Name _____

Section _____

Engineering 28
Fall Semester 2002
Midterm Examination #2, Written Part A'

Time Limit: 50 minutes
34 points possible on this part.

Written correct _____

Written incorrect _____ /2 = _____

Written score / 34 _____

CAD score / 66 _____

TOTAL EXAM SCORE _____

READ THESE INSTRUCTIONS!

Write your name at the top of every page.

This part of the examination is True/False. For each statement below, circle T if the statement is *always true*, F if the statement is always or sometimes false.

For statements which refer to a drawing, there is no need for a great deal of precision. Lines that appear parallel were drawn to appear parallel, those which appear perpendicular were drawn to appear perpendicular, etc.

Each correct answer is worth 1 point. A –1/2 point guessing penalty will be assessed for each incorrect answer. An unanswered question scores zero points.

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Statements 1-22. If F (*false*) is selected, a brief explanation or counter-example must be provided in the space immediately below the statement, or the problem will be marked incorrect.

T F 1. For any two points, there is always a unique infinite line containing both.

T F 2. For any three non-coincident points, there is always a unique unbounded plane containing them.

T F 3. Cones are developable surfaces.

T F 6. Given two skew lines, we can always find a single plane containing both.

T F 7. Given two skew lines, we can always find a single view with both lines in true length.

T F 8. If two lines are perpendicular, they will always appear perpendicular in any view where both appear in true length.

T F 9. The (perpendicular) distance between a point and an infinite line can be measured in a view with the line in point view.

T F 10. Two infinite lines contained in the same plane cannot be skew lines.

T F 4. The cutting plane method is a technique to determine the intersection of a line and a plane.

T F 5. In the cutting plane method, the cutting plane is constructed perpendicular to the plane we wish to intersect and containing the line we wish to intersect.

T F 11. If a line is parallel to a plane, then it is parallel to every line in that plane.

T F 12. The dihedral angle between two intersecting bounded planes can be measured in a view in which one of the planes appears in edge view.

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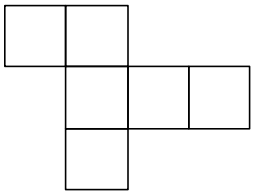
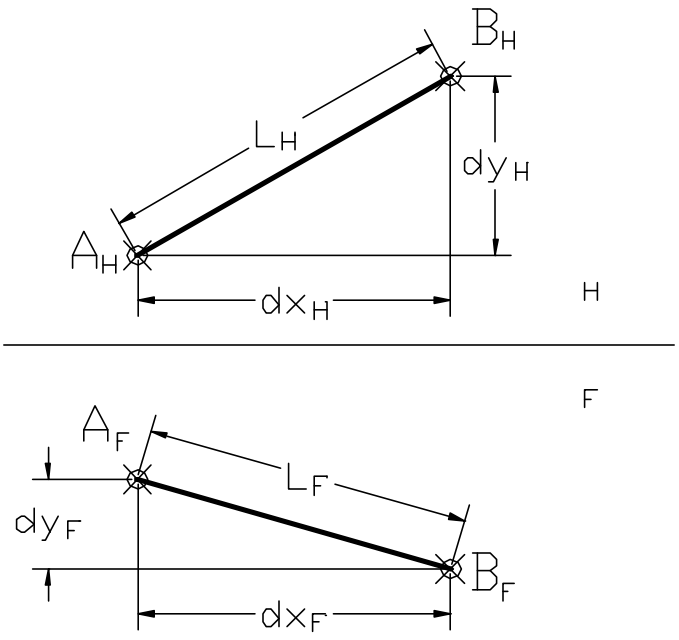
T F 13. The (perpendicular) distance between a point and an infinite plane can be measured in a view in which the plane appears in edge view.



T F 14. The figure above shows a valid development of a cube.

Statements 15-16 refer to the figure below. You must write an explanation if you select F (*false)* as your answer for this section.



T F 15. The true length of line AB is $\sqrt{L_H{}^2 + dy_F{}^2}$

T F 16. The true length of line AB is $\sqrt{L_F{}^2 + dy_H{}^2}$

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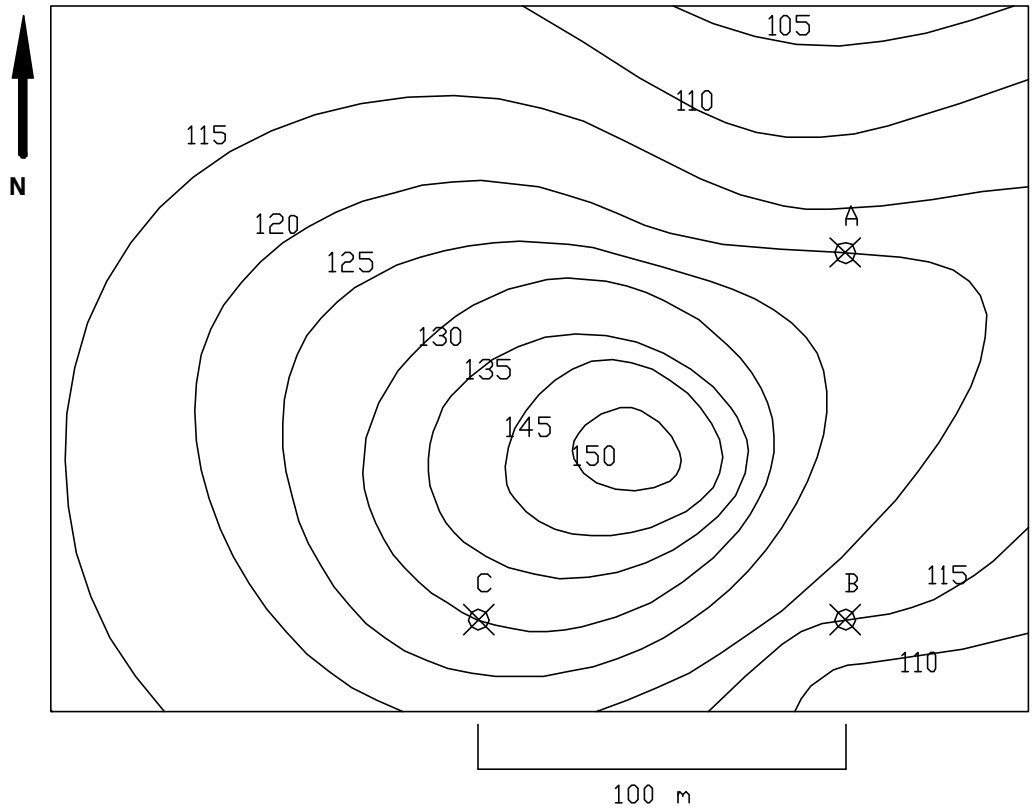
Statements 17-21 refer to the contour map shown below. All measurements are in meters. Note the direction of north and the horizontal scale shown at the bottom of the map. Three core samples have been drilled at points A, B, and C located on the surface of the hillside. An thin vein of ore was found 20 m. below the surface at A, 5 m. below the surface at B, and 20m. below the surface at C. On the map, triangle ABC is a right isosceles triangle with hypotenuse AC. Point A is located 100m due north of point B and point B is located 100m due west of point B (as the crow flies).
You must write an explanation if you select F (*false)* as your answer for this section.



T F 17. As you walk from C to B, you would be going downhill the entire time.

T F 18. The dip (direction of maximum fall) of the vein is S.

T F 19. The strike of the vein is N45°E.

T F 20. The dip angle of the vein is arctan(.l).

T F 21. The vein will appear in edge view in a profile taken along a line between A and B.

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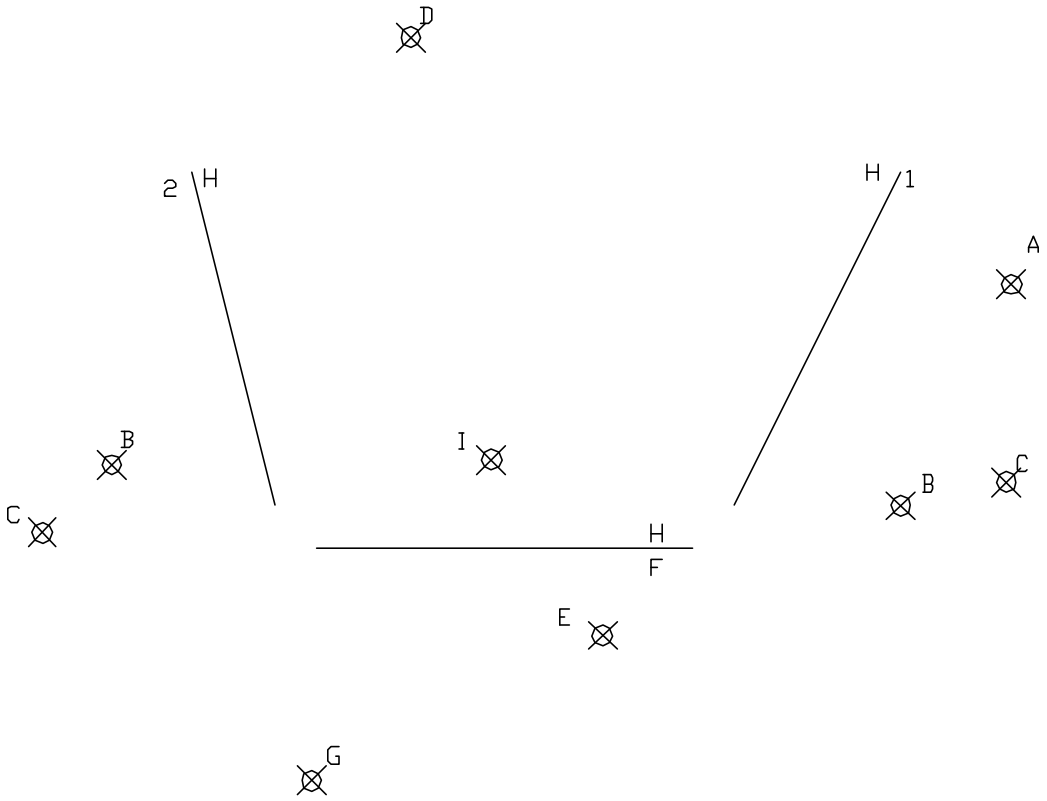
Statements 22-28 refer to the figure below, which shows 4 adjacent view-planes of 7 points in space: A, B, C, D, E, G, and I. Some of the points are missing on some of the view-planes. (H is the horizontal view-plane and F is the frontal view-plane.) For these statements, it is not necessary to supply a reason or a counter-example for a *false* answer.

Read the following important information!

Line AB appears in true length in view-plane H. Line DE is perpendicular to line AB. Plane GDC is horizontal. The true length of line GD is 20 mm. Point I is 5mm above plane GDC.



T F 22. Sufficient information is given to find point I in all view-planes.

T F 23. Sufficient information is given to find point G in all view-planes.

T F 24. Sufficient information is given to find point E in all view-planes.

T F 25. Sufficient information is given to find point D in all view-planes.

T F 26. Sufficient information is given to find point C in all view-planes.

T F 27. Sufficient information is given to find point B in all view-planes.

T F 28. Sufficient information is given to find point A in all view-planes.

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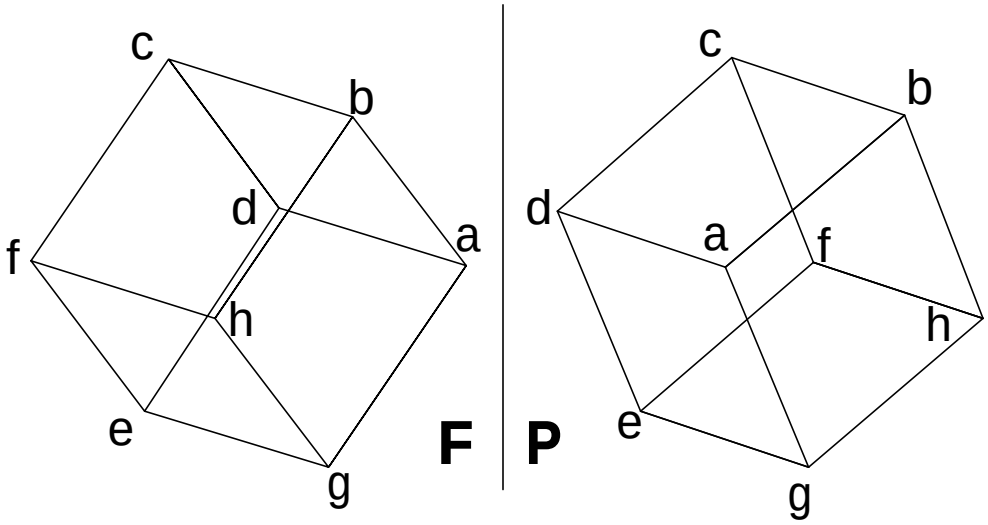
Statements 29-31 refer to the solid object below. No explanation or counter-example is required for *false* statements in this section.

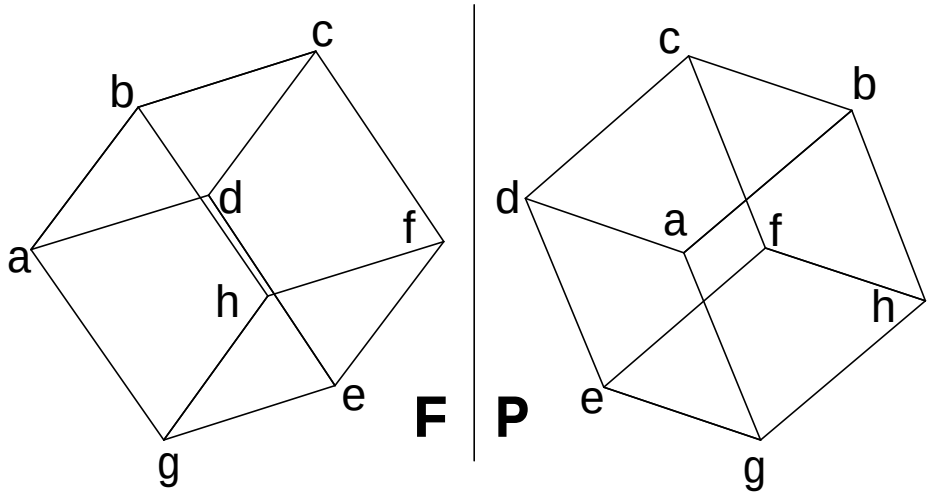


T F 29. The visibility of line **ad** in viewplane P is correct.

T F 30. The visibility of line **ag** in viewplane P is correct.

T F 31. The visibility of line **ab** in viewplane P is correct.

Statements 32-34 refer to the solid object below. No explanation or counter-example is required for *false* statements in this section.



T F 32. The visibility of line **ad** in viewplane P is correct.

T F 33. The visibility of line **ag** in viewplane P is correct.

T F 34. The visibility of line **ab** in viewplane P is correct.

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