IESO 2025 – Jining China
Field practical test
The list of items
(phenomena, processes, geological principles, earth systems interactions)

1. Gneiss	36. Burial
2. Dyke	37. Melting
3. Pegmatite	38. Slow crystallization of a magma
4. Xenolith	39. Fast crystallization of a magma
5. Intrusion	40. Intrusion
6. Plutonic rock	41. Cross-cutting
7. Volcanic rock	42. Uplift
8. Hypabyssal rock	43. A period of tectonic activity
9. Metamorphic rock	44. Physical weathering
10. Spring	45. Chemical weathering
11. Landslide	46. Biological weathering
12. Layers	47. Randomly oriented crystalline structure
13. Limestone	48. Preferred oriented crystalline structure
14. Dolomite	49. Lithification
15. Mudstone	50. Riverine sedimentation
16. Marl	51. Marine sedimentation
17. Fossil coral	52. Dissolution
18. Shallow sea	53. Crystallization
19. Open sea	54. Geosphere–biosphere interrelationship
20. Sedimentary rock	55. Geosphere–hydrosphere–biosphere interrelationship
21. Regression	56. Geosphere–biosphere–atmosphere interrelationship
22. Transgression	57. Geosphere–hydrosphere–atmosphere–biosphere interrelationship
23. Aquifer	58. Geosphere–hydrosphere interrelationship
24. Aquiclude	59. Horizontal bedding
25. Initial horizontality principle	60. Tilted bedding
26. The superposition principle	61. Cross bedding
27. Chert inclusion	62. Schist
28. Chalk	63. The present is the key to the past principle
29. Algae fossil	64. Transportation by sea
30. Coral fossil	65. Transportation by river
31. Nature park	66. Crystalline structure of igneous minerals
32. Weathering	67. A period of tectonic inactivity
33. Regional metamorphism	68. Boulders
34. Contact metamorphism	69. Fossil

Mount Phoenix:

The scoring system: Each question may have one or more correct answers. You will earn 1 point for each correct option selected and lose 0.5 points for each incorrect option selected with the proviso that the total score for any question will not go below zero)

All questions carry different points.

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? **(1 point)**

Choose the appropriate number in the items list **_Plutonic_**

2) On what field observation is your conclusion at (a) based? **(1 point)**

Choose the appropriate number in the items list **_66**

3) From a distance, which rock group does the upper rock unit belong to? **(1 point)**

Choose the appropriate number in the items list **_Sedimentary rocks_**

4) On what field observation is your conclusion at (c) based? **(1 point)**

Choose the appropriate number in the items list **_layers_**

5) Looking at the rocks from a distance, mark the correct sentence **(2 points)**: **(d)**

(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 **(1 point)**.

Choose the appropriate number in the items list **__Marl _**

2) Look at the layer marked as B. Use the tools provided and identify the name of the rock **(1 point)**.

Choose the appropriate number in the items list **_Limestone_**

3) In the context of the spring, layer A is **(1 point)**

Choose the appropriate number in the items list **__Aquiclude__**

4) In the context of the spring, layer B is **(1 point)**

Choose the appropriate number in the items list **___Aquifer____**

5) Look at the layer marked as C and identify the name of the phenomenon in this layer **(1 point)**.

Choose the appropriate number in the items list **__Chert inclusion____**

6) In the context of sedimentation of layer C, marks the correct sentence **(1 point)**. **(b)**

(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? **(1 point)**

Choose the appropriate number in the items list **_algae fossil_**

8) What is the sedimentation environment of layer D? **(2 points)**

Choose the appropriate number in the items list **___shallow sea___**

9) Your answer to question 8 is based on **(2 points)**

Choose the appropriate number in the items list _63_

10) This holy place is an outcome of the following interrelationships **(2 points)**:

Choose the appropriate number in the items list **57**

Stop 3:

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

(a) Zone 1

(b) **Zone 2**

(c) **Zone 3**

2) Which of the following factors influenced the development of this soil profile **(5 points)**? (Multiple correct answers) **(A, B, C, D, E)**

(a) The parent rock

(b) Climate

(c) Biological activity

(d) Topography

(e) Time

3) Choose the most appropriate item number that represents the interrelationships within this outcrop **(2 points)**__**57**__:

Stop 4:

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

1) Layers A, C, and D are mudstone. Why does the same type of rock have different colors **(2 points)**? **(d)**

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) Identify the four rock bodies marked as A, B, C, and D on the site.
Write the number/s from the items list, which describe only the body (not the process that created it). **(4 points)** (*There are some for which more than one item fits*).

Phenomena	The item/s number that fits the phenomena						
A	Mudstone						
B	13	20					
C	Mudstone						
D	Mudstone						
E	13	20					

3) Which of the following statements is most likely correct? The transition from layer C to D might **(2 points)** _____ **(b)**

(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 most likely correct? The transition from layer C to E might indicate **(2 points)** _____ **(b)**

(a) a sea-level transgression

(b) a sea-level regression

(c) climate change

(d) an ecological change in the depositional environment

5) Which geological principle enables you to come to the above conclusion? **(2 points)**

Choose the appropriate number in the items list __**26**_____

Stop 5: The viewpoint

1) Which of the processes below contributed to the development of the Mount Phoenix landscape? **(3 points)** (a, b, d)

(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 **(5 points)**.

The numbers of the items**:**

37	38	42	44	45	**46**	49	51	64										