Depositional Systems

Sample Test # 3
Geology 364:

Name: _____

Time Begun: _____ Time Ended: _____

RULES FOR ALL LECTURE TESTS
Lynn S. Fichter
James Madison University

(You have a several day period in which to take this test. You may take it any time during that several day period. The days available will be announced in lecture.

; You may **_not peek_** at these questions in any way until just at the moment you are ready to take the test.

(The test will probably take more than 50 minutes, but **YOU MUST TAKE THE WHOLE TEST IN ONE SITTING.** Pit stops are allowed. There are no time limits.

(You **must** sit and work alone while taking the test.

(When you sit down to take the test you may have only the following items:
(The test paper and scantron card.
(Any writing instruments [rulers, colored pencils, etc.] you need to write your answers.
(Any refreshments you require for the duration.

; Once you have taken the test you are expressly forbidden talk about it in any way, shape, or form with anyone else, except me, until everyone has finished taking the test.

HONOR: SCIENTIFIC AND PERSONAL
Science and honesty must go hand in hand. Science is the search for a true understanding of the universe, not what we wish it to be, or need it to be. But the universe is complex and for all our success science has had to struggle mightily to learn what it has. Dishonesty thus is very detrimental. Not only does it deliberately lead us down the wrong path, actions taken on the basis of that false knowledge can be deadly. Besides good ideas are hard enough to discover even when struggling honestly.
Personal dishonesty is also detrimental. Dishonesty in science, when discovered, destroys a career, and ruins a reputation. And dishonesty is always discovered because science's goal is to uncover false ideas.
Because each of you take this test individually, and without supervision, whether you cheat or are honest is your very personal and private responsibility. Not cheating means no notes, and not talking with anyone until everyone has finished the test - following the spirit of the law rather than just the letter. Putting your name at the top of the test page is equivalent to signing the James Madison University Honor Pledge.

Test Number Three
Geology 364
Stratigraphy and Basin Analysis
# Depositional Systems and Basin Analysis

The test is a mixture of Scantron, computer graded questions, and the basin analysis. For the Basin Analysis get and follow the instructions in the Lecture Notebook. Answer True/False and Multiple Choice question on the Scantron card. Answer other questions on the attached pages.

Be sure to put your social security number on the Scantron card.

Depositional Systems:

RIGHTS MINUS WRONGS - MULTIPLE CHOICE, One or More; 3 points each: *To the left below* is a table of choices that apply to the illustration to the right below. Choose all that apply.

SELECT FROM THESE DEPOSITIONAL UNITS	
1A Debris flows	2A L-Bar dominant
1B Sheet floods	2B Playa
1C Stream channels	2C T-Bar dominant
1D Sieve deposits	2D T-Bar/large trough
1E L-Bar/T-Bar mixed	2E
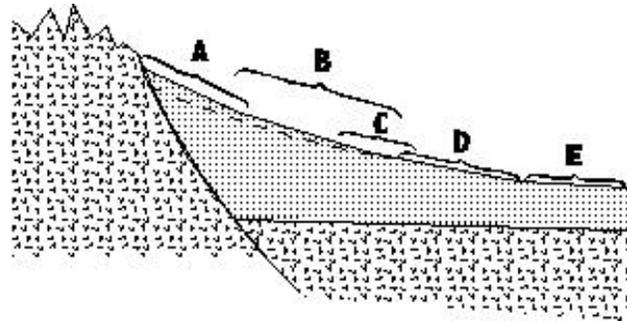
**LOCATION A.** Is most closely associated with which depositional units (all that might apply).

1. A=1A   B=1B   C=1C   D=1D   E=1E
2. A=2A   B=2B   C=2C   D=2D

LOCATION C. Is most closely associated with which depositional units (all that might apply).

3. A=1A   B=1B   C=1C   D=1D   E=1E
4. A=2A   B=2B   C=2C   D=2D

LOCATION E. Is most closely associated with which depositional units (all that might apply).

5. A=1A   B=1B   C=1C   D=1D   E=1E
6. A=2A   B=2B   C=2C   D=2D

ORTHOCONGLOMERATE DEPOSIT. Identify any and all of the choices in the table that are likely to be associated with deposition of an orthoconglomerate.

7. A=1A   B=1B   C=1C   D=1D   E=1E
8. A=2A   B=2B   C=2C   D=2D

PARACONGLOMERATE DEPOSIT. Identify any and all of the choices in the table that are likely to be associated with deposition of a paraonglomerate.

9. A=1A   B=1B   C=1C   D=1D   E=1E
10. A=2A   B=2B   C=2C   D=2D

GEOLOGIC OUTCROPS: At the back of the test is a page of outcrop illustrations, including photographs and drawings. Use them to answer the following questions about the drawing to the right.
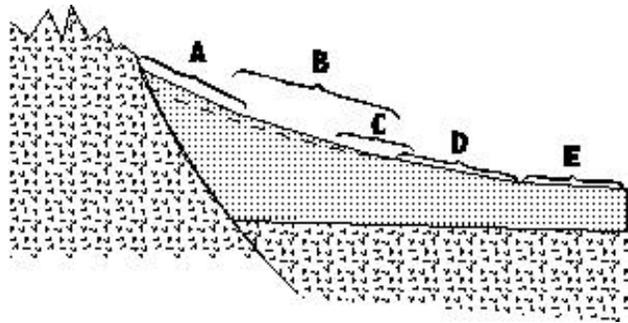
LOCATION A. The deposit(s) in the illustration at the back that most likely matches that which might be found at location A. If none apply, leave all blank.

11.	A=A	B=B	C=C	D=D	E=E
12.	A=F	B=G	C=H	D=I	D=J

LOCATION B. The deposit(s) in the illustration at the back that most likely matches that which might be found at location A. If none apply, leave all blank.

13.	A=A	B=B	C=C	D=D	E=E
14.	A=F	B=G	C=H	D=I	D=J

LOCATION D. The deposit(s) in the illustration at the back that most likely matches that which might be found at location A. If none apply, leave all blank.

15.	A=A	B=B	C=C	D=D	E=E
16.	A=F	B=G	C=H	D=I	D=J

GEOLOGIC OUTCROPS: FOR THE SAME PAGE OF OUTCROP ILLUSTRATIONS AT THE BACK

PARACONGLOMERATE. Identify any and all of the choices that are likely to be this type deposit.

17.	A=A	B=B	C=C	D=D	E=E
18.	A=F	B=G	C=H	D=I	D=J

TRACTION TRANSPORT. Identify any and all of the choices that are likely to be this type deposit.

19.	A=A	B=B	C=C	D=D	E=E
20.	A=F	B=G	C=H	D=I	D=J

GEOLOGIC OUTCROPS: Using the page of outcrop illustrations, choose from the environmental choices to the right the environment the deposit might be found in.

SELECT FROM THESE DEPOSITIONAL ENVIRONMENTS		
1A Anastomosing river	2A Delta-fluvial	3A Humid fan
1B Arid fan	2B Delta-tidal	3B Low sinuosity river
1C Beach/Barrier Island	2C Delta-wave	3C Shelf-storm
1D Braided River	2D Delta-wave-tide	3D Shelf-tide
1E Delta-fluvial/wave	2E High sinuosity river	3E Shelf-wave

Outcrop A. Identify any/all depositional environments we are likely to find this outcrop in.

21. A=1A   B=1B   C=1C   D=1D   E=1E
22. A=2A   B=2B   C=2C   D=2D   E=2E
23. A=3A   B=3B   C=3C   D=3D   E=3E

Outcrop B. Identify any/all depositional environments we are likely to find this outcrop in.

24. A=1A   B=1B   C=1C   D=1D   E=1E
25. A=2A   B=2B   C=2C   D=2D   E=2E
26. A=3A   B=3B   C=3C   D=3D   E=3E

Outcrop F. Identify any/all depositional environments we are likely to find this outcrop in.

27. A=1A   B=1B   C=1C   D=1D   E=1E
28. A=2A   B=2B   C=2C   D=2D   E=2E
29. A=3A   B=3B   C=3C   D=3D   E =3E

FACIES AND ENVIRONMENTS: From the environmental choices in the table above answer the following.

Identify the depositional environment(s) we are most likely to find this deposit in.

30. A=1A   B=1B   C=1C   D=1D   E=1E
31. A=2A   B=2B   C=2C   D=2D   E=2E
32. A=3A   B=3B   C=3C   D=3D   E =3E

Flow perpendicular to page
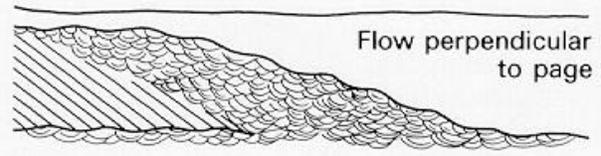
Multistoried Geometry. Identify the depositional environments that exhibit this feature.

33. A=1A   B=1B   C=1C   D=1D   E=1E
34. A=2A   B=2B   C=2C   D=2D   E=2E
35. A=3A   B=3B   C=3C   D=3D   E =3E

Multilateral Geometry. Identify the depositional environments that exhibit this feature.

36. A=1A   B=1B   C=1C   D=1D   E=1E
37. A=2A   B=2B   C=2C   D=2D   E=2E
38. A=3A   B=3B   C=3C   D=3D   E =3E

Strip Log Interpretation:

RIGHTS MINUS WRONGS - MULTIPLE CHOICE, One or More; 3 points each: *At the back are two pages of strip logs* labeled alphabetically. You are to identify the depositional system each strip log comes from.

    NOTE that the strip logs are not to scale; with two exceptions they have simply been reduced to the same height. You have to identify them based on their facies elements and sequences of facies elements. If no choices apply, leave all blank.

Anastomosing River. Identify any and all strip logs likely to have formed in this system.

39. A=A	B=B	C=C	D=D	E=E
40. A=F	B=G	C=H	D=I	E=J
41. A=K	B=L	C=M	D=N	E=O

Arid Fan. Identify any and all strip logs likely to have formed in this system.

42. A=A	B=B	C=C	D=D	E=E
43. A=F	B=G	C=H	D=I	E=J
44. A=K	B=L	C=M	D=N	E=O

Beach or Barrier Island. Identify any and all strip logs likely to have formed in this system.

45. A=A	B=B	C=C	D=D	E=E
46. A=F	B=G	C=H	D=I	E=J
47. A=K	B=L	C=M	D=N	E=O

Delta (of any kind). Identify any and all strip logs likely to have formed in this system.

48. A=A	B=B	C=C	D=D	E=E
49. A=F	B=G	C=H	D=I	E=J
50. A=K	B=L	C=M	D=N	E=O

Braided River (of any kind). Identify any and all strip logs likely to have formed in this system.

51. A=A	B=B	C=C	D=D	E=E
52. A=F	B=G	C=H	D=I	E=J
53. A=K	B=L	C=M	D=N	E=O

High Sinuosity River. Identify any and all strip logs likely to have formed in this system.

54. A=A	B=B	C=C	D=D	E=E
55. A=F	B=G	C=H	D=I	E=J
56. A=K	B=L	C=M	D=N	E=O

Low Sinuosity River. Identify any and all strip logs likely to have formed in this system.

57. A=A	B=B	C=C	D=D	E=E
58. A=F	B=G	C=H	D=I	E=J
59. A=K	B=L	C=M	D=N	E=O

Humid Fan. Identify any and all strip logs likely to have formed in this system.

60. A=A	B=B	C=C	D=D	E=E
61. A=F	B=G	C=H	D=I	E=J
62. A=K	B=L	C=M	D=N	E=O

Identification of Depositional Systems:

RIGHTS MINUS WRONGS - MULTIPLE CHOICE, One or More; 3 points each:

At the back are two pages of Depositional Systems (maps/block diagrams). They include only environments we have studied. A particular depositional system may appear more than once in different diagrams. You are to choose the environmental identification(s) for each question from the choices in the table above.

Anastomosing River. Identify the depositional environment in the map/block diagrams.

63. A=A	B=B	C=C	D=D	E=E
64. A=F	B=G	C=H	D=I	E=J
65. A=K	B=L	C=M	D=N	E=O

Arid Fan. Identify the depositional environment in the map/block diagrams.

66. A=A	B=B	C=C	D=D	E=E
67. A=F	B=G	C=H	D=I	E=J
68. A=K	B=L	C=M	D=N	E=O

Beach/Barrier. Identify the depositional environment in the map/block diagrams.

69. A=A	B=B	C=C	D=D	E=E
70. A=F	B=G	C=H	D=I	E=J
71. A=K	B=L	C=M	D=N	E=O

Delta tidal. Identify the depositional environment in the map/block diagrams.

72. A=A	B=B	C=C	D=D	E=E
73. A=F	B=G	C=H	D=I	E=J
74. A=K	B=L	C=M	D=N	E=O

Delta wave or fluvial/wave. Identify the depositional environment in the map/block diagrams.

75. A=A	B=B	C=C	D=D	E=E
76. A=F	B=G	C=H	D=I	E=J
77. A=K	B=L	C=M	D=N	E=O

Low Sinuosity River. Identify the depositional environment in the map/block diagrams.

78. A=A	B=B	C=C	D=D	E=E
79. A=F	B=G	C=H	D=I	E=J
80. A=K	B=L	C=M	D=N	E=O

High Sinuosity River. Identify the depositional environment in the map/block diagrams.

81. A=A	B=B	C=C	D=D	E=E
82. A=F	B=G	C=H	D=I	E=J
83. A=K	B=L	C=M	D=N	E=O

Braided River. Identify the depositional environment in the map/block diagrams.

84. A=A	B=B	C=C	D=D	E=E
85. A=F	B=G	C=H	D=I	E=J
86. A=K	B=L	C=M	D=N	E=O