



**Coimisiún na Scrúduithe Stáit**  
**State Examinations Commission**

**Leaving Certificate 2012**

**Marking Scheme**

**Construction Studies**

**Ordinary Level**

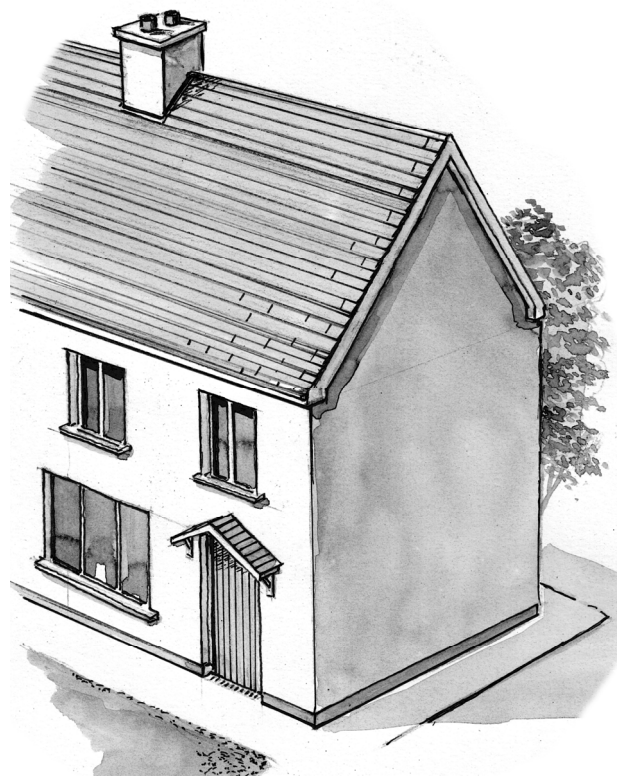




**Coimisiún na Scrúduithe Stáit**  
*State Examinations Commission*

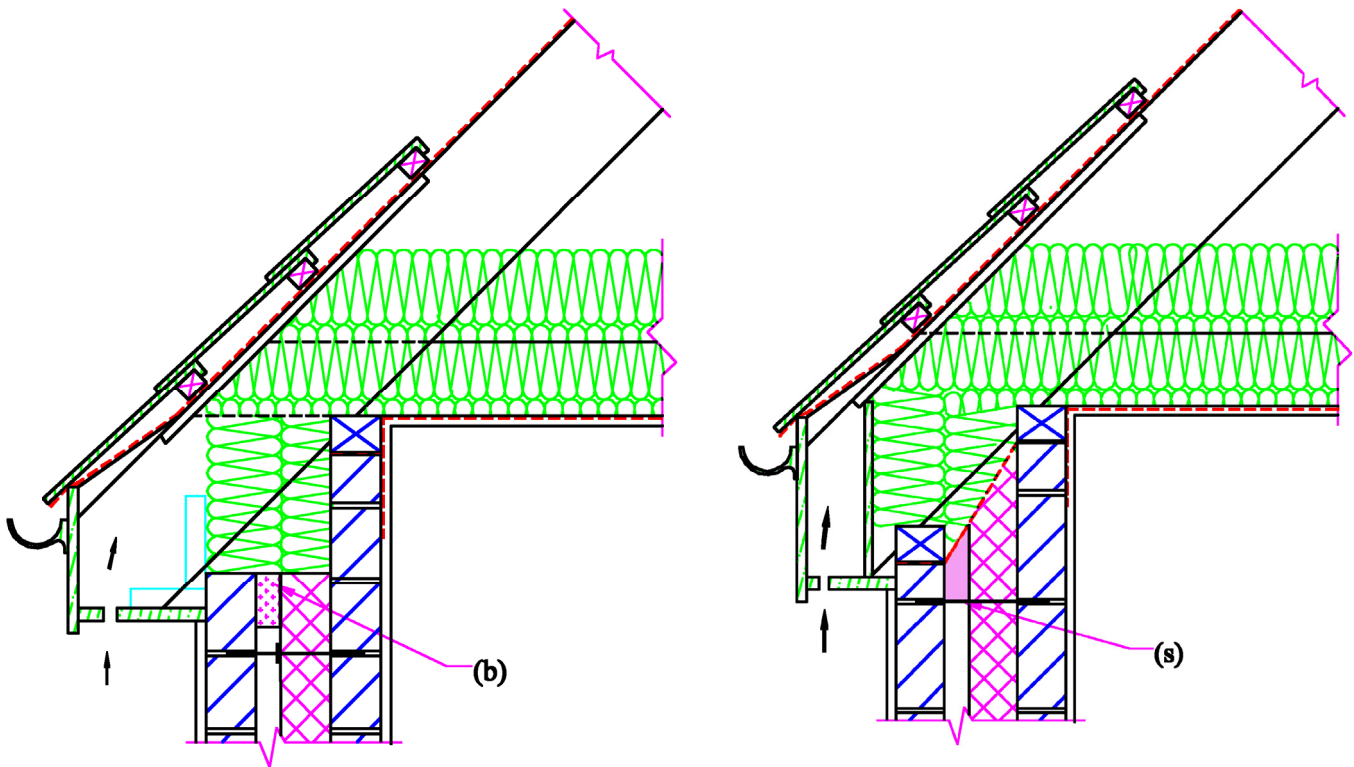
*Scrúdú Ardteistiméireachta 2012*

*Staidéar Foirgníochta*  
*Teoiric – Gnáthleibhéal*



*Construction Studies*  
*Theory – Ordinary Level*

**Ceist 1**  
**Part (a)**



*Specifications*

- Concrete tiles
- Softwood battens 44 mm × 35 mm
- Vapour diffuse membrane
- Rafters 150 – 250 mm × 40 mm
- Roof insulation to comply with current Building Regulations
- Ceiling joists 150 × 50 mm (min)
- 12.5 mm foil-backed plasterboard ceiling with corner seal and skim coat
- Wallplate 100 mm × 75 mm tied to blockwork with wallplate straps.
- Concrete block inner leaf 100 mm
- 15 mm internal plaster
- Wall insulation to comply with current Building Regulations - min 100 mm
- Residual cavity 50 mm
- Concrete block outer leaf 100 mm
- 19 mm external render
- Soffit 12 mm
- Fascia 25 mm
- Eaves gutter 100 mm.

*Alternative eaves detail showing 250 mm × 40 mm rafter detail for greater insulation thickness.*

*N.B. Any alternative detailing which complies with current Building Regulations is acceptable.*

**Part (b)**

**Method of closing the cavity at eaves level**

- Fitting a proprietary cavity closer (b) in the cavity at the top of the wall
- Fixing a slate (s) across cavity to both leaves.

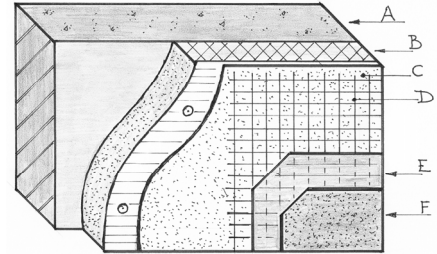
## Ceist 2

### Part (a)

#### External wall insulation

This is an insulation cladding fixed to the outer surface of external walls. It is fitted in a number of stages and consists of different layers.

- The slabs of insulation B are fixed to the surface of the external wall A
- The insulation is fixed using an adhesive and mechanical fixings
- An acrylic render basecoat C is applied to the insulation surface
- A fibre mesh D is embedded in the basecoat C
- This improves the impact resistance along with better tensile strength
- A coloured primer E is applied to the new mesh and basecoat surface
- The primer provides a base for the finish and improves water resistance
- The final coat F is a coloured and textured render applied by trowel or may be sprayed
- This is an acrylic finish giving a durable finish with a range of colours and textures.



#### Insulation materials used

##### EPS

- Expanded polystyrene
- The thickness needed is a minimum of 120 mm, to 300 mm is economic
- Attention to detailing around windows and roof soffits
- This will give U-value of  $0.25\text{W/m}^2/\text{K}$

##### Phenolic Foam

- This insulation has good compressive strength
- It has a low thermal conductivity
- Ideal for use externally
- The thickness needed is 75mm minimum – 300 mm economical
- This thickness is a practical solution fits easily around windows doors and roof soffits
- This will give a U-value of  $0.25\text{W/m}^2/\text{K}$

Other insulation materials as appropriate e.g. Gutex cork.

### Part (b)

#### The advantages of external wall insulation

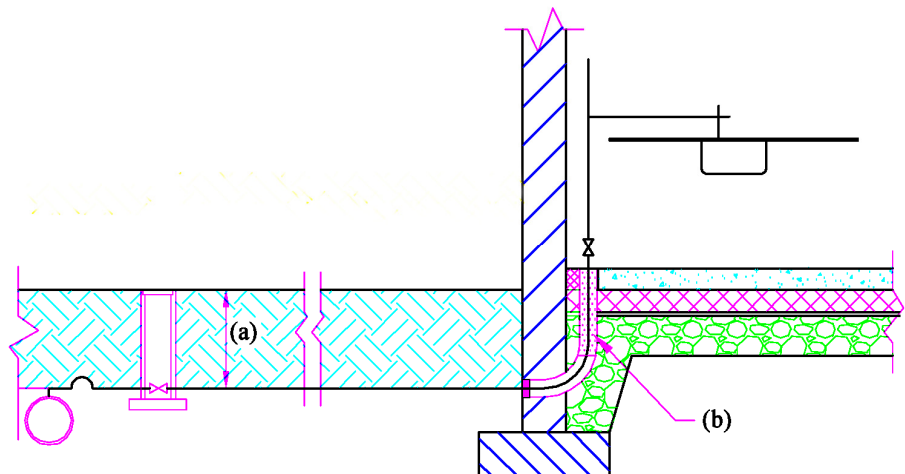
- External wall insulation reduces heat loss from the building
- Reduces heating bills and reduces  $\text{CO}_2$  emissions
- No loss of floor area and no internal disruption
- It is a practical efficient way of insulating an existing building
- The external wall becomes a heat store /sink
- The heat is reflected back into the living area of the house
- The surface of the external wall may be enhanced by the application of the new finish
- No visible marks on the surface as the new finish covers all fixing.

### Ceist 3 – Domestic cold water

#### Part (a)

##### Specifications

- Water mains
- Connection to water mains
- Stop valve
- Water supply pipe
- External wall
- Protective sleeve for water supply
- Service pipe insulation
- Stop valve
- Rising main
- Connection to kitchen sink



*N.B. Any alternative detailing which complies with current Building Regulations is acceptable.*

#### Part (b)

- The water pipe should be put into the ground to a depth of one metre (a). Recommended min depth should be 750 mm.
- Last 600 mm of service pipe to be insulated (b).
- Heavy duty, high density polyethylene or polyvinyl chloride (PVC) pipe to be used.

#### Part (c)

- Reduce water in cistern - place object such as bottle of water in cistern
- Use push taps
- Install conical shaped sink rather than rectangular – see sketch
- Install dual flush cisterns
- Introduce a rainwater harvesting system
- Install an aerated shower head
- Recycle treated grey water for flushing toilets, gardening and washing items outside the house – *other means as applicable.*

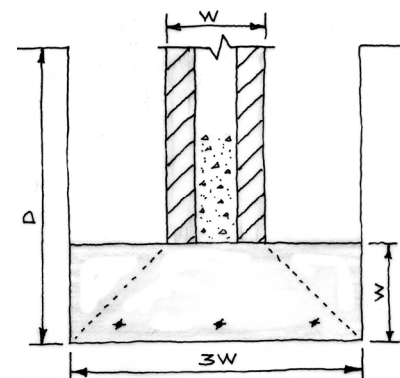


### Ceist 4

#### Part (a)

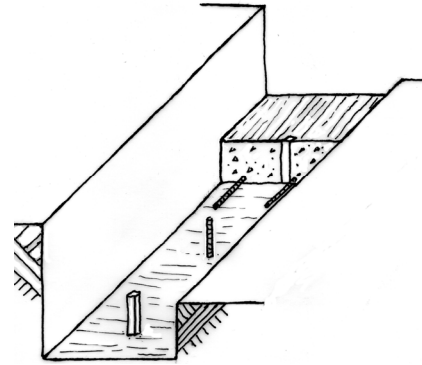
##### Width and depth of trench

- The minimum width of the foundation is three times the thickness of the wall
- For a 350 mm wide external wall the minimum width is 1050 mm
- The depth of the trench 'D' must be as deep as necessary for the type of ground
- The recommended distance from ground to top of concrete to be min 600 mm
- The bottom of the trench must be below the frost line as freezing and thawing causes problems for foundations.



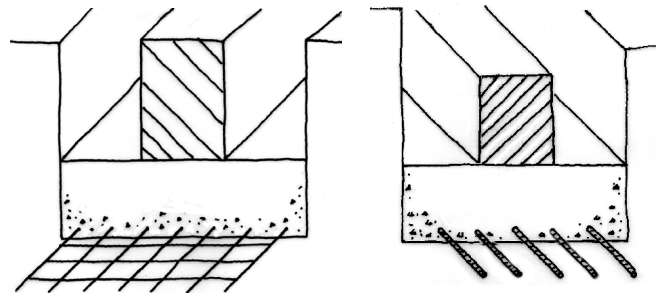
### Finish level of concrete in foundation

- Wooden or steel pegs are driven into the base of the trench
- The top of these pegs project above the base of the trench by a height equal to the thickness of the foundation.
- The tops of the pegs are levelled using a straight edge and laser level – or other.



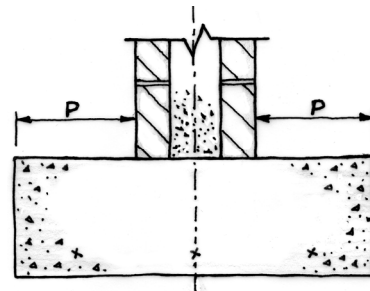
### Reinforcement of foundation

- Mild steel ribbed reinforcing bars are placed near the bottom of the trench 75 mm from bottom of trench where the main tensile strength is needed
- Concrete is poured, vibrated and compacted around the reinforcing steel
- The bars are supported in the trench before the concrete is poured
- Steel mesh reinforcement may also be used.



### Position of wall on strip foundation

- The wall is positioned centrally on the foundation
- The projections 'P' on both sides must be equal.



### Part (b)

#### Two environmental reasons why strip foundation is the preferred foundation

- Uses less concrete than raft foundation
- Minimum excavation required, less energy used
- Less steel is used
- Lower carbon footprint than other types of foundations
- Environmentally sustainable.

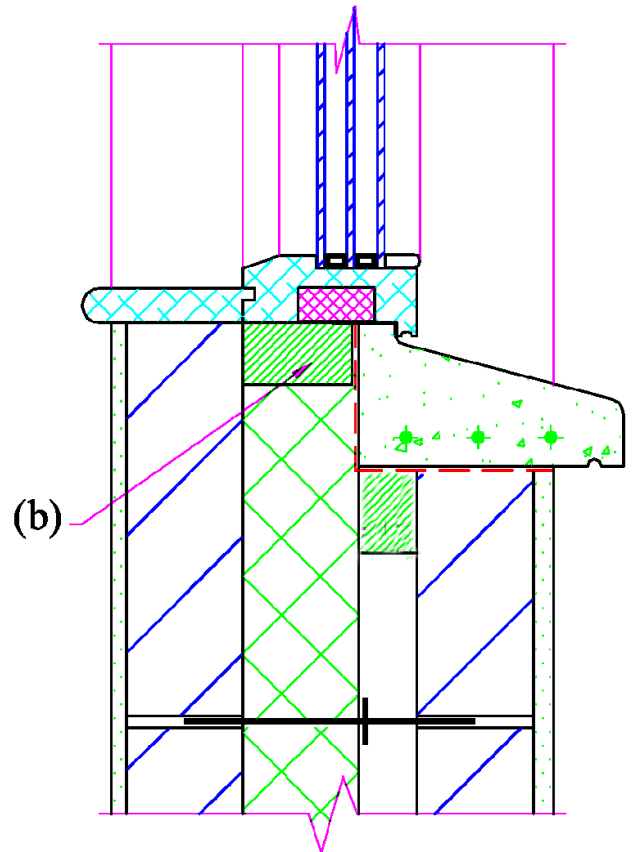
## Ceist 5

### Part (a)

- Window board - 25 mm
- Window frame 150 mm × 80 mm
- Triple-glazing low-e glass
- Precast concrete window cill
- Mastic and / or taped seals
- D.P.C.
- External plaster 15 mm
- Concrete block outer leaf 100 mm
- Residual cavity 50 mm
- Wall tie
- Thermal insulation 100 mm
- Concrete block inner leaf 100 mm
- Internal plaster 15 mm
- Proprietary cavity closer - (b).

### Part (b)

- Insulation brought up at the back of the concrete cill to prevent cold bridge
- Fitting an insulated cavity closer.

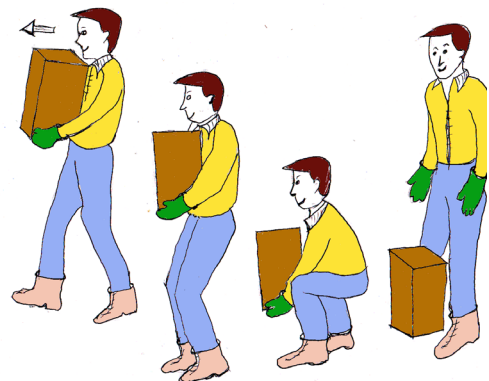


*N.B. Any alternative detailing which complies with current Building Regulations is acceptable.*

## Ceist 6 - Part (a)

### Safety precautions to be observed when lifting a load from a floor

- Stand close to the load, centre yourself over it
- Keep your back straight, bend your knees and squat down to the floor
- Test to see if you can lift the load – get help if too heavy
- Get a good grip on the load with both hands
- Keep the load close to your body as you lift
- Keep your back straight during the lifting
- Line of vision to be clear
- Do not twist your body when moving the load
- Make sure the area around the load is tidy and clear of any obstacles
- Do not attempt the impossible.



### Reasons

- It is safer working in a clear tidy area
- Care when lifting loads will protect your back
- Precautions listed will help with safe lifting of a load.

### Safety precautions to be observed when placing concrete from a ready-mix truck

- Wear a high visibility jacket
- Use correct footwear
- Wear a safety helmet



- Ensure the truck driver can see clearly the work being done
- Ensure the truck is not too near the edge of the foundation trench especially after wet weather
- If the trench is deep it will need side support
- Place the concrete evenly and progress carefully
- Ensure that qualified workers are carrying out the work
- Only adults near the work area.

### Reasons

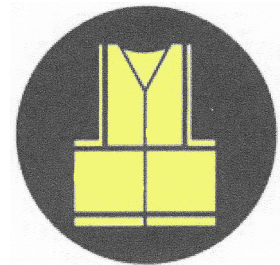
- Workers must be seen and a high visibility jacket is important
- The soil around the trench may be soft and it is important that the truck is parked safely from the edge
- Support for the trench is needed if there is a danger of collapse
- Only qualified workers with a safe pass certificate allowed on site.

### Part (b)

#### Two items of personal protective equipment

##### High visibility jacket

- Should be worn by all workers
- Generally this is a yellow reflective jacket or vest
- The jacket or vest has reflective strips.

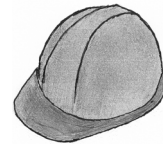


##### The importance of a high visibility jacket

- It is important that workers are visible on a site
- Yellow is a good colour and easily seen
- The high visibility jacket is very important when machinery is being used on site
- It provides extra safety for workers.

##### Safety helmet

- This is to be worn by all workers on a building site
- The colour is generally yellow
- Other colours are available
- Employers must supply hard hats to workers on site
- Employees must wear a hard hat at all times while work is being carried out
- Visitors to a site must also wear a safety helmet.

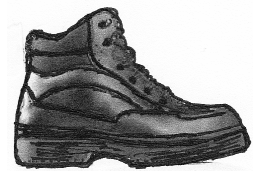


##### The importance of a safety helmet

- The safety helmet protects the head
- It protects the worker from falling objects
- It protects the worker if you hit your head against a solid object
- The worker is visible because of the helmet colour
- It provides extra safety for workers.

##### Steel cap boots

- This type of footwear must be used by workers on construction sites
- It is used as there is a danger of heavy objects falling on the feet
- Steel cap boots have a steel insert on the toe section
- This gives strength in that area.



##### The importance of steel toe cap boots

- Many accidents occur on construction sites because of items falling on workers feet
- This type of boot offers protection for the feet
- It provides extra safety for the worker.

## **Ceist 7 - Part (a)**

### **Planning permission for a living room**

#### **Two reasons why it is necessary to apply for planning permission**

- This involves a change of use
- The front appearance of the house would be changed
- A new window would be fitted as part of the conversion
- It is a legal requirement when changing the front elevation of a house
- The planning process affords others the opportunity to lodge an objection or make a submission
- The Planning Authority may refuse permission.

## **Part (b)**

### **Information on the documents is as follows:**

#### **Site location map should contain the following information**

- Relevant Ordinance Survey Sheet Number
- Direction of North
- Townland where site is located
- Details of features within the vicinity e.g. buildings, crossroads, distances from nearby towns or villages
- Boundaries outlined in red
- Any land which adjoins the site to be developed and owned by the applicant must be outlined in blue
- Wayleaves and right-of-ways to be shown in yellow
- Boundaries must correspond exactly with those on the layout plan
- Location of the site notice/s.

#### **Site notice should contain the following information**

- Name and address of applicant
- Type of permission and date of application
- Located as shown in site plan
- A description of the development. It must state if permission is being sought for construction, retention, demolition or alterations
- Must state if the development is a protected structure
- The notice must state that the application may be inspected or purchased at the offices of the relevant Planning Authority within the period of 5 weeks beginning on the date of receipt of the application.

## **Part (c)**

### **Reason why a planning authority may refuse planning for the conversion**

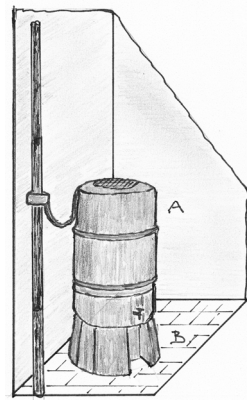
- The development would change the front elevation of the dwelling house
- Defective specifications – e.g. floor – ceiling height
- Windows could overlook neighbour
- Design out of character with surrounding buildings
- Existing structure may be substandard.

*Any other relevant points.*

## Ceist 8

### Rainwater butt

- This is a type of barrel or tank 'A' used to collect rainwater from roofs
- The butt is part of a rainwater harvesting system
- It is connected to the downpipe from the gutter
- It is fitted with an overflow system
- The butt has a tap at the base and a special base 'B' is also available
- Capacity is from 100 to 300 litres
- Some models may have a submersible pump fitted allowing for watering of plants or washing of vehicles.



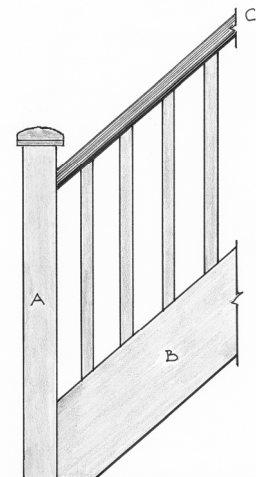
### Wall tie

- This is a special fitting used in the construction of a cavity wall
- It holds the internal and external leaf of a cavity wall together
- This ensures that both leaves act as single unit
- This produces a stronger structure
- The modern wall tie is designed to hold the insulation in place
- The ties are placed at 900mm apart horizontally and 450mm vertically
- Wall ties are made of stainless steel.



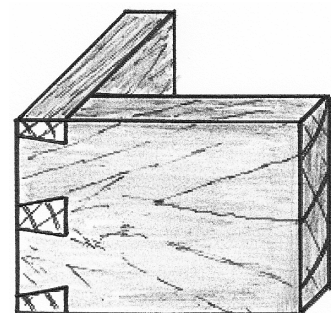
### Newel Post

- This is made of hardwood or softwood
- It stands vertically at the top or bottom of the staircase string
- It can also be used on intermediate landings
- It acts as a support for the handrail
- The Newel post is generally 75 mm × 75 mm or 100 mm × 100 mm
- It may be square or round in section with shaping at the top
- Further decoration may include carving
- A is Newel post; B is string; C is handrail.



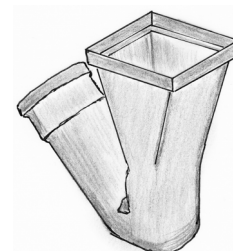
### Box Dovetail Joint

- This is a common joint used in high quality furniture
- The joint is used for the manufacture of box shapes
- It was widely used in drawer construction
- It may be constructed by hand or using special equipment
- The slope of the dovetail is important for maximum strength
- The slope for a dovetail in softwood is usually 1:6
- The slope for a dovetail in hardwood is usually 1:8
- The joint gives decorative appearance if correctly made
- Contrasting woods may be used to highlight the dovetail effect.



### Gully trap

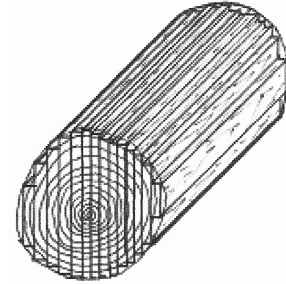
- This is a PVC drainage fitting used to collect waste water or rainwater
- It is fitted at the head of the underground drain
- The gully trap may have a back inlet



- The top is square or round and fitted with a plastic grid
- The grid prevents leaves and dirt from entering the drain
- The gully trap always retains a seal of water
- The water seal prevents odours and gases coming up from the drains.

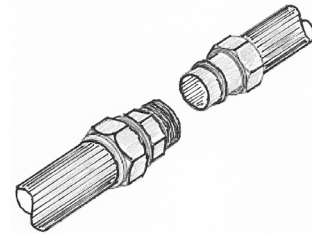
### Through and through sawing

- This is a method used to convert logs to boards of a suitable size
- It is also known as plain sawing
- The log is cut straight through during the process
- There is very little waste with this method
- This method produces maximum width of board
- The boards are likely to cup during seasoning
- No particular grain pattern is shown.



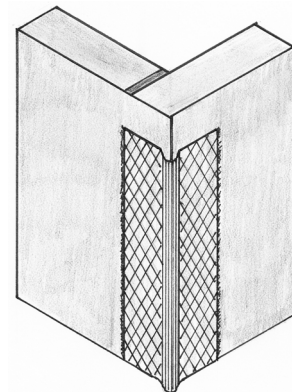
### Compression joint

- This joint is used in plumbing
- It is used to join copper and PVC pipes
- The joint is made of brass or PVC and is available in a wide range of sizes
- The ends of the pipes are cut square to form the joint
- The nut and olive are slipped over the pipe
- PTFE tape or mastic is applied to the joint
- The pipe end is then pushed into the joint
- The nut is tightened firmly compressing the olive to form a watertight joint.



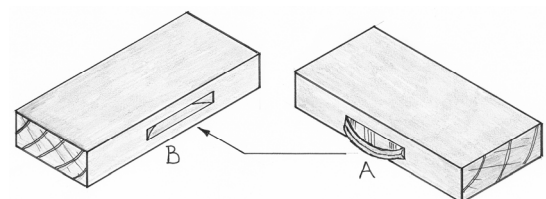
### Angle bead

- The angle bead is used in plasterwork
- It is used to provide a true straight corner
- The bead serves to reinforce the plaster in its most vulnerable area
- It may be used internally and externally
- Angle bead is made from stainless or galvanised steel
- Plastic corner beads are available
- The angle bead consists of a solid rib with a mesh flange at either side
- The mesh is fitted to the wall with the rib plumb or level
- The bead is held in place using nails or plaster dabs.



### Biscuit joint

- Biscuit joint is used for joining wood
- The joint is ideal when joining boards along the edge
- It may be used in many other jointing positions as well
- A biscuit joiner is used to cut a crescent shaped groove B in the edges to be joined
- The joiner may be set to suit the different size of biscuits
- Usual sizes are given as 0, 10 and 20



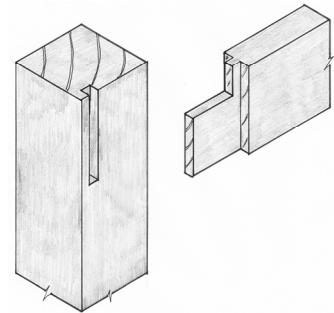
- The biscuit A is made from highly compressed beech
- When forming the joint glue is applied to both edges and into the groove
- The biscuits are put in position and cramps used to put pressure on the joint.

## Ceist 9 - Part (a)

### Joining of front rail to the leg

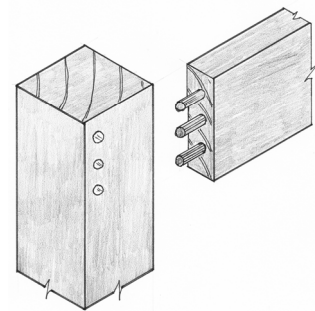
#### Haunched Mortise and Tenon joint

- This is the most popular and traditional method used
- It is the method favoured on good quality joinery work
- It is formed using a mortise on the upper part of the leg
- A tenon with a haunch is formed on the top rail
- The mortise is formed with a haunch
- The joint is strong and sturdy
- It has a high glue surface area
- The joint resists twisting and remains stable.



#### Dowel Joint

- The top rail and leg could be joined together using dowels
- Dowel holes are drilled into the end of the top rail
- Dowel holes are drilled into the top of the leg at the suitable position
- Dowelling jig is used to drill holes
- The dowels and surfaces are coated with glue and then fitted together
- This is a weak form of joint
- It is weaker than the Mortise and Tenon joint.

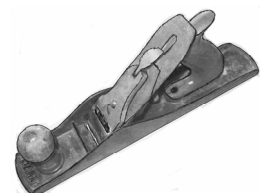
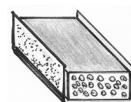


*Any other suitable joint*

## Part (b)

### Restoring the table top

- The surface is cleaned thoroughly
- Paint or varnish remover may be used if needed
- The surface is sanded using medium to fine glasspaper
- An electric sander may be used
- Deep marks could be repaired
- The surface may need to be lightly planed to remove some of the marks
- Steel wool may be used to produce a smooth finish
- The surface is then cleaned off using white spirits
- A further light sanding is carried out before applying the chosen finish.



## Part (c)

### Suitable applied finish for the tabletop

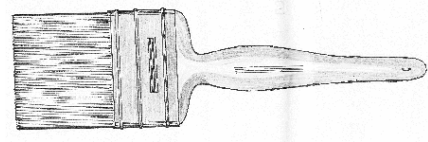
Suitable finishes

- Varnish
- Wax
- Oils / Danish oil
- Lacquer

The preparation of the wood for each finish is similar.

#### Applying a varnish finish

- The surface is prepared as described
- The first coat of varnish is applied
- The surface is lightly sanded
- A second coat of varnish is then applied
- The varnish is applied using a good quality brush.



#### Applying a lacquer finish

- This finish is applied to a well prepared surface
- The finish is sprayed on to the surface
- This produces a high quality finish.



#### Applying a wax finish

- The wax is applied with a cloth
- It is applied in very light layers
- The layer is allowed to dry
- It is then buffed
- Further layers are applied as needed.

#### Applying an oil finish

- The surface is prepared as described
- The first coat of oil is applied
- The surface is then lightly sanded
- A second and third coat may be applied
- Oil is applied using a clean lint free cloth.

<b>Question 1 – Eaves detail</b>			
<b>Details</b>			<b>Marks</b>
<b>Part (a)</b>			
Concrete tiles			<b>5</b>
Softwood battens 44 × 35 mm			<b>5</b>
Breathable membrane			<b>5</b>
Rafters 150 × 40 mm / 250 mm × 40 mm			<b>5</b>
Roof insulation to comply with current Building Regulations			<b>5</b>
Ceiling joists 150 × 40 mm			<b>5</b>
12.5 mm foil-backed plasterboard ceiling with skim coat			<b>5</b>
Wallplate 100 × 75 mm			<b>5</b>
Internal plaster and external render			<b>5</b>
Concrete block inner leaf 100 mm			<b>5</b>
Wall insulation to comply with current Building Regulations			<b>5</b>
Residual cavity 50 mm			<b>5</b>
Concrete block outer leaf 100 mm			<b>5</b>
Fascia and soffit board			<b>5</b>
Eaves gutter 100 mm			<b>5</b>
Ventilation path			<b>5</b>
<i>Any 7 of the above details (5 marks each)</i>	<b>Sub-total</b>	<b>35</b>	
Three typical dimensions			<b>5</b>
<b>Part (b)</b>			
Method of closing cavity at eaves level			<b>4</b>
<b>Draughting, accuracy and scale</b>	<i>(excellent, good, fair)</i>		<b>6</b>
	6	4	2
	<b>Total</b>		<b>50 marks</b>

<b>Question 2 – External insulation</b>	
<b>Details</b>	<b>Marks</b>
<b>Part (a)</b>	
<b>Method of applying external insulation – Notes</b>	
Valid description one	<b>6</b>
Valid description two	<b>6</b>
Details of external surface finish to the insulation	<b>6</b>
Type and thickness of insulation <i>(3 marks + 3marks)</i>	<b>6</b>
<b>External insulation – Sketch</b>	
Valid detail	<b>4</b>
Valid detail	<b>4</b>
<b>Quality of sketch</b> <i>(excellent, good, fair)</i> 8      6      4	<b>8</b>
<b>Part (b)</b>	
<b>External insulation</b>	
Advantage one	<b>5</b>
Advantage two	<b>5</b>
<b>Total</b>	<b>50 marks</b>



<b>Question 3 – Mains water supply</b>		
<b>Details</b>		<b>Marks</b>
<b>Part (a)</b>		
Connection to water mains		<b>5</b>
Stop valve		<b>5</b>
Water supply pipe		<b>5</b>
External wall		<b>5</b>
Protective sleeve for water supply		<b>5</b>
Service pipe insulation		<b>5</b>
Stop valve		<b>5</b>
Rising main		<b>5</b>
Connection to kitchen sink		<b>5</b>
Typical type of material		<b>5</b>
Typical size of pipework		<b>5</b>
<i>Any 6 of the above details (5 marks each)</i>	<b>Sub-total</b>	<b>30</b>
<b>Quality of sketch</b>	<i>(excellent, good, fair)</i>	<b>8</b>
	8      6      4	
<b>Part (b)</b>		
<b>Two design details that would prevent the water in the mains supply from freezing</b>		
Designs details	<i>(2 × 3 marks)</i>	<b>6</b>
<b>Part (c)</b>		
<b>Two ways to reduce the use of treated water</b>		
Two ways	<i>(2 × 3 marks)</i>	<b>6</b>
	<b>Total</b>	<b>50 marks</b>

<b>Question 4 - Foundations</b>	
<b>Details</b>	<b>Marks</b>
<b>Part (a)</b>	
<b>Width and depth of trench</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Finish level of concrete in foundation</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Reinforcement of foundation</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Position of wall on strip foundation</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Part (b)</b>	
<b>Two environmental reasons why a strip foundation is the preferred foundation type</b>	
Reason one	<b>5</b>
Reason two	<b>5</b>
<b>Total</b>	<b>50 marks</b>

<b>Question 5 – Window cill</b>			
<b>Details</b>			<b>Marks</b>
<b>Part (a)</b>			
Window board 25 mm			<b>5</b>
Window frame 150 mm × 80 mm			<b>5</b>
Triple-glazing low-e glass			<b>5</b>
Precast concrete window cill			<b>5</b>
Mastic and / or taped seals			<b>5</b>
D.P.C.			<b>5</b>
External plaster and Internal plaster 15 mm			<b>5</b>
Concrete block outer leaf 100 mm			<b>5</b>
Residual cavity 50 mm			<b>5</b>
Wall tie			<b>5</b>
Thermal insulation 100 mm			<b>5</b>
Concrete block inner leaf 100 mm			<b>5</b>
Proprietary cavity closer			<b>5</b>
<i>Any 7 of the above details (5 marks each)</i>	<b>Sub-total</b>		<b>35</b>
Three typical dimensions			<b>5</b>
<b>Part (b)</b>			
<b>Design detail to prevent the formation of a thermal / cold bridge at the concrete cill</b>			
Valid design detail			<b>4</b>
<b>Draughting, accuracy and scale</b>	<i>(excellent, good, fair)</i>		<b>6</b>
	6      4      2		
<b>Total</b>			<b>50 marks</b>

<b>Question 6 - Safety</b>	
<b>Details</b>	<b>Marks</b>
<b>Part (a)</b>	
<b>Safety precautions when lifting a load</b>	
Precaution one	<b>4</b>
Precaution Two	<b>4</b>
Reasons	<b>2</b>
<b>Safety precautions when placing concrete in a foundation:</b>	
Precaution one	<b>4</b>
Precaution two	<b>4</b>
Reasons	<b>2</b>
<b>Part (b)</b>	
<b>Two items of personal protective equipment to be worn on a building site</b>	
<b>Item One</b>	
Valid detail - note	<b>5</b>
<b>Sketch</b> <span style="float: right;"><i>(excellent, good, fair)</i></span>	<b>5</b>
	<i>5      3      2</i>
Importance of item one	<b>5</b>
<b>Item two</b>	
Valid detail - note	<b>5</b>
<b>Sketch</b> <span style="float: right;"><i>(excellent, good, fair)</i></span>	<b>5</b>
	<i>5      3      2</i>
Importance of item two	<b>5</b>
<b>Total</b>	<b>50 marks</b>

<b>Question 7 - Planning</b>	
<b>Details</b>	<b>Marks</b>
<b>Part (a)</b>	
<b>Reasons for planning permission to convert a garage – Notes</b>	
Reason one	<b>6</b>
Reason two	<b>6</b>
<b>Part (b)</b>	
<b>Site location map</b>	
Valid detail one	<b>5</b>
Valid detail two	<b>5</b>
Valid detail three	<b>5</b>
<b>Site notice</b>	
Valid detail one	<b>5</b>
Valid detail two	<b>5</b>
Valid detail three	<b>5</b>
<b>Part (c)</b>	
<b>Reason why a planning authority may refuse planning permission for the proposed conversion</b>	
Valid detail	<b>8</b>
<b>Total</b>	<b>50 marks</b>

**Question 8 - Terms**

<b>Details</b>	<b>Marks</b>
<b>Item one</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Item two</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Item three</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Item four</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Item five</b>	
Primary communication of relevant information	<b>6</b>
Other communication of relevant information	<b>4</b>
<b>Total</b>	<b>50 marks</b>

<b>Question 9 – Restoration of dining table</b>		
<b>Details</b>		<b>Marks</b>
<b>Part (a)</b>		
<b>Suitable joint for joining rail and leg – Notes</b>		
Name		<b>4</b>
Suitability of joint		<b>4</b>
<b>Sketch of joint</b>		
<b>Quality of sketch</b>	<i>(excellent good fair)</i> 6 4 2	<b>6</b>
<b>Part (b)</b>		
<b>Preparation of top – notes</b>		
Valid detail one		<b>6</b>
Valid detail two		<b>6</b>
<b>Preparation of top – Sketch</b>		
<b>Quality of sketch</b>	<i>(excellent good fair)</i> 4 3 2	<b>4</b>
<b>Part (c)</b>		
<b>Suitable applied finish</b>		
Name of finish		<b>4</b>
<b>Application of finish – Notes</b>		
Valid detail one		<b>6</b>
Valid detail two		<b>6</b>
<b>Quality of sketches</b>	<i>(excellent good fair)</i> 4 3 2	<b>4</b>
	<b>Total</b>	<b>50 marks</b>







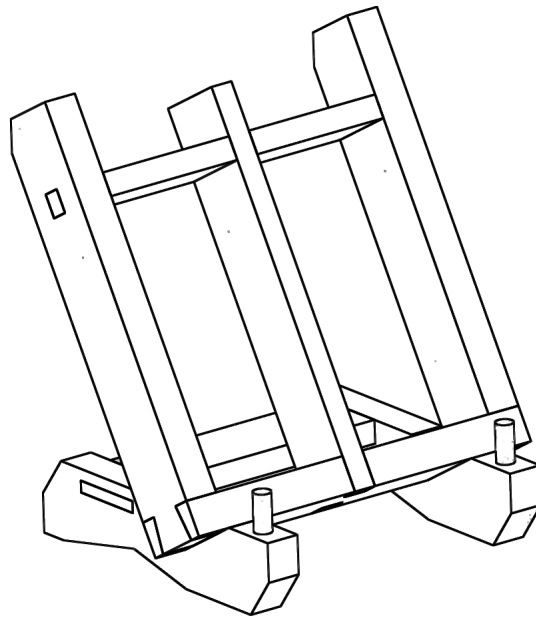
**Coimisiún na Scrúduithe Stáit**  
**State Examinations Commission**

---

***Scrúdú Ardteistiméireachta 2012***  
***Leaving Certificate Examination 2012***

***Scéim Mharcála***  
***Marking Scheme***

***(150 marc)***



***Staidéar Foirgníochta***  
***Triail Phraticiúil***

***Construction Studies***  
***Practical Test***

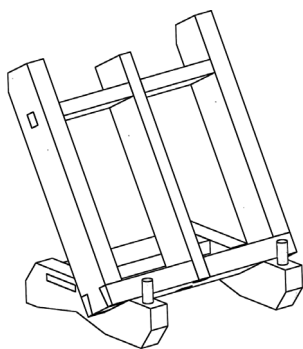
## Construction Studies 2012 Marking Scheme – Practical Test

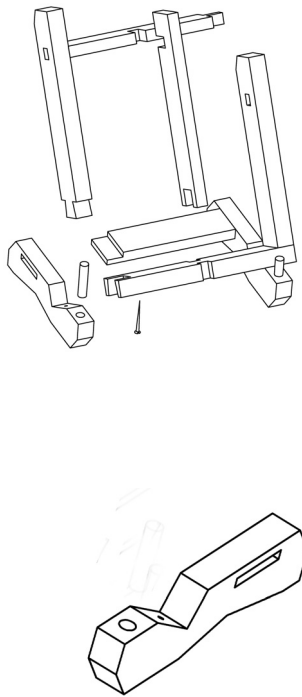
**Note:**

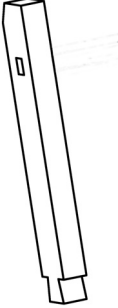
The artifact is to be hand produced by candidates without the assistance of machinery. However the use of a battery powered screwdriver is allowed.

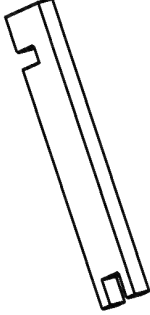
Where there is evidence of the use of machinery for a particular procedure a penalty applies.

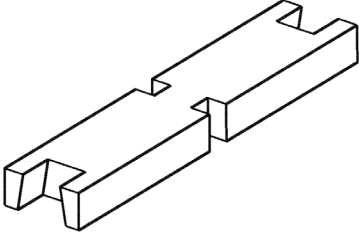
Component is marked out of 50% of the marks available for that procedure.

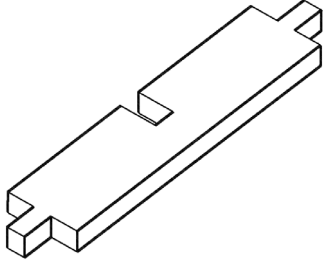
	<b>A</b>	<b>OVERALL ASSEMBLY</b>	<b>MARKS</b>
	1	Overall quality of assembled artifact	<b>8</b>
	2	Dowel located and fitted correctly	<b>4</b>
	3	Design and applied shaping to edges <ul style="list-style-type: none"> <li>• design</li> <li>• shaping</li> </ul> <div style="text-align: right;"><i>(2 × 2 marks)</i></div>	<b>4</b>
	<b>Total</b>		<b>16</b>

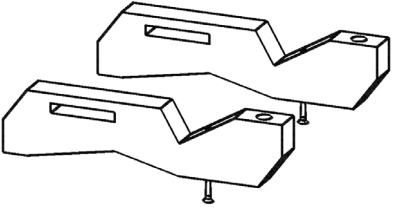
	<b>B</b>	<b>MARKING OUT</b>	<b>Marks</b>
	1	Left side - vertical <ul style="list-style-type: none"> <li>• joints - mortice <i>(2 marks)</i></li> <li style="padding-left: 20px;">- dovetail <i>(2 marks)</i></li> <li>• top slopes <i>(1 mark)</i></li> </ul>	<b>5</b>
	2	Right side - vertical <ul style="list-style-type: none"> <li>• joints - mortice <i>(2 marks)</i></li> <li style="padding-left: 20px;">- dovetail <i>(2 marks)</i></li> <li>• top slopes <i>(1 mark)</i></li> </ul>	<b>5</b>
	3	Middle – vertical <ul style="list-style-type: none"> <li>• joints - bridle <i>(2 marks)</i></li> <li style="padding-left: 20px;">- halving <i>(2 marks)</i></li> </ul>	<b>4</b>
	4	Bottom rail <ul style="list-style-type: none"> <li>• joints - dovetail pins <i>(2 × 2 marks)</i></li> <li style="padding-left: 20px;">- trenches <i>(2 marks)</i></li> </ul>	<b>6</b>
	5	Top rail <ul style="list-style-type: none"> <li>• joints - tenons <i>(2 × 2 marks)</i></li> <li style="padding-left: 20px;">- halving <i>(2 marks)</i></li> </ul>	<b>6</b>
	6	Base - left and right <ul style="list-style-type: none"> <li>• mortices <i>(2 × 2 marks)</i></li> <li>• notches <i>(4 × 2 marks)</i></li> <li>• chamfers <i>(4 × 1 marks)</i></li> </ul>	<b>16</b>
	7	Base – back rail - tenons <i>(2 × 2 marks)</i>	<b>4</b>
<b>Total</b>		<b>46</b>	

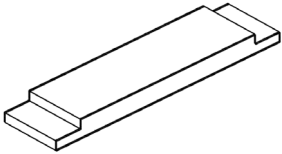
<b>TWO SIDES</b>	<b>C</b>	<b>PROCESSING</b>	<b>Marks</b>
	1	Shaping chamfers <i>(2 × 1 mark)</i>	<b>2</b>
	2	Two mortices <i>(2 × 3 marks)</i>	<b>6</b>
	3	Dovetails <ul style="list-style-type: none"> <li>• slopes <i>(4 × 2 marks)</i></li> <li>• shoulders <i>(4 × 1 marks)</i></li> </ul>	<b>12</b>
	<b>Total</b>		<b>20</b>

<b>MIDDLE VERTICAL</b>	<b>D</b>	<b>PROCESSING</b>	<b>Marks</b>
	1	Bridle joint - bottom <ul style="list-style-type: none"> <li>• sawing vertically <i>(2 × 1 mark)</i></li> <li>• trenching <i>(2 marks)</i></li> </ul>	<b>4</b>
	2	Halving joint - top <ul style="list-style-type: none"> <li>• sawing across grain <i>(2 × 1 mark)</i></li> <li>• paring trench <i>(1 mark)</i></li> </ul>	<b>3</b>
	<b>Total</b>		<b>7</b>

<b>BOTTOM RAIL</b>	<b>E</b>	<b>PROCESSING</b>	<b>Marks</b>
	1	Two dovetail pins <ul style="list-style-type: none"> <li>• sawing vertically <i>(4 × 1 marks)</i></li> <li>• trenching <i>(2 × 2 marks)</i></li> </ul>	<b>8</b>
	2	Bridle joint <ul style="list-style-type: none"> <li>• sawing across the grain <i>(4 × 1 mark)</i></li> <li>• paring trench <i>(2 × 1 mark)</i></li> </ul>	<b>6</b>
	<b>Total</b>		<b>14</b>

<b>TOP RAIL</b>	<b>F</b>	<b>PROCESSING</b>	<b>Marks</b>
	1	Two tenons <ul style="list-style-type: none"> <li>• sawing vertically <i>(4 × 1 mark)</i></li> <li>• sawing shoulders <i>(4 × 1 mark)</i></li> </ul>	<b>8</b>
	2	Trench <ul style="list-style-type: none"> <li>• sawing shoulders <i>(2 × 1 mark)</i></li> <li>• paring trench <i>(1 mark)</i></li> </ul>	<b>3</b>
	<b>Total</b>		<b>11</b>

<b>BASE - SIDES</b>	<b>G</b>	<b>PROCESSING</b>	<b>Marks</b>
	1	Chamfers <i>(4 × 1 mark)</i>	<b>4</b>
	2	Two mortises <i>(2 × 3 marks)</i>	<b>6</b>
	3	Shaping slopes <i>(8 × 2 marks)</i>	<b>16</b>
	4	Holes - screws <ul style="list-style-type: none"> <li>drilling and countersinking screws + position <i>(2 × 2 marks)</i></li> </ul>	<b>4</b>
		<b>Total</b>	<b>30</b>

<b>BASE - BACK RAIL</b>	<b>H</b>	<b>PROCESSING</b>	<b>Marks</b>
	1	Two tenons <ul style="list-style-type: none"> <li>sawing vertically <i>(2 × 2 marks)</i></li> <li>sawing shoulders <i>(2 × 1 mark)</i></li> </ul>	<b>6</b>
		<b>Total</b>	<b>6</b>







