4 pts  1. To what depth (inches) should a PPI herbicide be uniformly incorporated to optimize herbicide effect for corn and soybean production?

6 pts.  2. A seed corn production field is scheduled to produce the single cross hybrid A X B. Previous experience with these inbreds indicates that inbred B reaches pollen shed about 50 Growing Degree Days (GDD) quicker than inbred A reaches silking. Please note two ways that a seed corn production manager might deal with this difference in inbred developmental rates in order to best accomplish the intended cross in this field.

  a)
  
  b)

5 pts.  3. Why is seed corn generally harvested at high moisture (compared with commercial corn) and on the ear (as compared with commercial corn which is generally shelled by a combine at harvest)?

5 pts  4. A corn hybrid is listed as 115 days relative maturity from planting to physiological maturity. How would this hybrid be listed in terms of GDD relative maturity? (please show your work)

    _______ GDD relative maturity
5. Briefly describe five factors which may contribute to increased harvested yield and/or profit potential for corn planted early (e.g. April 25 vs. May 15) in central Indiana. Please explain each answer briefly.

a) 

b) 

c) 

d) 

e) 

6. Note an example of conditions where a pre-sidedress nitrate soil test (PSNT) might be a meaningful tool to use in determining sidedressed N rate for corn. Please include a brief explanation with your example.

7. Explain the reasoning behind the recommendations that Fall applications of nitrogen should only be in an ammonia form, on soils at or below 50 degrees F, with N-Serve, at northern latitudes, and only on soils with C.E.C. greater than 10 meq / 100 grams.

8. Note an advantage for side dressing N for corn during the first 30 days of growth as opposed to the application of N in the preceding Fall or pre-plant in the Spring.
The following information pertains to questions 9, 10, and 11

Corn Yield Goal: 180 bu/acre

Previous Crop: 55 bu/acre soybeans

P₁ Soil Test: 20 ppm available P/acre (No Buildup Required)

K Soil Test: 150 ppm exchangeable K/acre (No Buildup Required)

C.E.C. = 18 meq / 100 grams of soil

20 pounds of N are to be applied per acre at planting as a starter.

The remainder of N fertilizer is to be side dressed as anhydrous ammonia (NH₃ at 82% N content).

Please make the appropriate fertilizer recommendations for next year's corn crop (include your calculations).

7 pts. 9. a) Total pounds of N to be applied as fertilizer per acre.

2 pts. b) Pounds of anhydrous ammonia (NH₃ at 82% N content) to be side-dressed per acre:

7 pts. 10. Annual maintenance P₂O₅ (pounds P₂O₅ per acre):

2 pts. Total annual pounds 0-46-0 per acre to apply maintenance rate of P₂O₅:

7 pts. 11. Annual maintenance K₂O (pounds per acre):

2 pts. Total annual pounds 0-0-60 per acre to apply maintenance rate of K₂O.
12. Note two conditions where the application of P$_2$O$_5$ or K$_2$O as a side-banded "starter" may be expected to produce a yield increase greater than a broadcast application at the same P$_2$O$_5$ or K$_2$O fertilizer rate?

a) 

b) 

13. Describe in general how and why recommended planting depth changes for corn planted on April 20 versus May 20 in central Indiana.

14. A portion of a row is uncovered to check planter calibration in the field. The following distances are recorded between successive seeds in this row segment. Row width is 30 inches. Please show your work.

10 inches
2 inches
17 inches
5 inches
1 inches

a) The actual seeding rate for this row segment is

   _________ seeds/acre

b) What level of standard deviation (from uniform spacing) is presented in this row segment?

c) What yield loss due to poor precision is likely at this level of planting precision?

   _____ bushels per acre.

BONUS  Assume that a shift to no-till and a new, larger planter will allow a central Indiana corn producer to finish planting on May 1 instead of May 8 (which was their average completion date in the past). How might the earlier planting date affect the producer's established plant population goal? Why?