IESO 2025 – Jining China

Field practical test

The items list (phenomena, processes, geological principles, earth systems interactions)

Number: _____ **Name**: _____ **Team name**: _____

1. Gneiss	35. Burial
2. Dyke	36. Melting
3. Pegmatite	37. Slow crystallization of a magma
4. Xenolith	38. Fast crystallization of a magma
5. Inclusion	39. Intrusion
6. Plutonic rock	40. Cross-cutting
7. Volcanic rock	41. Uplift
8. Hypabyssal rock	42. A period of tectonic activity
9. Metamorphic rock	43. Physical weathering
10. Spring	44. Chemical weathering
11. Landslide	45. Biological weathering
12. Layers	46. Randomly oriented crystalline structure
13. Limestone	47. Preferred oriented crystalline structure
14. Dolomite	48. Lithification
15. Mudstone	49. Riverine sedimentation
16. Marl	50. Marine sedimentation
17. Fossil coral	51. Dissolution
18. Shallow sea	52. Crystallization
19. Open sea	53. Geosphere–biosphere interrelationship
20. Sedimentary rock	54. Geosphere–hydrosphere–biosphere interrelationship
21. Regression	55. Geosphere–biosphere–atmosphere interrelationship
22. Transgression	56. Geosphere–hydrosphere–atmosphere–biosphere interrelationship
23. Aquifer	57. Geosphere–hydrosphere interrelationship
24. Aquiclude	58. Horizontal bedding
25. Initial horizontality principle	59. Tilted bedding
26. The superposition principle	60. Cross bedding
27. Chert inclusion	61. Schist
28. Chalk	62. The present is the key to the past principle
29. Algae fossil	63. Transportation by sea
30. Coral fossil	64. Transportation by river
31. Nature park	65. Crystalline structure of igneous minerals
32. Weathering	66. A period of tectonic inactivity
33. Regional metamorphism	67. Boulders
34. Contact metamorphism	68. Fossil

Equipment to be provided: hammer, magnifying glass, and hydrochloric acid.

Mount Phoenix

Instructions:

Each question may have one or more correct answers.

- For questions with only one correct answer, you will earn 1 point for selecting the correct option. No points will be awarded for an incorrect answer.
- For questions with multiple correct answers, you will earn 1 point for each correct option selected and lose 0.5 points for each incorrect option selected. However, the total score for any single question will not be less than zero.
- Please record all your answers on the **answer sheet**. Only the answers marked on the answer sheet will be considered for grading.

Stop 1:

Look at the two rock units that make up the mountain in front of you.

1. Which rock group does the lower rock unit belong to?
   Choose the appropriate number(s) in the items list _____
2. On what field observation is your conclusion at question 1 based?
   Choose the appropriate number(s) in the items list _____
3. From a distance, which rock group does the upper rock unit belong to?
   *Choose the appropriate number(s) in the items list*_____
4. On what field observation is your conclusion at question 3 based?
   *Choose the appropriate number(s) in the items list*_____
5. Looking at the rocks from a distance, mark the correct sentence: _____
   (a) The upper unit is older than the lower unit.
   (b) The upper unit is younger than the lower unit.
   (c) The upper and lower units formed nearly synchronously.
   (d) There is not enough information to decide the relative age.

Stop 2:

1. Look at the layer marked as A. Use the tools provided and identify the name of the rock.
   Choose the appropriate number(s) in the items list _____
2. Look at the layer marked as B. Use the tools provided and identify the name of the rock.
   Choose the appropriate number(s) in the items list _____
3. In the context of the spring, layer A is:
   Choose the appropriate number(s) in the items list _____
4. In the context of the spring, layer B is:
   Choose the appropriate number(s) in the items list _____
5. Look at the layer marked as C and identify the name of the phenomenon in this layer.
   Choose the appropriate number(s) in the items list _____
6. In the context of sedimentation of layer C, marks the correct sentence. _____

(a) Layer C is younger than the phenomenon you identified in question 5.
(b) Layer C is older than the phenomenon you identified in question 5.
(c) Layer C and the phenomenon you identified in question 5 formed simultaneously.

7. Look at the layer marked as D and identify the lamina phenomenon. What does this phenomenon represent?

Choose the appropriate number(s) in the items list _____

8. What is the sedimentation environment of layer D?

Choose the appropriate number(s) in the items list _____

9.Your answer to question 8 is based on

Choose the appropriate number in the items list _____

10. This holy place is an outcome of the following interrelationships:

Choose the appropriate number(s) in the items list _____

Stop 3:

1. Observe the profile in front of you and mark the soil horizon(s) you identify here:

_____

(a) Zone 1
(b) Zone 2
(c) Zone 3

2. Which of the following factors influenced the development of this soil profile?

_____

(a) Parent rock
(b) Climate
(c) Biological activity
(d) Topography
(e) Time

3. Choose the most appropriate item number(s) that represent the interrelationships within this outcrop _____

Stop 4:

Here you will observe five rock layers labeled as A, B, C, D, and E.

1. Layers A, C, and D are all composed of mudstone. Why do they have different colors despite being the same rock type? _____

a) They were deposited in different geological periods.
b) The source materials of the layers are different.
c) The red layers are continental sedimentary rocks, whereas the yellow layer is a marine sedimentary rock.
d) The red and yellow layers differ in their mineral composition and chemical makeup.

2. Write the number(s) from the items list that describe each of the phenomena

Phenomena	The item number(s) that fit the phenomena						
A	Mudstone						

B							
C	Mudstone						
D	Mudstone						
E							

3. Which of the following statements is the most likely correct? The transition from layer C to D might _____
(a) reflect differential weathering.
(b) reflect an environment shift from oxidizing to reducing conditions.
(c) indicate an ecological change in the depositional environment.
(d) indicate sea-level fluctuations.

4. Which of the following statements is the most likely correct? The transition from layer C to E might indicate _____
(a) a sea-level transgression
(b) a sea-level regression
(c) a climate change
(d) an ecological change in the depositional environment

5. Which geological principle enables you to come to the above conclusion?
Choose the appropriate number(s) in the items list _____

Stop 5: The viewpoint

1. Which of the processes below contributed to the development of the Mount Phoenix landscape? _____
(a) Tectonic activity
(b) Igneous activity
(c) Metamorphic activity
(d) Erosion

2. Write below the item numbers of rock cycle processes that were involved in the formation of Mount Phoenix.

The numbers of the items:
