UNIVERSITY OF TORONTO
Faculty of Applied Science and Engineering

FINAL EXAMINATION, APRIL 20, 2001

CIV 235S - CIVIL ENGINEERING GRAPHICS

Examiner: E. Kuhn

NAME: _____

       Given Name   Family Name   (please print)

STUDENT NUMBER: _____

NOTES:
1. Drafting instrument may be used but not calculators.
2. DO NOT separate the pages.
3. Be sure you have 5 (five) questions, each question has a different value mark.
4. For the design questions, solution must be graphical and completed on paper provided in pencil.
5. Show every step in your construction with medium to light lines.
6. Label and indicate where all the values and angles were measured.

| Q#	Value	Scored
1	10	
2	10	
3	10	
4	10	
5	10	
TOTAL	50	

Question #1.

1. Complete the three given views.
2. Draw an offset cutting plane through the top view and convert the front view to a **section view**.
3. Dimension completely. Scale 1:1.
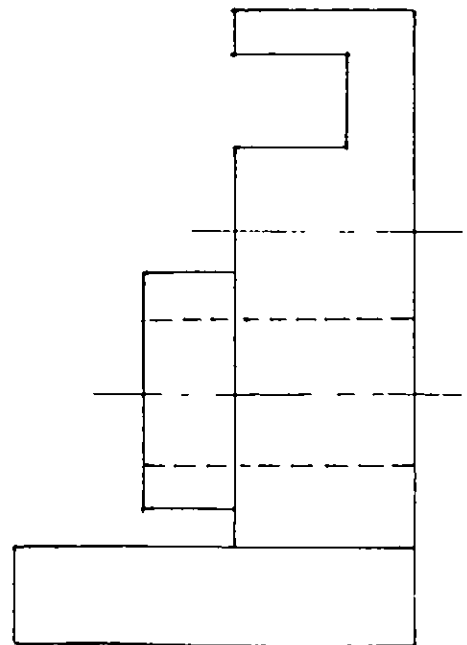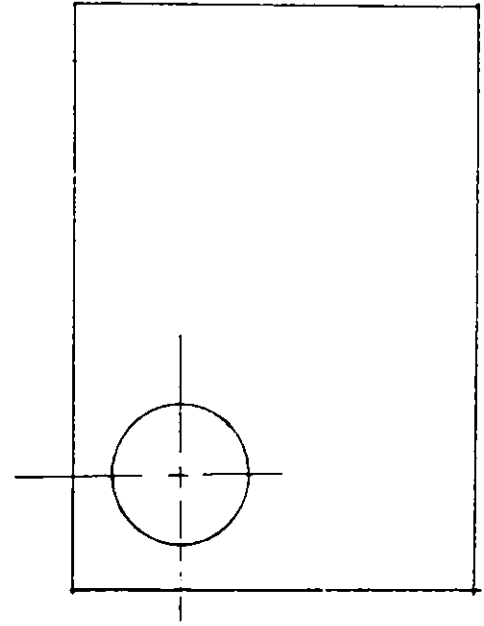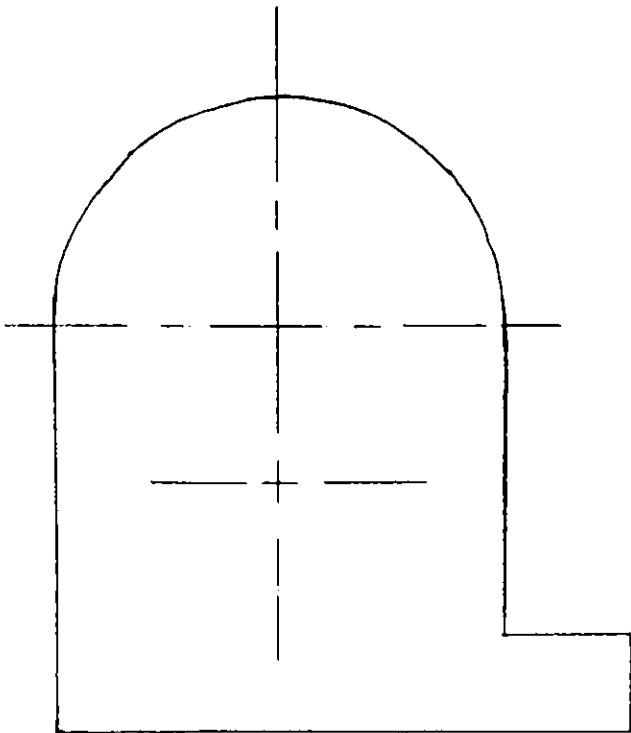
Question #2 (a) Line **AD** that is 65 mm long, is to be constructed through point A, that will have a bearing of N66°E and a 20° upward slope from point A. Draw this line in all views.

(b) Find the **true angle** between this line and the plane ABC.

(c) Show visibility. Find the dip angle of plane **ABC**. **Scale 1:1**

Answers: Dip Angle: _____
Angle between
AD & ABC: _____

B_H
+

A_H +

+ C_H
────────────
H
F

+ C_F

A_F +

+ B_F

N
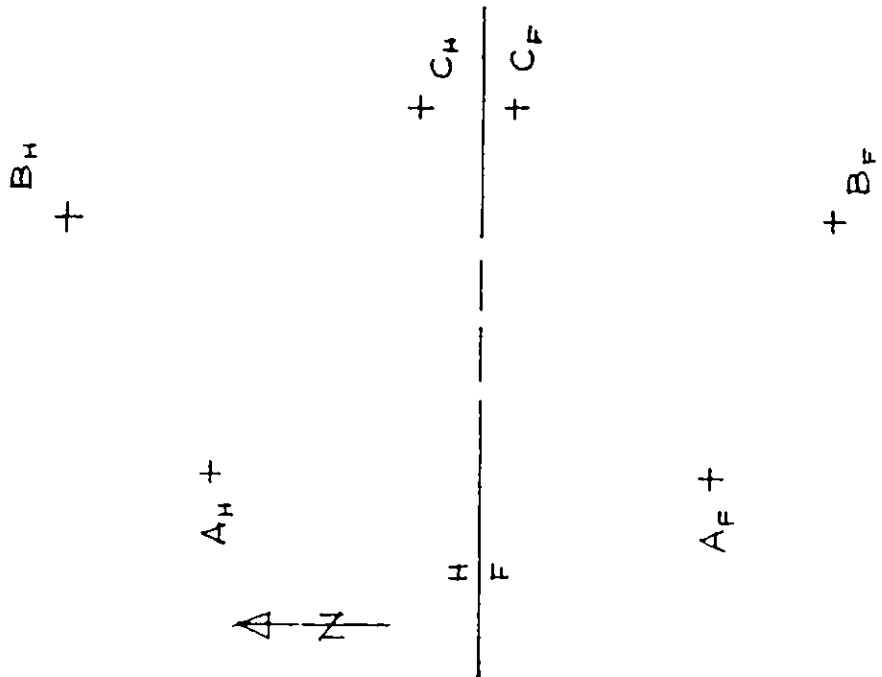
Question #3.

(a) Draw the missing top view of the given object.
(b) Starting at point A_1 draw an accurate isometric drawing. Show all construction lines medium weight.

$+ A_I$

$+ A_H$

A_F

A_P
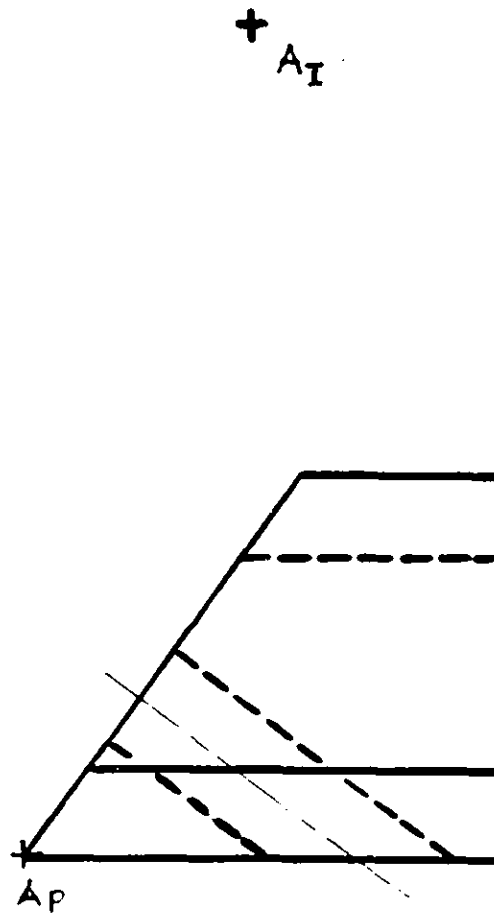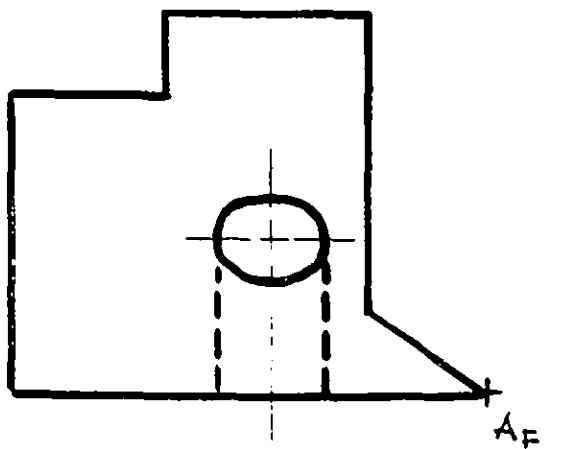
Question #4. The given contour map shows the centre line $E_H F_H$ of a 10 m wide roadway that has a constant elevation of 64 m.

(a) Construct the **profile** (section) along the centre line EF and show the profile of the proposed road on it too.

(b) Draw the top view of roadway and show the **limits of cut and earth fill** if the slope ratio of the cut is 1:1 and slope angle of the fill is 30°.

(c) Cross hatch the cut and fill in all views.

(d) On the cut and fill, the new contours should be shown dark and labeled. **Scale 1:500**
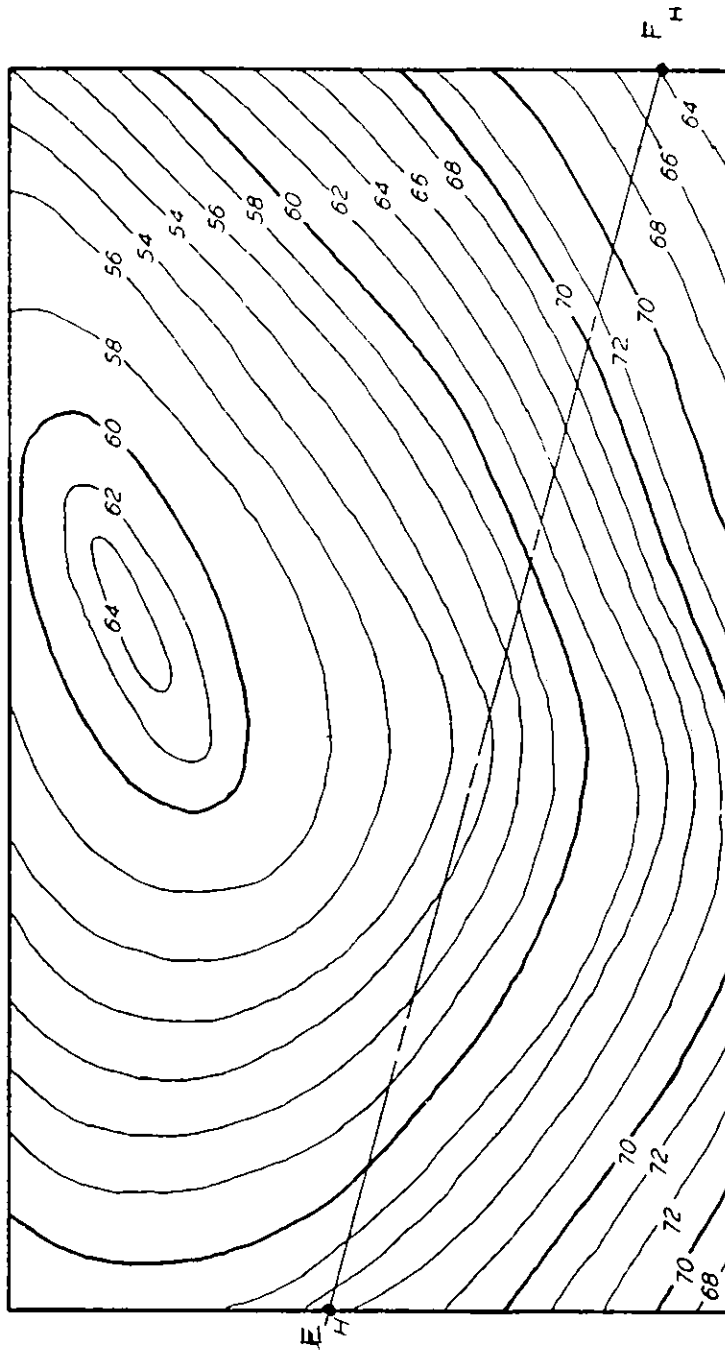
Question #5. Provide **short** answers to the following questions about AutoCAD 2000i.
(Each question is worth one mark)

(a) What three commands (without using editing) are capable of creating a rectangle? Why might you choose one command instead of others?

(b) Name at least two purposes of layers.

(c) Explain how MOVE command is different from COPY command.

(d) How is an object drawn by Wireframe different from an object drawn by Solid Modelling in 3-D?

(e) What is the purpose of REVSURF command in 3-D?

(f) Describe the use of RULESURF command in 3-D.

(g) Describe the UCS (user coordinate system) command's 3 point option.

(h) What is the purpose of using Multiple Viewports in your drawing?

(i) Name five 3-D primitives (shapes) that you can use in Solid Modelling.

(j) Describe a procedure used to create a hole in a solid object.