Minnesota Soils Scorecard Questions for Pits 1 - 4 Scantron # 105481

Use your soils scorecard to fill out the answers on your scantron Bubble in the front side of the sheet for Pit 1 (#1-45) and Pit 2 (#51-95) and Bubble in the back side of the sheet for Pit 3 (#1-45) and Pit 4 (51-95)

Pits 1 & 3 Questions

Part 1: Surface soil
1. Surface Soil: Thickness in inches (2 pts)
   A. 
   B. Answers to be determined
   C. by pit and placard
   D. with a 3 inch range.
   E. 

2. Surface Soil Color (4 pts)
   A. Dark
   B. Medium
   C. Light

3. Surface: Soil Texture (5 pts)
   A. Coarse
   B. Moderately Coarse
   C. Medium
   D. Fine
   E. Very Fine

4. Surface: Gravel and Rock (2 pts)
   A. None to Few
   B. Gravelly
   C. Very Gravelly
   D. Extremely Gravelly

Part 2: Subsurface Soil
5. Subsurface Soil: Thickness in inches (2 pts)
   A. 
   B. Answers to be determined
   C. by pit and placard
   D. with a 3 inch range
   E. 

6. Subsurface: Soil Color (4 pts)
   A. Bright
   B. Mottled
   C. Dull

7. Subsurface: Texture (5 pts)
   A. Coarse
   B. Moderately course
   C. Medium
   D. Fine
   E. Very Fine

8. Subsurface: Gravel and Rock (2 pts)
   A. None to Few
   B. Gravelly
   C. Very Gravelly
   D. Extremely Gravelly

Part 3: Underlying Material
9. Parent Material: Thickness in inches (2 pts)
   A. 
   B. Answers to be determined
   C. by pit and placard
   D. with a 3 inch range
   E. 

10. Underlying Material: Texture (5 pts)
    A. Coarse
    B. Moderately course
    C. Medium
    D. Fine
    E. Very Fine

11. Underlying Material: Gravel (2 pts)
    A. None to Few
    B. Gravelly
    C. Very Gravelly
    D. Extremely Gravelly

Part 4: Topography
12. Steepness of slope (3 pts)
    A. Nearly level – 2% or less
    B. Gently sloping - 3 – 6 %
    C. Moderately sloping - 7 – 12 %
    D. Strongly sloping - 13 - 18 %
    E. Steep – Greater than 18 %
13. Landscape position (3 pts)
A. Upland
B. Terrace – Footslope
C. Bottom land – Flood Plains
D. Depressional Area – No outlet

Part 5: Land Classification
14. Land Capability Classification (6 pts)
A. Class I or II
B. Class III
C. Class IV
D. Class V
E. Class VI, VII, or VIII

Part 6: Interpretation of Soils Features
15. Type of Material that Limits Depth (2 pts)
A. None- No limiting materials
B. Bedrock – Soft or hard
C. Hardpan – Cemented
D. Very gravelly sand or high water table

16. Parent Material (2 pts)
A. Bedrock – Soft or hard
B. Alluvium/ Outwash/ Lacustrine
C. Till/ Loess/ Aeolian Sand
D. Organic Materials – Peat or Muck

17. Depth favorable for roots & water (2 pts)
A. Very deep - 60 inches or more
B. Deep- 40 – 59 inches
C. Moderately Deep- 20 – 39 inches
D. Shallow- less than 20 inches

18. Air and water movement (2 pts)
A. Very Rapid
B. Rapid
C. Moderate
D. Slow

E. Total Available Water Capacity

Available water in horizon/ inch of soil
19. a. Surface Horizon (1 pt)
A. 0.05
B. 0.15
C. 0.20

20. b. Subsoil Horizon (1 pt)
A. 0.05
B. 0.15
C. 0.20

21. c. Underlying material Horizon (1 pt)
A. 0.05
B. 0.15
C. 0.20

Available Water Capacity per Horizon
22. a. Surface Horizon (1 pt)
A. 0.0- 2.0
B. 2.1 – 4.0
C. 4.1 – 6.0
D. 6.1 – 8.0
E. over 8.0

23. b. Subsoil Horizon (1 pt)
A. 0.0- 2.0
B. 2.1 – 4.0
C. 4.1 – 6.0
D. 6.1 – 8.0
E. over 8.0

24. c. Underlying material (1 pt)
A. 0.0- 2.0
B. 2.1 – 4.0
C. 4.1 – 6.0
D. 6.1 – 8.0
E. over 8.0

25. 3. Total available water capacity (5 ft. of soil) (4 pts.)
A. Very low – less than 3 inches
B. Low – 3.1 to 6 inches
C. Moderate – 6.1 to 9 inches
D. High – Over 9 inches

26. 4. Internal drainage (4 pts.)
A. Well drained
B. Moderately well drained
C. Somewhat poorly drained
D. Poorly or very poorly drained

Part 7 – Accelerated erosion
27. Amount of erosion (2 pts.)
A. No erosion evident (less than 2 inches)
B. Deposition (2 inches or greater)
C. Erosion present (2 inches or greater)
28. Kind of erosion (2 pts.)
A. None
B. Active gully
C. Wind erosion
D. Sheet or rill

Part 8 – Need for erosion control
29. Water erosion (3 pts.)
A. None to slight
B. Crop cover, sod cover and conservation tillage
C. Contour, strip crop and conservation tillage
D. Grass waterways and gully control
E. Woodland/perm. pasture, wildlife or recreation

30. Wind erosion (3 pts.)
A. None to slight
B. Mulch tillage, cover crop

Part 9
31. Drainage required (5 pts.)
A. None required
B. Surface and/or tile

Part 10 – Fertilizer and lime recommendations
32. Nitrogen pounds per acre (2 pts)
A. Over 161
B. 121-160
C. 81-120
D. 41-80
E. 0-40

33. Phosphorous pounds per acre (2 pts.)
A. Over 81
B. 61-80
C. 41-60
D. 21-40
E. 0-20

34. Potassium pounds per acre (2 pts.)
A. Over 181
B. 136-180
C. 96-135
D. 46-90
E. 0-45

35. Lime tons per acre (2 pts.)
A. 8.5 or more
B. 6.5-8.0
C. 4.5-6.0
D. 2.5-4.5
E. 0.0-2.0

Part 11 – Land Use limitation
36. Dwellings (lawns), foundations, basements (3 pts)
A. Slight
B. Moderate
C. Severe

Use limitation
37. Septic tank absorption fields (3 pts.)
A. Slight
B. Moderate
C. Severe

Use limitation
38. Farm lagoons and holding basins (3 pts.)
A. Slight
B. Moderate
C. Severe

39. % Slope (3 pts.)
A. Zero to 2.0
B. 2.1 to 6.0
C. 6.1 to 12.0
D. More than 12.0

40. Surface Soil Texture (1 pt.)
A. Medium, moderate, coarse
B. Coarse, fine, very fine

41. Flooding (3 pts.)
A. None
B. Any flooding

42. Internal Drainage Class (3 pts.)
A. Well drained, moderate well drained
B. Somewhat poorly drained
C. Poorly drained

43. Permeability Class (2 pts)
A. Vary rapid to rapid
B. Moderate
C. Slow to Very slow

44. Depth to Bedrock (Inches) (3 pts)
A. More than 60
B. 40 to 60
C. Less than 40

45. Underlying Material (Shrink swell) (1 pt)
A. Coarse, mod. coarse, medium texture
B. Fine texture
C. Very fine texture
Minnesota Soils Scorecard Questions for Pits 1 - 4 Scantron # 105481
Use your soils scorecard to fill out the answers on your scantron
Bubble in the front side of the sheet for Pit 1 (#1-45) and Pit 2 (#51-95) and
Bubble in the back side of the sheet for Pit 3 (#1-45) and Pit 4 (51-95)

Pits 2 & 4 Questions

Part 1: Surface soil

51. Surface Soil: Thickness in inches (2 pts)
A. 
B. Answers to be determined
C. by pit and placard
D. with a 3 inch range.
E. 

52. Surface Soil Color (4 pts)
A. Dark
B. Medium
C. Light

53. Surface: Soil Texture (5 pts)
A. Coarse
B. Moderately Coarse
C. Medium
D. Fine
E. Very Fine

54. Surface: Gravel and Rock (2 pts)
A. None to Few
B. Gravelly
C. Very Gravelly
D. Extremely Gravelly

Part 2: Subsurface Soil

55. Subsurface Soil: Thickness in inches (2 pts)
A. 
B. Answers to be determined
C. by pit and placard
D. with a 3 inch range.
E. 

56. Subsurface: Soil Color (4 pts)
A. Bright
B. Mottled
C. Dull

57. Subsurface: Texture (5 pts)
A. Coarse
B. Moderately coarse
C. Medium
D. Fine
E. Very Fine

58. Subsurface: Gravel and Rock (2 pts)
A. None to Few
B. Gravelly
C. Very Gravelly
D. Extremely Gravelly

Part 3: Underlying Material

59. Parent Material: Thickness in inches (2pts)
A. 
B. Answers to be determined
C. by pit and placard
D. with a 3 inch range.
E. 

60. Underlying Material: Texture (5 pts)
A. Coarse
B. Moderately course
C. Medium
D. Fine
E. Very Fine

61. Underlying Material: Gravel (2 pts)
A. None to Few
B. Gravelly
C. Very Gravelly
D. Extremely Gravelly

Part 4: Topography

62. Steepness of slope (3 pts)
A. Nearly level – 2% or less
B. Gently sloping - 3 – 6 %
C. Moderately sloping - 7 – 12 %
D. Strongly sloping - 13 - 18 %
E. Steep – Greater than 18 %
### Part 5: Land Classification

**6.4. Land Capability Classification** (6 pts)
- A. Class I or II
- B. Class III
- C. Class IV
- D. Class V
- E. Class VI, VII, or VIII

### Part 6: Interpretation of Soils Features

**65. Type of Material that Limits Depth** (2 pts)
- A. None - No limiting materials
- B. Bedrock – Soft or hard
- C. Hardpan – Cemented
- D. Very gravelly sand or high water table

**66. Parent Material** (2 pts)
- A. Bedrock – Soft or hard
- B. Alluvium/ Outwash/ Lacustrine
- C. Till/ Loess/ Aeolian Sand
- D. Organic Materials – Peat or Muck

**67. Depth favorable for roots & water** (2 pts)
- A. Very deep - 60 inches or more
- B. Deep- 40 – 59 inches
- C. Moderately Deep- 20 – 39 inches
- D. Shallow- less than 20 inches

**68. Air and water movement** (2 pts)
- A. Very Rapid
- B. Rapid
- C. Moderate
- D. Slow

### E. Total Available Water Capacity

**Available water in horizon/ inch of soil**

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Available Water Capacity (5 ft. of soil)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>69. a. Surface Horizon</strong></td>
<td>A. Very low – less than 3 inches</td>
</tr>
<tr>
<td></td>
<td>B. Low – 3.1 to 6 inches</td>
</tr>
<tr>
<td></td>
<td>C. Moderate – 6.1 to 9 inches</td>
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<tr>
<td></td>
<td>D. High – Over 9 inches</td>
</tr>
</tbody>
</table>

**70. b. Subsoil Horizon** (1 pt)
- A. 0.05
- B. 0.15
- C. 0.20

**71. c. Underlying material Horizon** (1 pt)
- A. 0.05
- B. 0.15
- C. 0.20

### Available Water Capacity per Horizon

<table>
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<th>Horizon</th>
<th>Available Water Capacity (4 pts.)</th>
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<tr>
<td><strong>72. a. Surface Horizon</strong></td>
<td>A. Very low – less than 3 inches</td>
</tr>
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<td></td>
<td>B. Low – 3.1 to 6 inches</td>
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<td></td>
<td>D. High – Over 9 inches</td>
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</tbody>
</table>

**73. b. Subsoil Horizon** (1 pt)
- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**74. c. Underlying material** (1 pt)
- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**75. 3. Total available water capacity**
- A. Very low – less than 3 inches
- B. Low – 3.1 to 6 inches
- C. Moderate – 6.1 to 9 inches
- D. High – Over 9 inches

**76. 4. Internal drainage** (4 pts.)
- A. Well drained
- B. Moderately well drained
- C. Somewhat poorly drained
- D. Poorly or very poorly drained

### Part 7 – Accelerated erosion

**77. Amount of erosion** (2 pt.)
- A. No erosion evident (less than 2 inches)
- B. Deposition (2 inches or greater)
- C. Erosion present (2 inches or greater)
78. Kind of erosion (2 pts.)
A. None
B. Active gully
C. Wind erosion
D. Sheet or rill

Part 8 – Need for erosion control
79. Water erosion (3 pts.)
A. None to slight
B. Crop cover, sod cover and conservation tillage
C. Contour, strip crop and conservation tillage
D. Grass waterways and gully control
E. Woodland/perm. pasture, wildlife or recreation

80. Wind erosion (3 pts.)
A. None to slight
B. Mulch tillage, cover crop

Part 9
81. Drainage required (5 pts.)
A. None required
B. Surface and/or tile

Part 10 – Fertilizer and lime recommendations
82. Nitrogen pounds per acre (2 pts)
A. Over 161
B. 121- 160
C. 81- 120
D. 41- 80
E. 0- 40

83. Phosphorous pounds per acre (2 pts.)
A. Over 81
B. 61- 80
C. 41- 60.
D. 21- 40
E. 0- 20

84. Potassium pounds per acre (2 pts.)
A. Over 181
B. 136- 180
C. 96- 135
D. 46- 90
E. 0- 45

85. Lime tons per acre (2 pts.)
A. 8.5 or more
B. 6.5- 8.0
C. 4.5- 6.0
D. 2.5- 4.5
E. 0.0- 2.0

Part 11 – Land Use limitation
86. Dwellings (lawns), foundations, basements (3 pts)
A. Slight
B. Moderate
C. Severe

Use limitation
87 Septic tank absorption fields (3 pts.)
A. Slight
B. Moderate
C. Severe

Use limitation
88. Farm lagoons and holding basins (3 pts.)
A. Slight
B. Moderate
C. Severe

89. % Slope (3 pts.)
A. Zero to 2.0
B. 2.1 to 6.0
C. 6.1 to 12.0
D. More than 12.0

90. Surface Soil Texture (1 pt.)
A. Medium, moderate, coarse
B. Coarse, fine, very fine

91. Flooding (3 pts.)
A. None
B. Any flooding

92. Internal Drainage Class (3 pts.)
A. Well drained, moderate well drained
B. Somewhat poorly drained
C. Poorly drained

93. Permeability Class (2 pts)
A. Vary rapid to rapid
B. Moderate
C. Slow to Very slow

94. Depth to Bedrock (Inches) (3 pts)
A. More than 60
B. 40 to 60
C. Less than 40

95. Underlying Material (Shrink swell) (1pt)
A. Coarse, mod. coarse, medium texture
B. Fine texture
C. Very fine texture