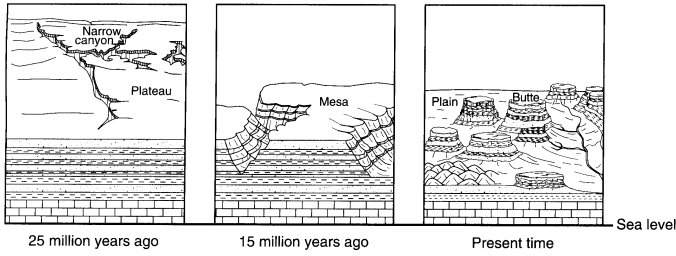


Name: _____

Earth Processes and P, P and C

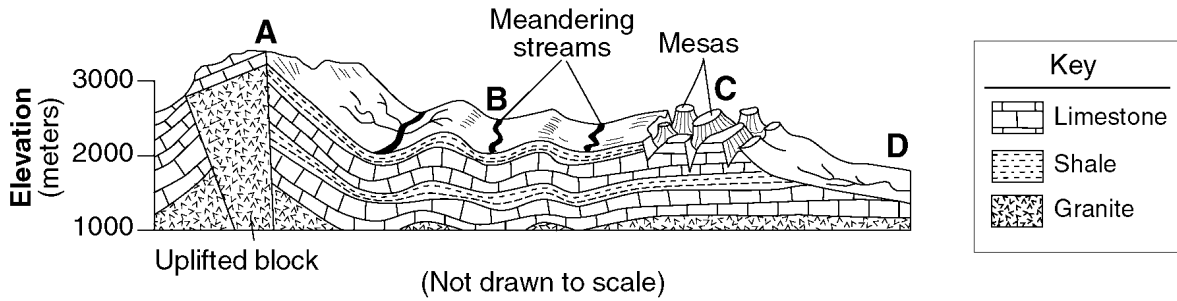
1. The sequence of bedrock cross sections below represents the same landscape region over a period of geologic time.



This sequence best represents

- A) an arid region that experienced mostly uplifting forces
- B) an arid region that experienced mostly erosional forces**
- C) a humid region that experienced mostly uplifting forces
- D) a humid region that experienced mostly erosional forces

Base your answers to questions 2 through 4 on the geologic cross section and the table below. The cross section represents the bedrock structure beneath four landscape regions, *A*, *B*, *C*, and *D*.



The table below shows characteristics of the four landscape regions *A*, *B*, *C*, and *D*.

Landscape Region	Relief	Bedrock
<i>A</i>	great relief, high peaks, deep valleys	faulted and tilted structure; many bedrock types, including igneous
<i>B</i>	moderate relief, rounded peaks, wide valleys	folded sedimentary bedrock
<i>C</i>	moderate to high relief	horizontal sedimentary bedrock layers
<i>D</i>	very little relief, low elevations	horizontal sedimentary bedrock layers

2. The sharp, angular flat-topped hills (mesas) in landscape region *C* were most likely produced by a climate that was

- A) tropical
- B) humid
- C) dry**
- D) polar

3. The meandering streams shown in landscape region *B* usually form where there are

- A) volcanic cones
- B) gentle gradients**
- C) many fractures in the bedrock
- D) numerous escarpments

Name: _____

Earth Processes and P, P and C

4. Which terms best describe the surface landscapes of A, B, C, and D?

- A) A—mountains, B—ridges and valleys, C—plateau, D—plain
- B) A—plateau, B—plain, C—mountains, D—ridges and valleys
- C) A—plain, B—mountains, C—plateau, D—plain
- D) A—ridges and valleys, B—plateau, C—plain, D—mountains

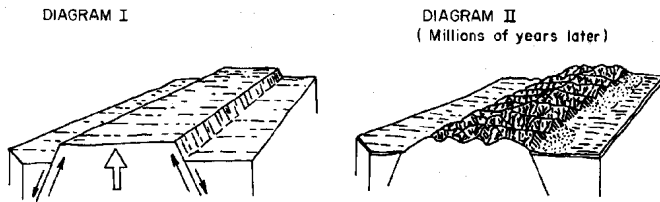
5. If weathering and erosion were the only geological processes taking place on the Earth, most landscapes would be characterized by

- A) low relief and gentle gradients
- B) low relief and steep gradients
- C) high relief and gentle gradients
- D) high relief and steep gradients

6. In a region that is being uplifted faster than it is being eroded, hills usually have

- A) steep slopes and slow-moving streams
- B) steep slopes and fast-moving streams
- C) gentle slopes and slow-moving streams
- D) gentle slopes and fast-moving streams

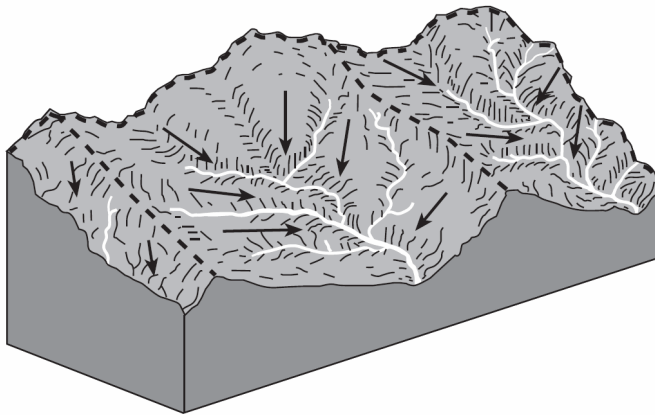
7. The diagrams below show the same region of the Earth's crust at two different times.



These diagrams seem to indicate that landscape features are the result of

- A) only uplifting forces within the Earth's crust
- B) only leveling forces within the Earth's crust
- C) both uplifting and leveling forces acting on the Earth's crust
- D) neither uplifting nor leveling forces acting on the Earth's crust

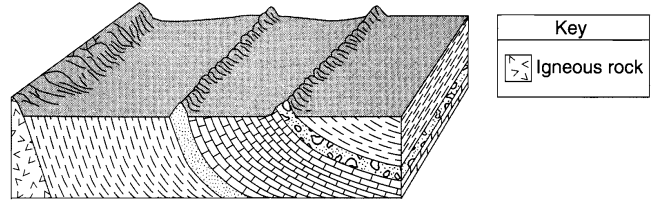
8. The block diagram below represents the drainage basins of some river systems separated by highland divides, shown with dashed lines. The arrows show the directions of surface-water flow.



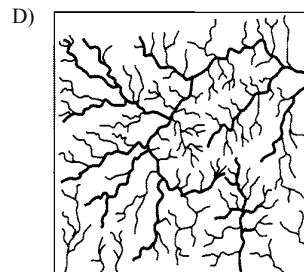
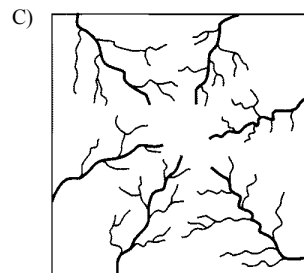
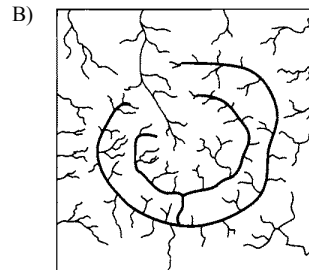
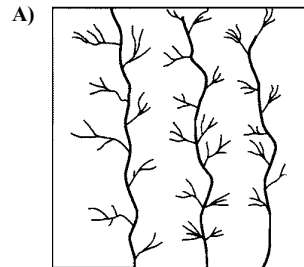
The three areas separated by highland divides are called

- A) meanders
- B) floodplains
- C) watersheds
- D) tributaries

9. The block diagram below shows a landscape region.



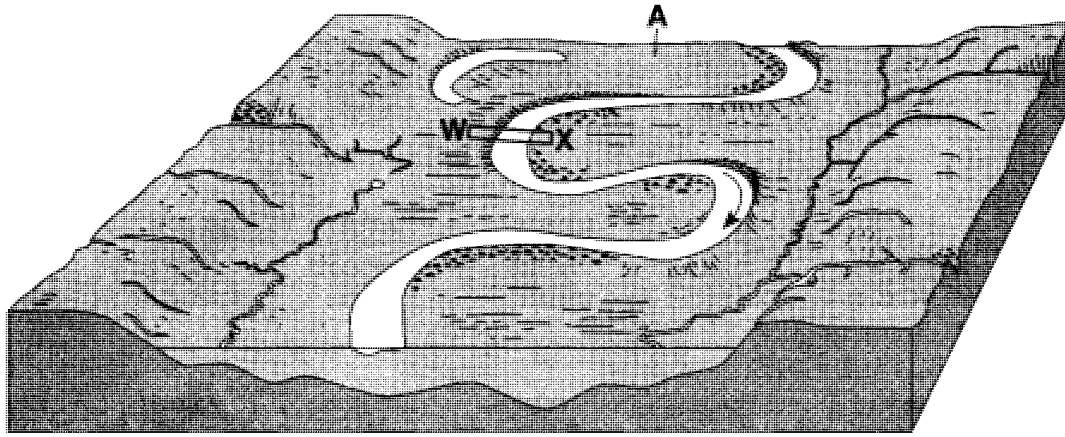
Which stream drainage pattern would most likely develop at the surface of this region?



Name: _____

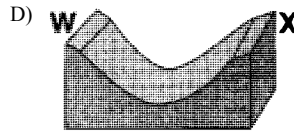
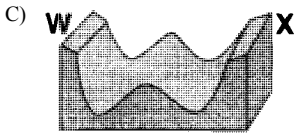
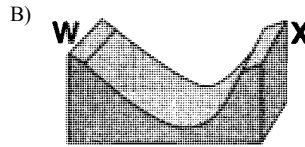
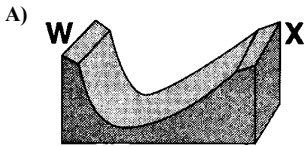
Earth Processes and P, P and C

Base your answers to questions 10 and 11 on the block diagram below, which represents the landscape features associated with a meandering stream. *WX* is the location of a cross section. Location *A* indicates a landscape feature.



(Not drawn to scale)

10. Which cross section best represents the shape of the stream bottom at *WX*?



11. The landscape feature at location *A* is best described as

- A) a sandbar B) an escarpment C) a delta D) a floodplain

12. The table below shows the relationship between total yearly precipitation (*P*) and potential evapotranspiration (*E_p*) for different types of climates.

Climate Classification

Climate Type	Total Yearly P/E_p Ratio
Humid	Greater than 1.2
Subhumid	0.8 to 1.2
Semiarid	0.4 to 0.8
Arid	Less than 0.4

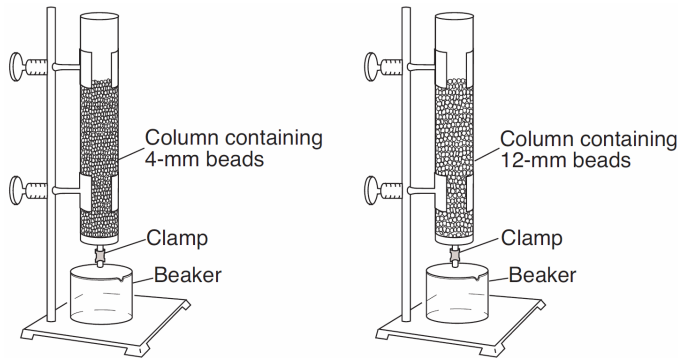
The total yearly precipitation (*P*) for a city in Texas is 218 millimeters. The total yearly potential evapotranspiration (*E_p*) is 951 millimeters. Which type of climate does this city have?

- A) humid B) subhumid C) semiarid D) arid

Name: _____

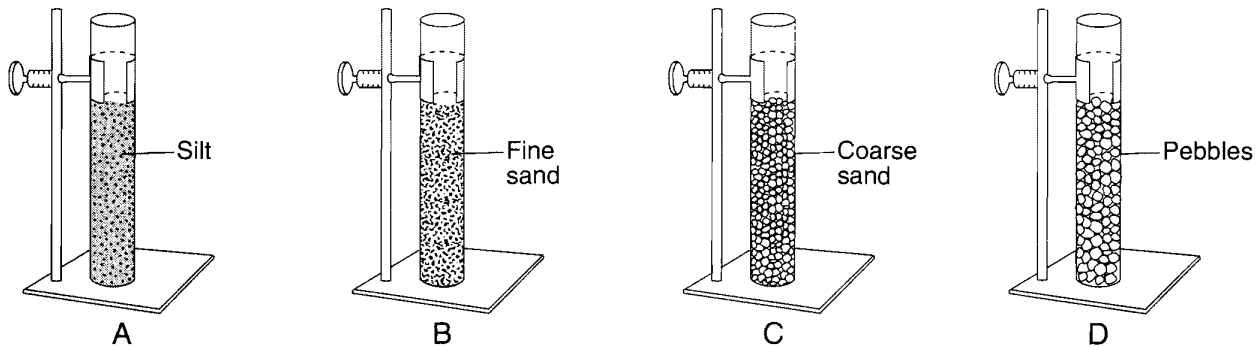
Earth Processes and P, P and C

13. The diagram below shows an experimental setup to compare water retention and permeability in two columns with equal volumes of spherical plastic beads of different diameters.



Which statement best describes the water retention and permeability in the two columns of beads?

- A) The column with 4-mm beads has greater water retention and permeability.
 - B) The column with 12-mm beads has greater water retention and permeability.
 - C) The column with 4-mm beads has greater water retention and the column with 12-mm beads has greater permeability.**
 - D) The column with 12-mm beads has greater water retention and the column with 4-mm beads has greater permeability.
14. Base your answer to the following question on the diagram below, which shows four tubes containing 500 milliliters of sediment labeled *A*, *B*, *C* and *D*. Each tube contains well-sorted, loosely packed particles of uniform shape and size and is open at the top. The classification of the sediment in each tube is labeled.



(Not drawn to scale)

Each tube is filled with water to the top of the sediments and the tube is covered with a fine screen. The tubes are then tipped upside down so the water can drain. In which tube would the sediment retain the most water?

- A) *A*
- B) *B*
- C) *C*
- D) *D*

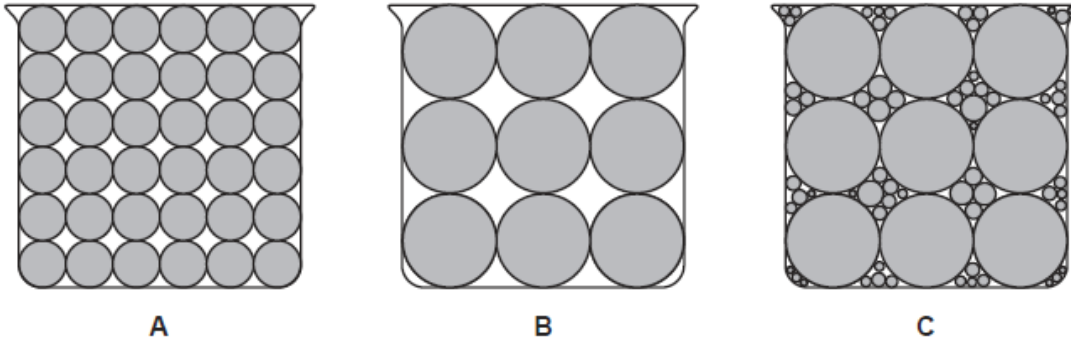
15. Which surface soil type has the slowest permeability rate and is most likely to produce flooding?

- A) pebbles
- B) sand
- C) silt
- D) clay**

Name: _____

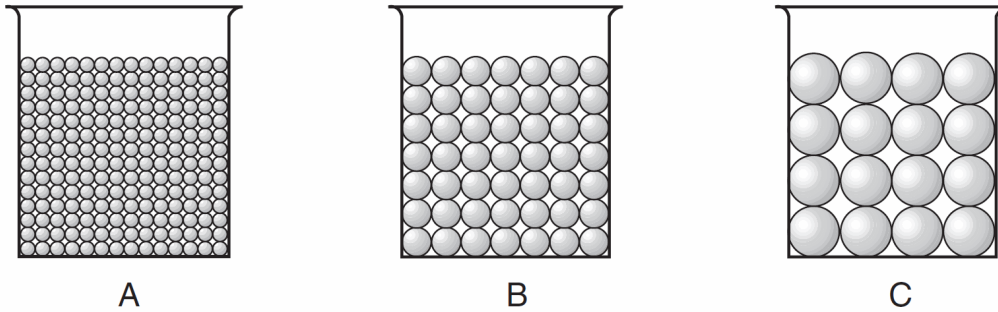
Earth Processes and P, P and C

16. The diagram below represents cross sections of equal-size beakers *A*, *B*, and *C* filled with beads.



Which statement best compares the porosity in the three beakers?

- A) **Beaker *A* and beaker *B* have the same porosity, and beaker *C* has the least porosity.**
 - B) Beaker *A* and beaker *B* have the same porosity, and beaker *C* has the greatest porosity.
 - C) Beaker *B* has the greatest porosity, beaker *A* has less porosity, and beaker *C* has the least porosity.
 - D) Beaker *C* has the greatest porosity, beaker *B* has less porosity, and beaker *A* has the least porosity.
17. The cross sections below represent three beakers that were used to test porosity. Beakers *A*, *B*, and *C* each contain a different size of bead. Each beaker holds an equal volume of beads. The amount of water needed to fill the total pore space between the beads in each beaker was measured.



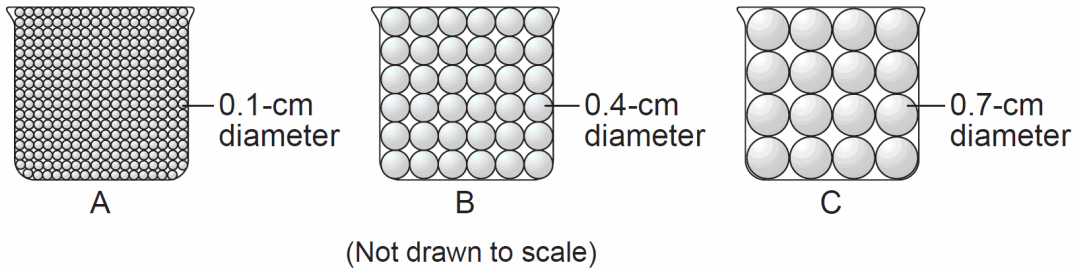
Which statement best describes the porosity that was found for these three samples?

- A) *A* had a greater porosity than *B* and *C*.
- B) *B* had a greater porosity than *A* and *C*.
- C) *C* had a greater porosity than *A* and *B*.
- D) **All three samples had the same porosity.**

Name: _____

Earth Processes and P, P and C

18. The diagram below represents three identical beakers, *A*, *B*, and *C*, each containing an equal volume of uniform-sized spherical beads. Water is poured into each beaker until all of the pore spaces are filled.



Which table best indicates the percentage of pore space compared to the total volume of each beaker?

A)

Beaker	Percentage of Pore Space
A	40
B	40
C	40

B)

Beaker	Percentage of Pore Space
A	60
B	40
C	20

C)

Beaker	Percentage of Pore Space
A	20
B	40
C	60

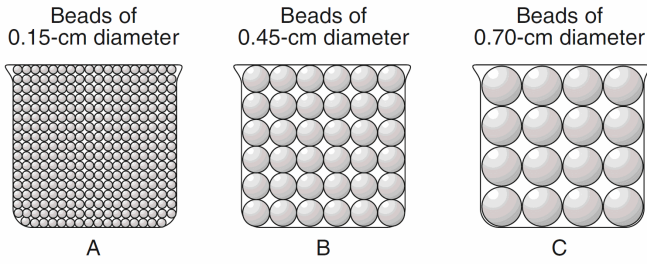
D)

Beaker	Percentage of Pore Space
A	20
B	40
C	20

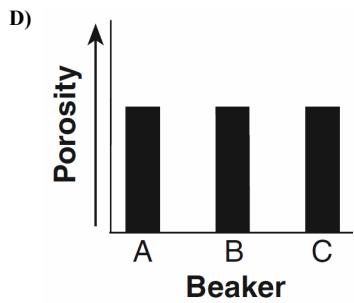
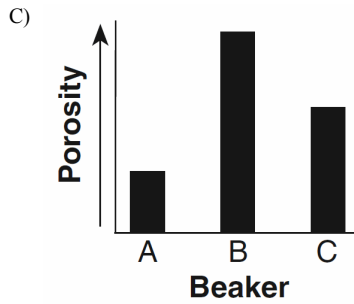
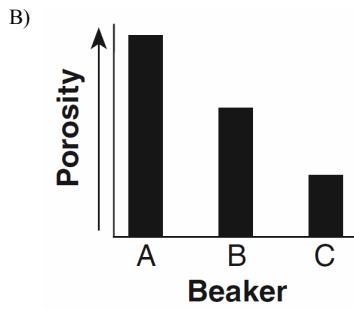
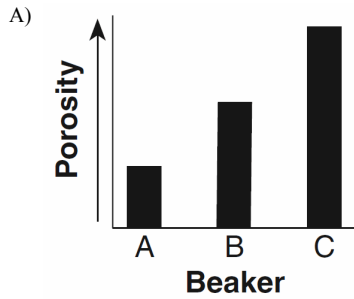
Name: _____

Earth Processes and P, P and C

19. The diagram below represents three identical beakers filled to the same level with spherical beads.



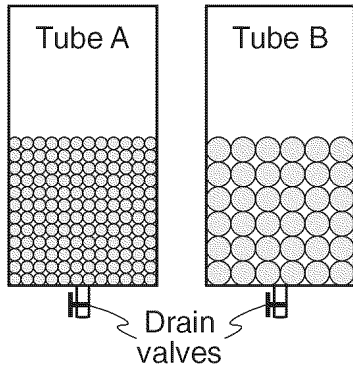
If the packing of the beads within each beaker is the same, which graph best represents the porosity within each beaker?



Name: _____

Earth Processes and P, P and C

20. The diagram below shows tubes *A* and *B* partly filled with equal volumes of round plastic beads of uniform size. The beads in tube *A* are smaller than the beads in tube *B*. Water was placed in tube *A* until the pore spaces were filled. The drain valve was then opened, and the amount of time for the water to drain from the tube was recorded. The amount of water that remained around the beads was then calculated and recorded. Data table 1 shows the measurements recorded using tube *A*.



Data Table 1: Tube A	
water required to fill pore spaces	124 mL
time required for draining	2.1 sec
water that remained around the beads after draining	36 mL

If the same procedure was followed with tube *B*, which data table shows the measurements most likely recorded?

A)

Data Table 2: Tube B	
water required to fill pore spaces	124 mL
time required for draining	1.4 sec
water that remained around the beads after draining	26 mL

B)

Data Table 2: Tube B	
water required to fill pore spaces	168 mL
time required for draining	3.2 sec
water that remained around the beads after draining	46 mL

C)

Data Table 2: Tube B	
water required to fill pore spaces	124 mL
time required for draining	3.2 sec
water that remained around the beads after draining	36 mL

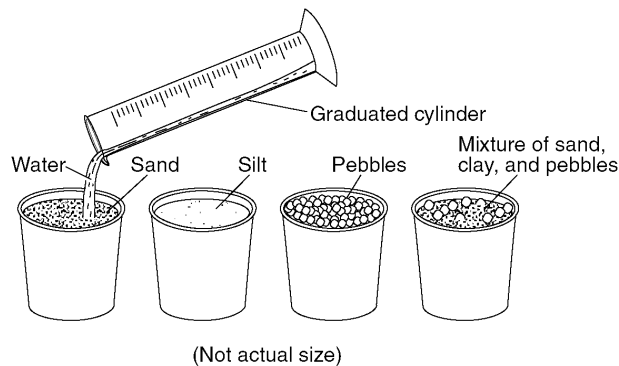
D)

Data Table 2: Tube B	
water required to fill pore spaces	168 mL
time required for draining	1.4 sec
water that remained around the beads after draining	36 mL

Name: _____

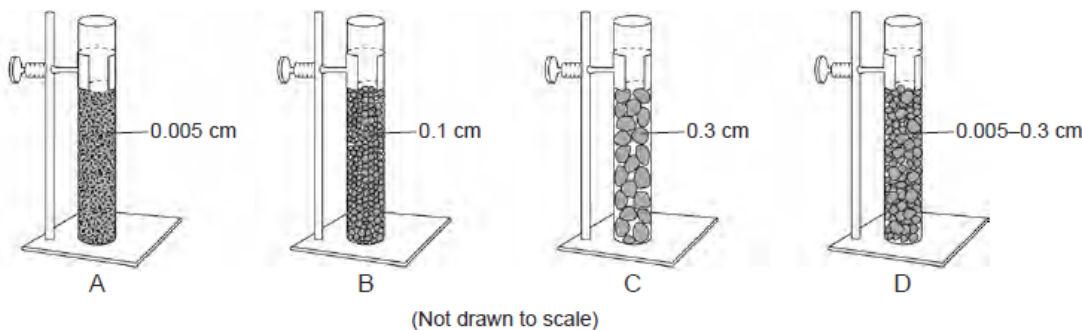
Earth Processes and P, P and C

21. A student performed a laboratory activity in which water was poured slowly into four cups containing equal volumes of loosely packed sediment samples, as shown in the diagram below. All particles were spherical in shape and uniform in size within a container. After the water level reached the surface of each sample, the student determined the amount of water that had been added.



The results of the activity should have indicated that approximately equal amounts of water were added to the cups of

- A) silt and pebbles, only
B) **sand, silt, and pebbles, only**
C) pebbles and the mixture, only
D) sand, pebbles, and the mixture, only
22. Base your answer to the following question on the diagram below and on your knowledge of Earth science. The diagram represents four tubes, labeled *A*, *B*, *C*, and *D*, each containing 150 mL of sediments. Tubes *A*, *B*, and *C* contain well-sorted, closely packed sediments of uniform shape and size. Tube *D* contains uniformly shaped, closely packed sediments of mixed sizes. The particle size of the sediment in each tube is labeled.



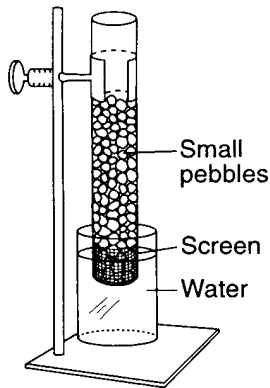
If tubes *A*, *B*, and *C* were set up to test for capillarity, the data would show that capillarity is

- A) **greatest in tube A**
B) greatest in tube B
C) greatest in tube C
D) the same for tubes *A*, *B*, and *C*
-
23. A rock with a high porosity will probably
- A) be resistant to weathering
B) be composed of large grains
C) **have a large percentage of space between particles**
D) have a small percentage of rounded particles
24. Which is most important in determining the amount of ground water that can be stored within a rock?
- A) the rock's geologic age
B) the rock's hardness
C) **the rock's porosity**
D) the rock's color
25. A soil sample with a high percentage of open space between grains must
- A) have low permeability
B) have mixed grain sizes
C) **be porous**
D) show a high amount of capillarity

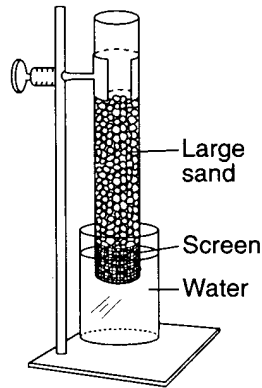
Name: _____

Earth Processes and P, P and C

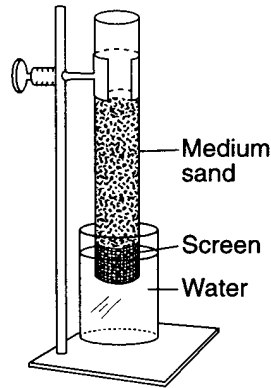
Base your answers to questions 26 and 27 on the diagram below. Columns A, B, C, and D are partially filled with different sediments. Within each column, the sediment is uniform in size. A fine wire mesh screen covers the bottom of each column to prevent the sediment from falling out. The lower part of each column has just been placed in a beaker of water. Sediment sizes are not drawn to scale.



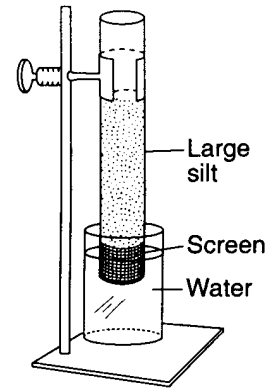
Column A



Column B



Column C



Column D

26. In an experiment, the beakers of water were removed and replaced with empty beakers. The sediments were allowed to dry. Then water was poured into each column to compare the permeability of the sediments. The permeability rate of the medium sand sample was shown to be
- A) less than the silt and pebble samples
 - B) less than the silt sample but more than the pebble sample
 - C) **greater than the silt sample but less than the pebble sample**
 - D) greater than the silt and pebble samples
27. In which sediment will capillary action cause the water from the beaker to rise fastest in the column?
- A) small pebbles
 - B) large sand
 - C) medium sand
 - D) **large silt**

28. Which soil-property measurement usually is greater when particles are fine than when particles are coarse?

- A) infiltration
- B) **capillarity**
- C) porosity
- D) permeability rate

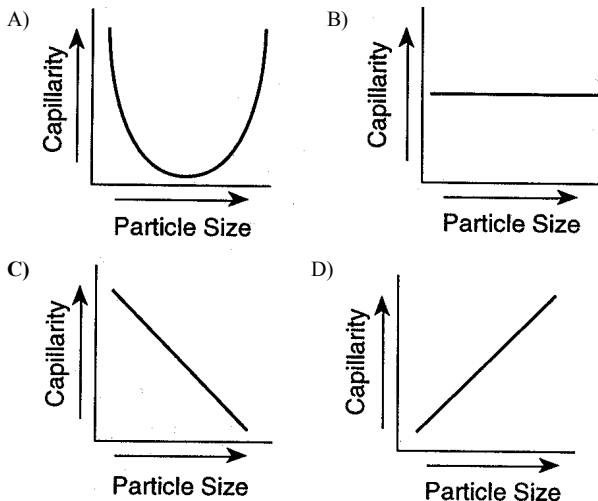
29. Which property of loose earth materials most likely increases as particle size decreases?

- A) **capillarity**
- B) infiltration
- C) permeability
- D) porosity

30. In which sediments is the capillary action of water greatest?

- A) **silt and sand**
- B) sand and pebbles
- C) pebbles and cobbles
- D) cobbles and boulders

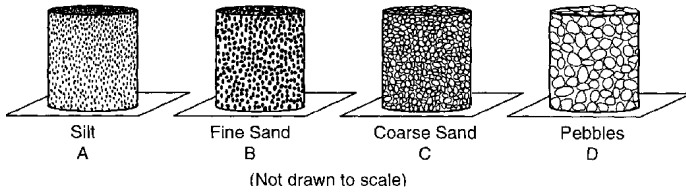
31. Which graph best represents the relationship between the particle size and the capillarity of a sample of soil?



Name: _____

Earth Processes and P, P and C

32. Base your answer to the following question on the diagrams below, which represent 500-milliliter containers that are open at the top and the bottom and filled with well-sorted, loosely packed particles of uniform size. A piece of screening placed at the bottom of each container prevents the particles from falling out.



The sample in which container would have the greatest capillarity when placed in water?

- A) *A* B) *B* C) *C* D) *D*
-

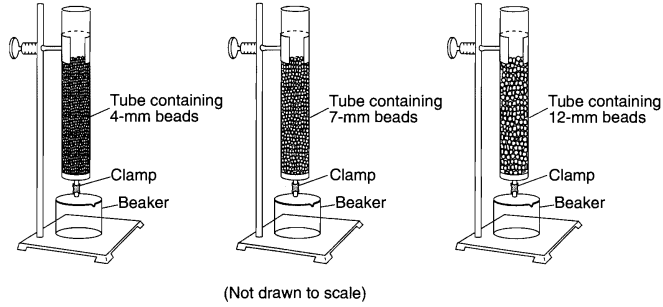
33. Water moves upward through the soil because of

- A) **capillary action** B) permeability
C) porosity D) infiltration

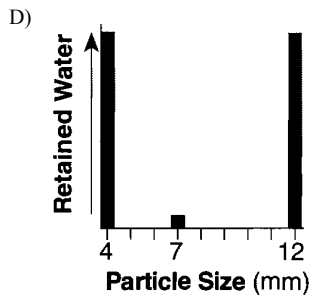
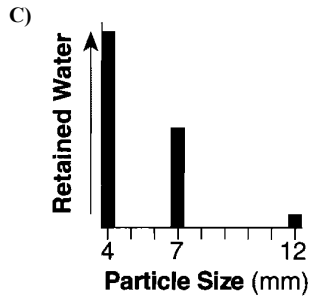
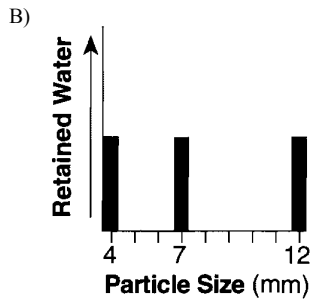
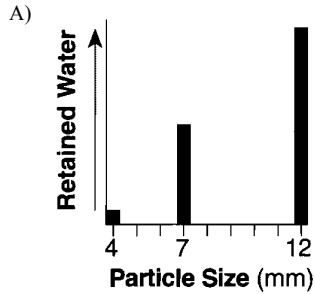
Name: _____

Earth Processes and P, P and C

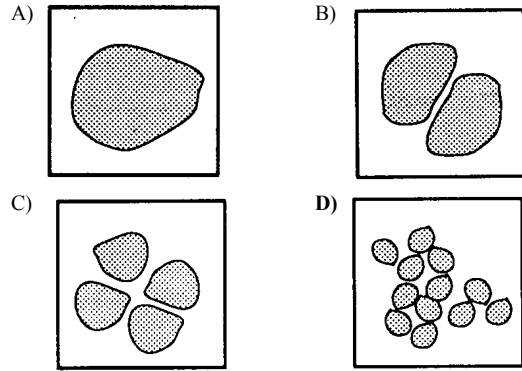
34. The diagram below shows three identical plastic tubes filled to the same level with spherical beads of different diameters. Each tube was filled with water to the top of the beads. The clamps were then opened to allow water to drain into the beakers.



Which graph best represents the relative amount of water retained by the beads in each tube?



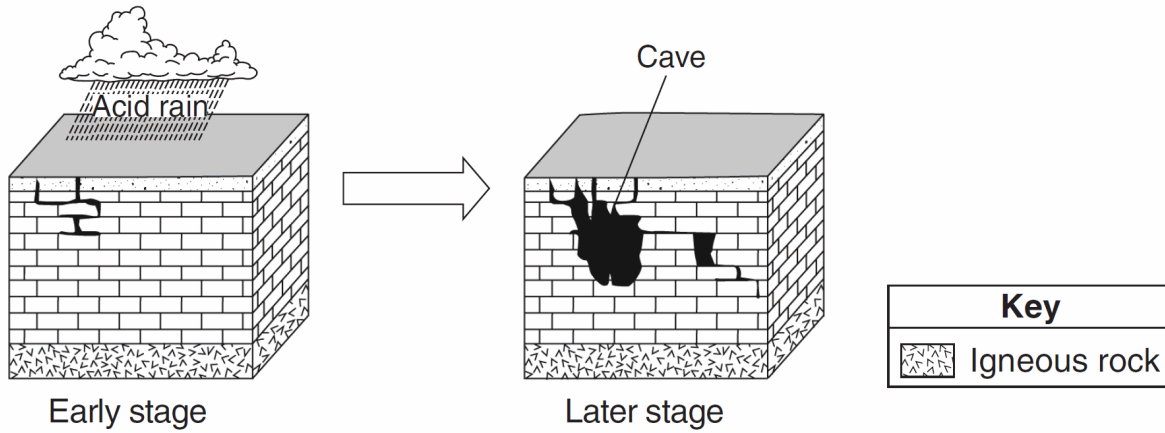
35. The four limestone samples illustrated below have the same composition, mass, and volume. Under the same climatic conditions, which sample will weather fastest?



Name: _____

Earth Processes and P, P and C

36. The two block diagrams below represent the formation of caves.



Which types of weathering and erosion are primarily responsible for the formation of caves?

- A) **chemical weathering and groundwater flow**
- B) chemical weathering and runoff
- C) physical weathering and groundwater flow
- D) physical weathering and runoff

8.THE DEPOSITIONAL PROCESS (11)**8.D.Landscape Development (7)****8.D.i.Uplifting and Leveling Force (7)****8.C.Landscape Characteristics (4)****8.C.iii.Stream Patterns (4)****6.GROUND WATER (23)****6.B.The Local Water Budget (1)****6.B.ii.Climate and Local Water Budget (1)****6.A.Earth's Water (22)****6.A.i.Ground Water (22)****6.A.i.b.Permeability (4)****6.A.i.c.Porosity (10)****6.A.i.d.Capillary (8)****7.THE EROSIONAL PROCESS (2)****7.A.Weathering (2)****7.A.ii.Weathering Rates/Surface Area (1)****7.A.i.Weathering Processes (1)****7.A.i.b.Chemical (1)**

#	QID#	Ans	Thinking Skills	Difficulty	Standards
1	5167	B		Unassigned	Uplifting and Leveling Force
2	4947	C		Unassigned	Uplifting and Leveling Force
3	4946	B		Unassigned	Uplifting and Leveling Force
4	4945	A		Unassigned	Uplifting and Leveling Force
5	2009	A		Intermediate	Uplifting and Leveling Force
6	3848	B		Unassigned	Uplifting and Leveling Force
7	818	C		Unassigned	Uplifting and Leveling Force
8	7622	C		Unassigned	Stream Patterns
9	6691	A		Unassigned	Stream Patterns
10	6597	A		Unassigned	Stream Patterns
11	6595	D		Unassigned	Stream Patterns
12	3948	D		Unassigned	Climates and Local Water Budget
13	6794	C	Applying	Unassigned	Permeability
14	6614	A		Unassigned	Permeability
15	5639	D		Unassigned	Permeability
16	7971	A		Unassigned	Porosity
17	7875	D		Unassigned	Porosity
18	7795	A		Unassigned	Porosity
19	7114	D		Unassigned	Porosity
20	5599	A		Unassigned	Porosity
21	4797	B		Unassigned	Porosity
22	1178	A		Unassigned	Porosity
23	221	C		Unassigned	Porosity
24	460	C		Unassigned	Porosity
25	123	C		Unassigned	Porosity
26	4483	C		Unassigned	Permeability
27	4482	D		Unassigned	Capillary

#	QID#	Ans	Thinking Skills	Difficulty	Standards
28	3250	B		Unassigned	Capillary
29	658	A		Unassigned	Capillary
30	1860	A		Advanced	Capillary
31	2288	C		Unassigned	Capillary
32	2718	A		Unassigned	Capillary
33	2451	A		Unassigned	Capillary
34	6686	C		Unassigned	Capillary
35	1629	D		Basic	Weathering Rates/Surface Area
36	7878	A		Unassigned	Chemical

Answer Key
Earth Processes and P,P and C

1. **B**
2. **C**
3. **B**
4. **A**
5. **A**
6. **B**
7. **C**
8. **C**
9. **A**
10. **A**
11. **D**
12. **D**
13. **C**
14. **A**
15. **D**
16. **A**
17. **D**
18. **A**
19. **D**
20. **A**
21. **B**
22. **A**
23. **C**
24. **C**
25. **C**
26. **C**
27. **D**
28. **B**
29. **A**
30. **A**
31. **C**
32. **A**
33. **A**
34. **C**
35. **D**
36. **A**