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M. 76

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA

LEAVING CERTIFICATE EXAMINATION, 2000

CONSTRUCTION STUDIES - PART I (THEORY)

HIGHER LEVEL

WEDNESDAY, 21 JUNE - AFTERNOON 2.00 p.m. to 5.00 p.m.

(300 marks are allotted to this paper.)

(a) Answer Question 1 and four other questions.
(b) Answer must be written in ink; drawings and sketches to be made in pencil.
(c) Write the number of the question distinctly in the margin of the paper before each answer.
(d) Freehand sketches or diagrams to illustrate written descriptions should be made.
(e) The name, sizes, dimensions and other necessary particulars of each material indicated must be noted on the drawing.
(f) *All questions carry equal marks.*

1. A pitched roof of a house is covered with concrete roof tiles and is supported on a 300mm insulated cavity wall. The wall includes an opening for a window.
To a scale of 1:5 draw a vertical section through the wall and eaves. The section should show all the details from window lintels to eaves and include four courses of tiles.

2. (a) Draw a plan of a layout of a bathroom showing the position of the following appliances and the associated pipework for the disposal of waste:
(i) water closet (WC); (ii) wash hand basin; (iii) bath.
(b) Indicate on your drawing the location of a door and a window and give reasons for your choice of location.
(c) Using notes and sketches, describe the design details that ensure the safe disposal of waste from each of the appliances listed at (a).

3. Explain the importance of **each** of the following to ensure the production of good quality concrete:

(i) aggregates;
(ii) batching;
(iii) water/cement ratio;
(iv) placing;
(v) compacting;
(vi) curing.

4. A dwelling house has a suspended timber first floor consisting of tongued and grooved flooring boards on wooden joists with a plasterboard ceiling underneath. A room in the house, 4.20m long by 3.60m wide, has a stairwell measuring 3.00m long by 1.00m wide centrally placed along one o the long walls.

(a) Using sketches, show the layout of the joists at the stairwell. Name the various joists, state their sizes and show clearly a method of jointing the joists at the stairwell.
(b) Using sketches, show a method of bridging/strutting the joists and give reasons why bridging/strutting is necessary.
(c) Using notes and sketches, show **two** methods of supporting the ends of the joists at an external cavity block wall.

5. (a) Outline **five** main considerations in choosing a site for a dwelling house.
(b) Discuss the importance of each consideration you have listed at (a).
(c) Discuss in detail **two** ways in which a new house can be made to harmonise with the surrounding landscape.

6. Using notes and sketches, describe the application of :
(i) a smooth plaster finish to an external block wall;
(ii) a gypsum-based finish to an internal block wall;
(iii) a gypsum-based finish to an internal stud partition wall.
Give details of materials, thickness, mix proportions and sequence of undercoats for each finish.

7. (a) Determine by the degree of efficiency method, or by any other suitable method, the approximate size of a vertical window suitable for a kitchen 4.80m long by 3.60m wide requiring an average illumination of 150 lux on the working plane. Assume an unobstructed view and the illumination of a standard overcast sky to be 5000 lux.

(b) Select **two** materials commonly used in the manufacture of window frames and discuss in detail the advantages and disadvantages of each material for window frame manufacture.

8. (a) Explain the following terms relating to thermal insulation and state the units commonly used in measuring them:
(i) conductivity;
(ii) transmittance;
(iii) heat flow rate.

(b) A double glazed window in a living room is 1.50m high by 4.00m wide.
The thickness of the glass is 5mm and its conductivity value is 1.02 W/m °C.
The resistance for the internal surface of the glass is 0.12 m^2 °C/W and the resistance for the external surface is 0.08 m^2 °C/W.
The resistance for the 10mm air space between the panes of glass is 0.15 m^2 °C/W.

(i) Calculate the "U-value" for the window.
(ii) Calculate the rate of heat loss through the window when there is a difference of 20° between the inside and outside temperatures.

9. (a) Many factors have to be taken into account when borrowing money to purchase an apartment or house. Discuss the importance of **each** of the following:
(i) sources of finance; (ii) deposit; (iii) criteria for qualification for a loan/mortgage; (iv) types of insurances required.

(b) Compare the merits of buying a new house with the merits of buying a second-hand house for first time purchasers.

10. "Domestic architecture often combines one or two styles, or is varied or adapted locally depending on the climate, location, materials available, the skills of the builder and workers, economic status, lifestyle, social concerns or restraints and fashions".
Hearthstones (1993) - *Caneta S Hankins*

Discuss.

OR

A disused church, situated in an urban area, is threatened with demolition and is to be replaced with an office block. What arguments might be presented:
(a) in favour of constructing the office block;
(b) in favour of the preservation of the church?

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AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA
SCRÚDÚ ARDTEISTIMÉIREACHTA, 2000

STAIDÉAR FOIRGNÍOCHTA

ADHMADÓIREACHT TRIAIL PHRAITICIÚIL

DÉ LUAIN, 15 BEALTAINE - 9.30 go dtí 1.30

1. Leag amach an píosa oibre a thaispeántar ar an líníocht a sholáthraítear agus marcáil amach, próiseáil agus cóimeáil na píosaí.
2. Ní ceadmhach gliú a úsáid.
3. Ní ceadmhach úsáid a bhaint as innealra.
4. Má loiteann tú píosa adhmaid, ní ceadmhach duit ceann nua a fháil ina áit.
5. Scríobh do Scrúduimhir ar gach píosa den ábhar.

M.77

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA
LEAVING CERTIFICATE EXAMINATION, 2000

CONSTRUCTION STUDIES

WOODWORK - PRACTICAL TEST

MONDAY, 15 MAY - 9.30 to 1.30

1. Set out the work shown on the drawing supplied, and mark out, process and assemble the pieces.
2. Glue must not be used.
3. Use of machinery is not allowed.
4. If you spoil a piece of timber, you may not have it replaced.
5. Write your Examination Number on each piece of material.

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA M.77L

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SCRÚDÚ ARDTEISTIMÉIREACHTA, 2000

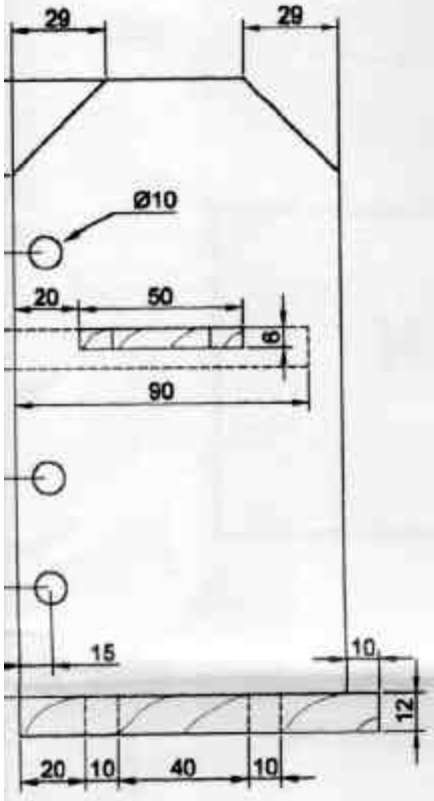
LEAVING CERTIFICATE EXAMINATION, 2000

STAIDÉAR FOIRGNÍOCHT

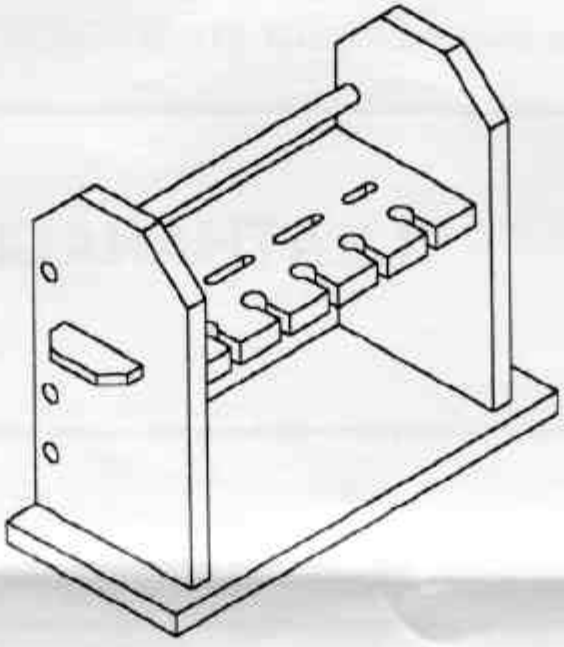
CONSTRUCTION STUDIES

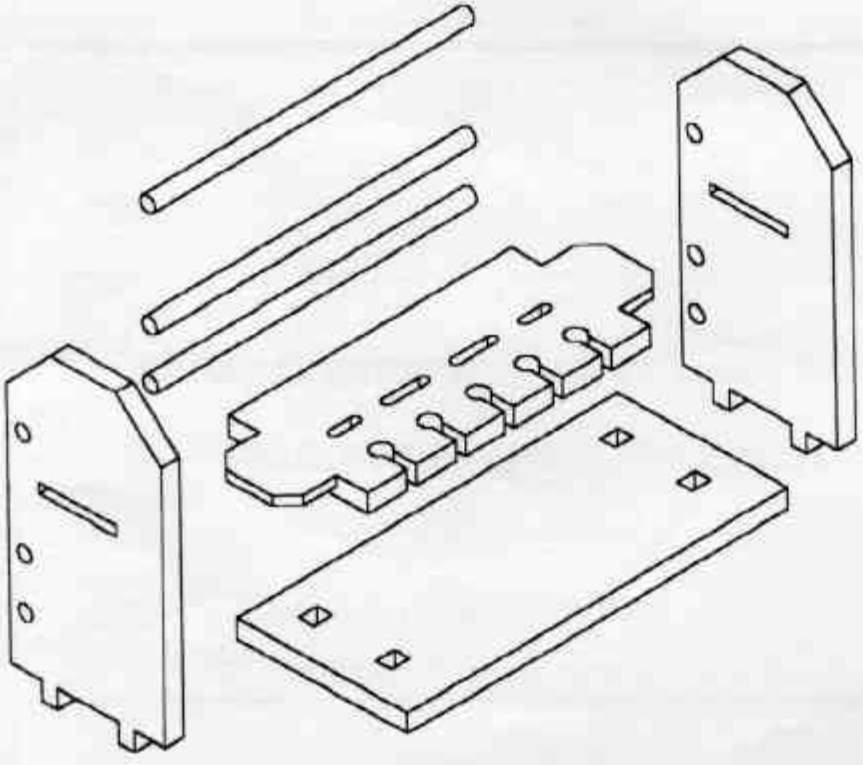
ADHMADÓIREACHT - TRIAIL PHRAITICIÚIL

WOODWORK - PRACTICAL TEST

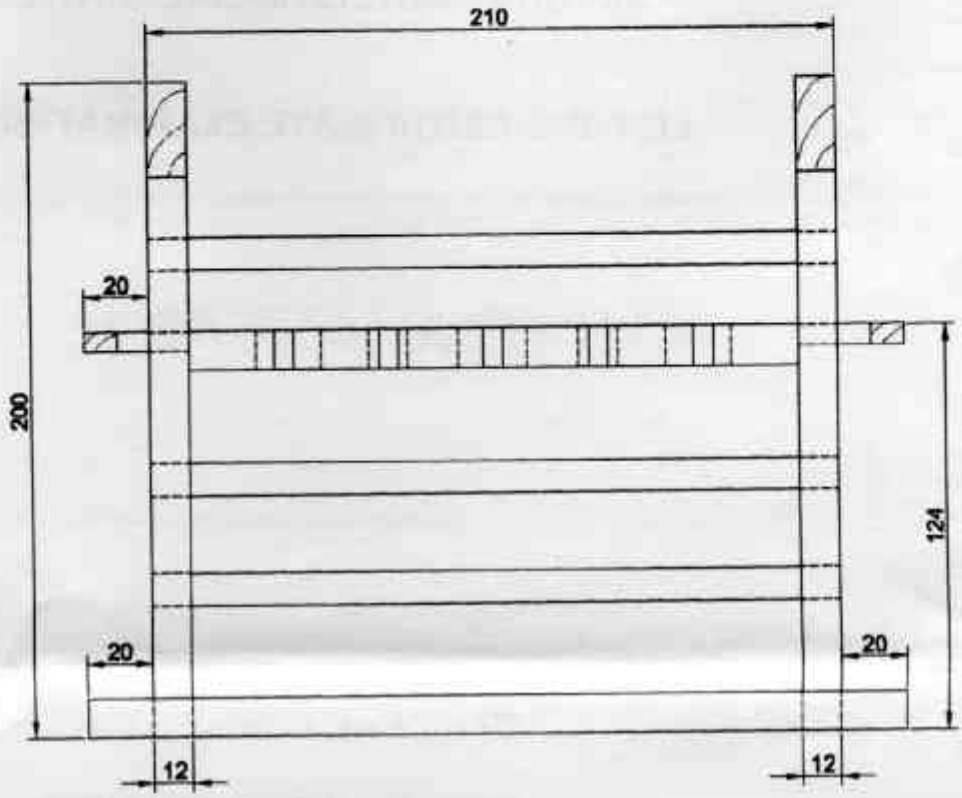


End Elevation/Taobhchló

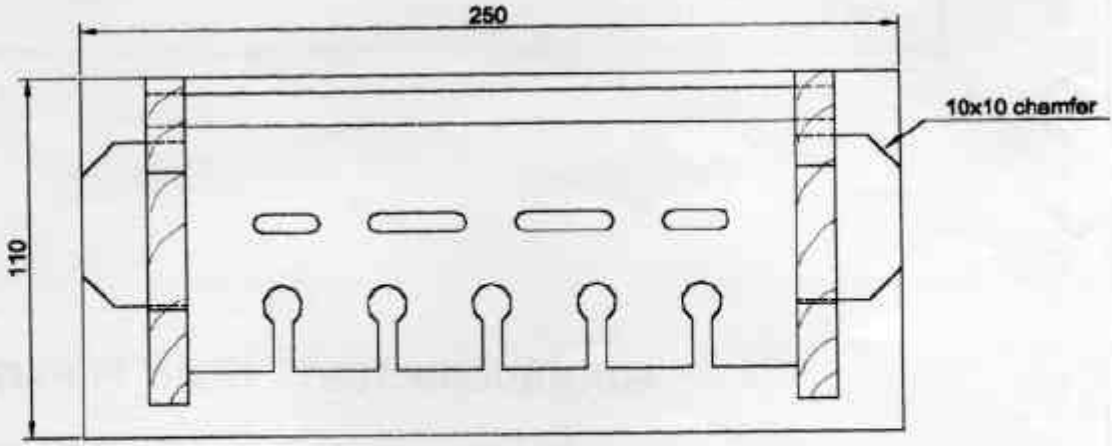




Sealbhóir do Sceanra/Cutlery Holder



Elevation/Aghaidhchló



Plan/Bunchló

Shaping to edge of base is left to student
Fágtar cruth imeall an bhoinn faoinn dalta.