

FOR TEACHERS ONLY

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

ES-PM

EARTH SCIENCE PROGRAM MODIFICATION EDITION

Friday, June 18, 1999 — 1:15 to 4:15 p.m., only

SCORING KEY

Directions to the Teacher:

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

Scan each answer paper to make certain that the student has marked only one answer for each question. If a student has marked two or more answers with an X in ink, draw a red line through the row of numbers for that question to indicate that no credit is to be allowed for that question when the answer paper is scored.

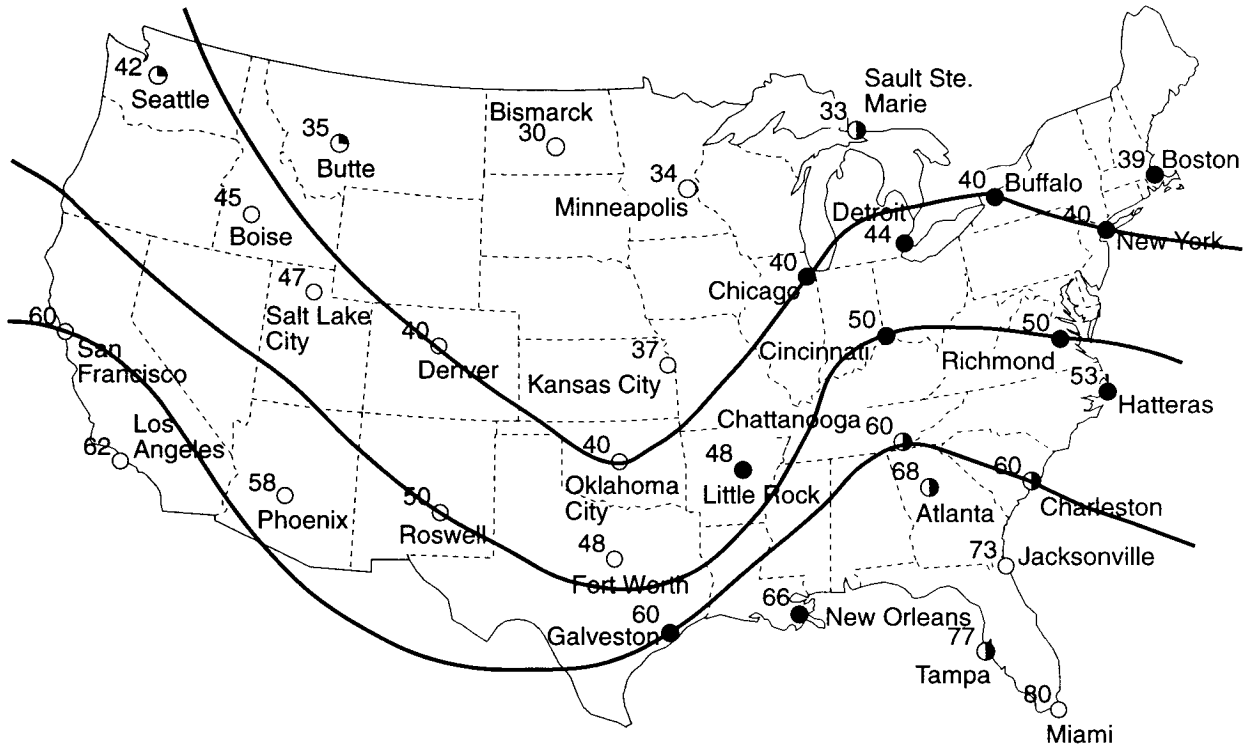
To facilitate scoring, the scoring key for **Part I and Part II** may be made into a scoring stencil by punching out the correct answers. Be sure that the stencil is aligned with the answer paper so that the holes correspond to the correct answers. To aid in proper alignment, punch out the first and last item numbers in each part and place the stencil on the answer paper so that these item numbers appear through the appropriate holes.

Part I

Allow a total of 40 credits for Part I, one credit for each correct answer.

1	X	2	3	4	15	1	2	X	4	29	1	2	3	X
2	1	2	3	X	16	1	2	X	4	30	1	X	3	4
3	1	X	3	4	17	1	2	3	X	31	X	2	3	4
4	1	2	X	4	18	1	2	X	4	32	1	2	3	X
5	X	2	3	4	19	1	X	3	4	33	1	2	X	4
6	1	2	X	4	20	1	X	3	4	34	1	X	3	4
7	1	2	X	4	21	X	2	3	4	35	1	2	3	X
8	1	X	3	4	22	1	2	3	X	36	1	X	3	4
9	1	2	X	4	23	X	2	3	4	37	1	2	X	4
10	1	2	3	X	24	1	X	3	4	38	X	2	3	4
11	X	2	3	4	25	1	2	X	4	39	1	X	3	4
12	X	2	3	4	26	X	2	3	4	40	1	X	3	4
13	1	X	3	4	27	X	2	3	4					
14	1	2	3	X	28	1	X	3	4					

78 Example



Part II

Allow a total of 10 credits, one credit for each question, for only two of the six groups in this part. If the student answers more than two groups, consider only the first two groups answered.

Group A Rocks and Minerals				
41	1	<input checked="" type="checkbox"/>	3	4
42	<input checked="" type="checkbox"/>	2	3	4
43	1	2	<input checked="" type="checkbox"/>	4
44	<input checked="" type="checkbox"/>	2	3	4
45	<input checked="" type="checkbox"/>	2	3	4

Group B Plate Tectonics				
46	<input checked="" type="checkbox"/>	2	3	4
47	1	<input checked="" type="checkbox"/>	3	4
48	1	2	3	<input checked="" type="checkbox"/>
49	<input checked="" type="checkbox"/>	2	3	4
50	1	2	<input checked="" type="checkbox"/>	4

Group C Oceanography				
51	1	2	<input checked="" type="checkbox"/>	4
52	<input checked="" type="checkbox"/>	2	3	4
53	1	2	3	<input checked="" type="checkbox"/>
54	1	<input checked="" type="checkbox"/>	3	4
55	1	2	3	<input checked="" type="checkbox"/>

Group D Glacial Processes				
56	1	2	3	<input checked="" type="checkbox"/>
57	1	2	<input checked="" type="checkbox"/>	4
58	1	2	<input checked="" type="checkbox"/>	4
59	1	<input checked="" type="checkbox"/>	3	4
60	1	2	<input checked="" type="checkbox"/>	4

Group E Atmospheric Energy				
61	1	2	<input checked="" type="checkbox"/>	4
62	1	<input checked="" type="checkbox"/>	3	4
63	<input checked="" type="checkbox"/>	2	3	4
64	1	2	3	<input checked="" type="checkbox"/>
65	1	<input checked="" type="checkbox"/>	3	

Group F Astronomy				
66	1	2	<input checked="" type="checkbox"/>	4
67	1	2	3	<input checked="" type="checkbox"/>
68	1	2	<input checked="" type="checkbox"/>	4
69	1	<input checked="" type="checkbox"/>	3	4
70	1	<input checked="" type="checkbox"/>	3	4

Part III

Allow a total of 25 credits for this part. The student must answer all questions in this part.

71 [1] Allow 1 credit for 1,500 meters (± 50).

72 [1] Allow 1 credit for a scientifically correct answer.

Examples: Location A is on the windward side of the mountain.
At location B, air is warming by compression.

73 [1] Allow 1 credit for a scientifically correct answer.

Examples: Tornadoes exist for a shorter period of time.
A hurricane is a larger storm.

74 [2] Allow a maximum of 2 credits for **E, D, B, A, C**. Allow only 1 credit for the correct placement of the igneous intrusion (**C**) *or* for the correct order of the sedimentary layers, regardless of the placement of the igneous intrusion.

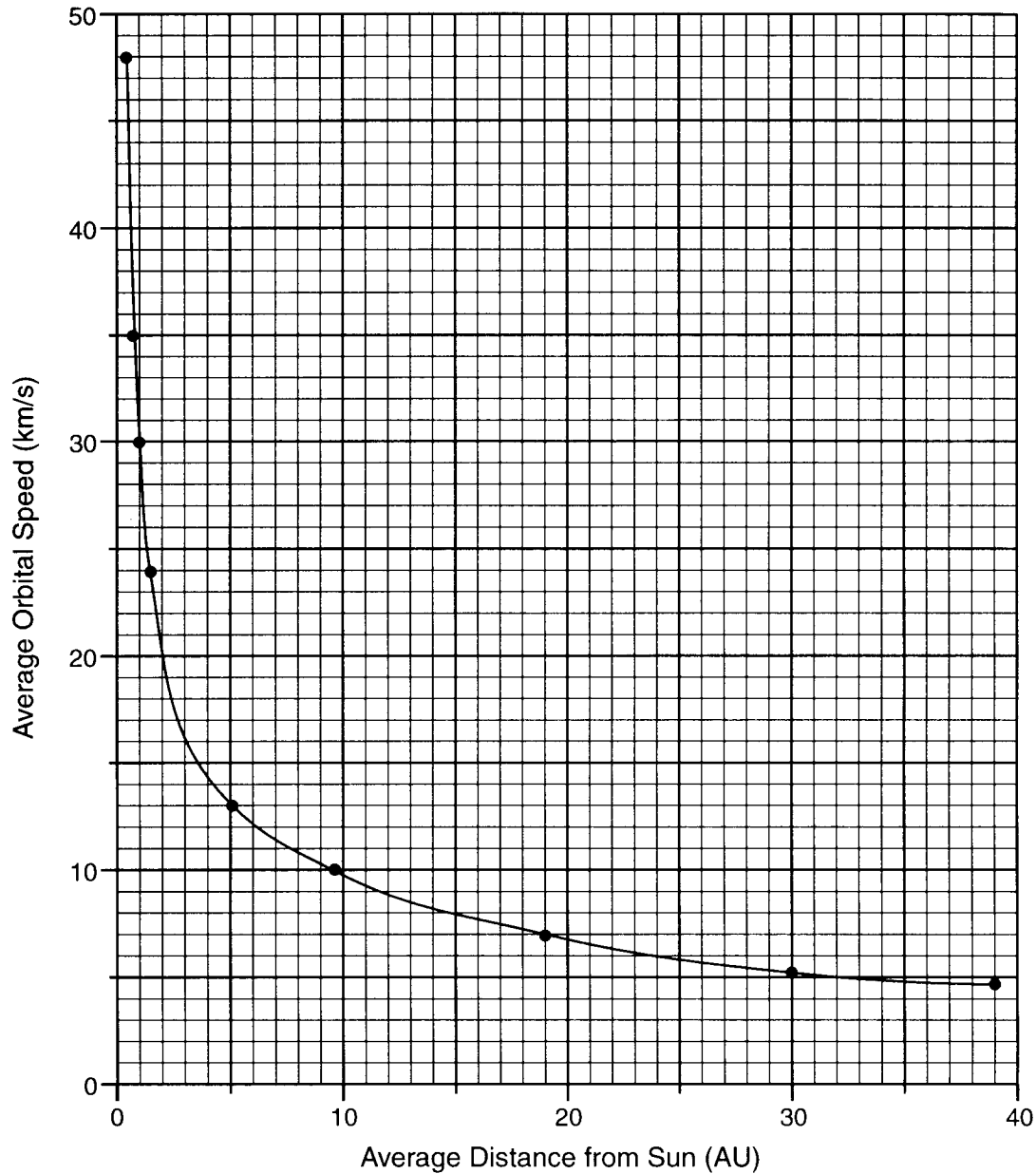
75 [1] Allow 1 credit for **clay**.
(Do *not* allow credit for a numerical answer.)

76 [1] Allow 1 credit for a scientifically correct answer.

Examples: coarse texture
large crystals

77 [1] Allow 1 credit for **33%**.

Planets' Average Orbital Speed vs. Average Distance from Sun



[2] Allow a maximum of 2 credits:

Allow 1 credit if 6 or more of the 9 points are plotted correctly (± 0.5 unit).

and

Allow 1 credit for connecting all plotted points.

87 [1] Allow 1 credit for a scientifically correct answer or for an accurate interpretation of the student's graph.

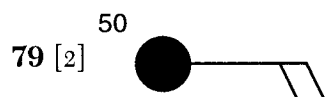
Examples: Planets with the higher orbital speeds are located closer to the Sun.
Distance from the Sun and orbital speed are inversely related.

88 [1] Allow 1 credit for **Mars** and **Jupiter**.

- 78 [2] See the back of the Scoring Key for Part I for example.

Allow a maximum of 2 credits if all 3 isotherms are drawn correctly. (If more than the 3 required isotherms are drawn, **all** isotherms must be correct for 2 credits.)

Allow only 1 credit if 1 or 2 isotherms are drawn correctly. (If more than the 3 required isotherms are drawn, and the 3 **required** isotherms are drawn correctly but the additional isotherms are incorrect, 1 credit may be allowed.) Isotherms need not be labeled.



Allow a maximum of 2 credits:

Allow 1 credit for correctly indicating wind direction.

and

Allow 1 credit for correctly indicating wind-speed. (Feathers may be placed on either side of the staff.)

- 80 [1] Allow 1 credit for a scientifically correct answer.

Examples: sky conditions
cloud cover

- 81 [4] *a* Allow 1 credit for correctly recording the equation. (The student must give the answer in the form of an equation, which must include “rate =” or “*r* =.”)

Examples: rate of change = $\frac{\text{change in field value}}{\text{change in time}}$

$$r = \frac{\Delta d}{\Delta t}$$

- b* Allow 1 credit for substituting both acceptable measurements into the equation given in *a*. (The student need *not* record the units.)

$$\text{rate} = \frac{300 \text{ km}}{15 \text{ hr}}$$

(Allow ± 25 km for distance; time must be 15 hours.)

- c* Allow a maximum of 2 credits:

Allow 1 credit for correctly calculating the rate *based on the student's answer in b*.

and

Allow 1 credit for recording the proper units.

Examples: rate = 20 kilometers/hour
 $r = 20 \text{ km/hr}$

- 82 [1] Allow 1 credit for **troposphere**.

- 83 [1] Allow 1 credit for a scientifically correct answer.

Examples: As distance increases, depth increases.
The relationship is direct.

- 84 [1] Allow 1 credit for **Australian** and **Pacific**. (Note: Australian plate is also known as the Indian plate or the Indo-Australian plate.)

- 85 [1] Allow 1 credit for a scientifically correct answer.

Examples: The plates are converging.
One plate is sliding under the other.