often occur along a steep *warm* front. 42.....
- 43 The nearest star to the solar system is *Proxima Centauri*. 43.....
- 44 Stalactites are a form of *limestone*. 44.....
- 45 When a river is *old*, it is cutting downward actively. 45.....
- 46 Winds are deflected from their course by the *revolution* of the earth. 46.....
- 47 The Palisades is a sill that originated when *metamorphic* rock formed between sedimentary layers. 47.....
- 48 The land around the mouth of the Mississippi River is a (an) *marine plain*. 48.....
- 49 The leeward side of a mountain usually has *rainy* weather. 49.....
- 50 The trade winds blow toward the pressure belt called the *horse latitudes*. 50.....

Part II

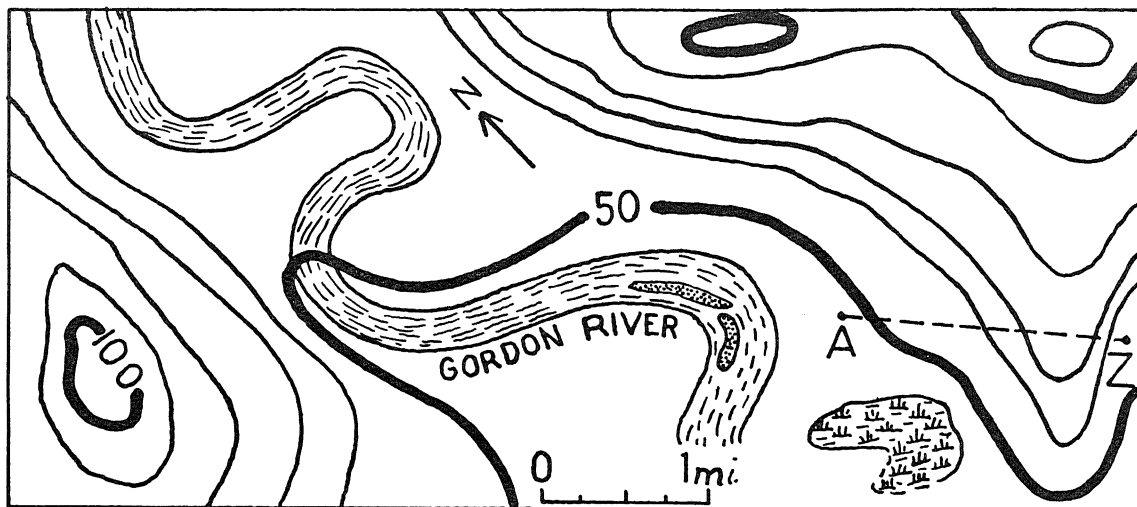
Answer five questions from this part.

- 1 a Define the term *air mass*. [2]
- b Name *two* air masses that affect the weather of New York State. [2]
- c Name the source region of *each* air mass mentioned in answer to b. [2]
- d Define a *front*. [2]
- e Draw the symbols used on a weather map to indicate a warm front *and* a cold front. [2]
- 2 Space-travel enthusiasts plan to visit nearby planets.
- a Name *three* characteristics common to all planets. [3]
- b Compare Mars and the earth as to their relative (1) size, (2) angle of inclination, (3) period of rotation, (4) distance from the sun, (5) period of revolution. [5]
- c State *two* conditions on Venus which are probably very similar to those found on the earth. [2]
- 3 a State *three* properties by which a mineral may be identified. [3]
- b Name *two* minerals that will scratch glass. [2]
- c State *three* factors that may cause igneous or sedimentary rocks to become metamorphosed. [3]
- d Describe a simple test by which marble may be distinguished from quartzite. [2]

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4 The following questions refer to the map below:

- a Name *two* features shown on the map that indicate that Gordon River is mature. [2]
- b Account for the swamp in the southern part of the map. [2]
- c Explain the formation of the soil at *A*. [2]
- d *On the map*, show by an arrow the direction in which the river is flowing. [2]
- e Why are the sand bars nearer the west bank than the east bank of the river? [2]



5 The following questions also refer to the map above:

- a In going from *A* to *Z*, would a person finish at an elevation higher than, lower than, or the same as that at which he started? Explain. [1, 1]
- b *On the map*, draw a dotted line to show the route he could follow between *A* and *Z* with the *least* change of elevation along the way. [2]
- c What contour interval is used on this map? [2]
- d (1) *On the map*, place the letter *H* on the highest hilltop. [1]  
(2) What is the highest possible elevation of this hilltop? [1]
- e What is the distance, to the *nearest quarter of a mile*, between *A* and *Z*? [2]

6 a Define the term *standard time*. [2]

b When it is noon in New York State (75° W), what is the *standard time* in Honolulu (165° W)? [2]

c When it is noon in New York State on August 12, what is the *date* in Manila (121° E)? [2]

d Define the term *solar day*. [2]

e Explain why the local time of a place to the west of New York City differs from that of New York City. [2]

7 a Account for the scratches and grooves (striae) on bedrock in Canada and New England. [2]

b What *two* facts can geologists obtain from the study of striae? [2]

c Explain how we know that the agent that formed these scratches reached the Ohio River, but came no further. [4]

d Name *two* kinds of lakes that are characteristic of *both* Canada and New England. [2]

8 Under normal conditions an aviator ascending 5000 feet into the air in the temperate zone finds changes with respect to (1) temperature, (2) atmospheric pressure, (3) relative humidity, (4) dust particles.

a State the change he may expect for *each* element listed above. [4]

b Explain the reason for each of *two* of these changes. [4]

c Name the instruments used to measure *two* of the changes mentioned in answer to *a*. [2]