

## 4.18 BUILDING CONSTRUCTION (446)

### 4.18.1 Building Construction Paper 1 (446/1)

1. (a) Safety requirements in:

(i) Storage of tools:

- Tools should be cleaned and oiled
- Small tools should be kept in lockable cabinets
- Tools hanging in open shelves should either be silhouetted or numbered
- Doors to tools store should be lockable
- Keep inventory of tools

(ii) Storage of materials:

- Materials to be stacked in an orderly manner.
- Materials like metal pipes to be kept off the ground in stacks.
- Galvanized iron bars and pipes to be kept in weather proofed stores or sheds

Any (2 x 2 x 1/2) = 2 mark

(b) (i) Baseline:

This is a grid line set on site from which all the other lines will be established when setting out.

(ii) Site datum:

This is a fixed point on site from which all measurements are taken.

2 x 1 = 2 marks

2. (a) Tamping is done using a tamping rod to eliminate air pockets in the concrete. It is also referred to as compaction. Screeding is an operation done by use of a straight edge on freshly laid concrete to achieve the proper grading and slope on the concrete surface.

(1 x 2 = 2 marks)

(b) Disadvantage of using the following materials as dpc

(i) Polythene paper

- It is easily punctured
- it tears easily

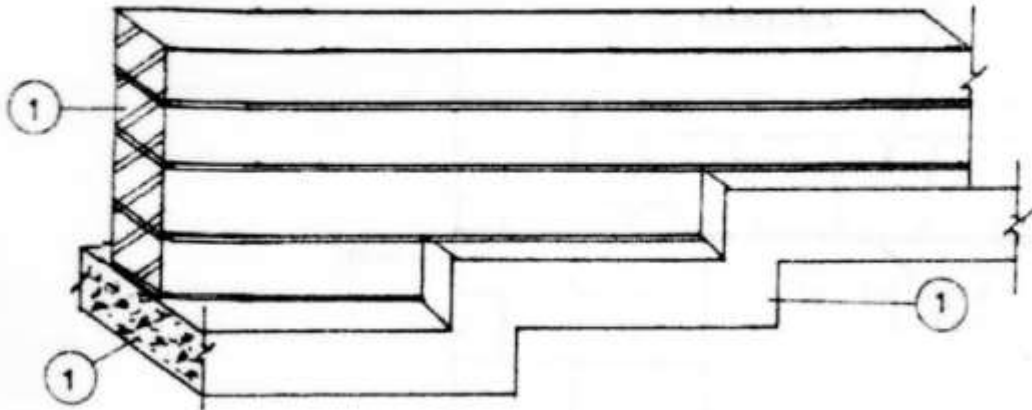
Any 1 x 1 = 1 mark

(ii) Bituminous felt

- it is expensive
- It is not easily available

Any 1 x 1 = 1 mark

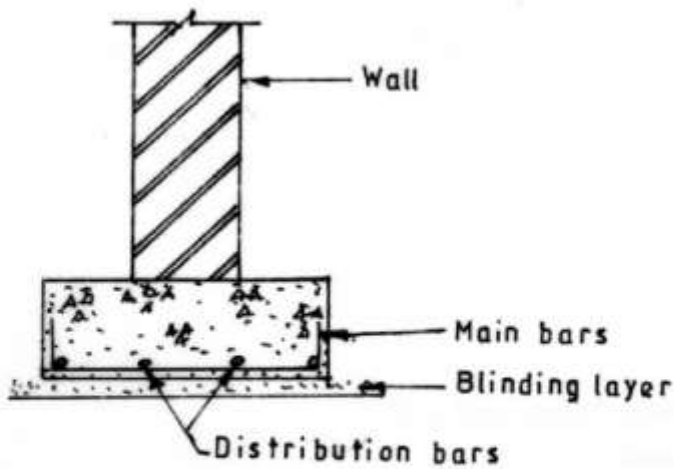
3. (a)



STEPPED FOUNDATION

Total = 3mks

(b) REINFORCED STRIP FOUNDATION

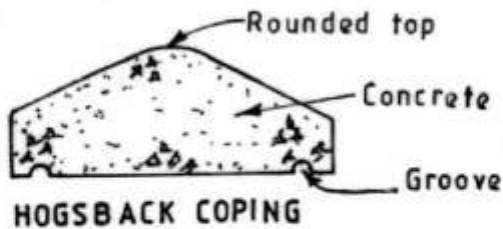


Sketch = 3  
 Labels, Any  $2 \times \frac{1}{2} = 1$   
= 4marks

4. (a) (i) Hot climate  
 (ii) Cold climate

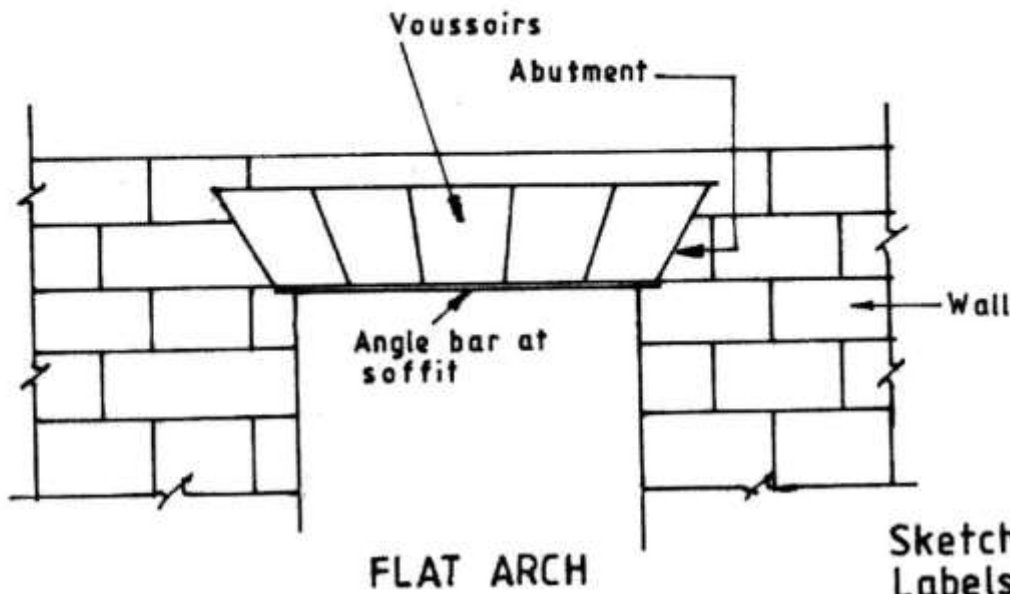
(2 marks)

(b)



Sketch = 1  
 Labels, Any  $2 \times \frac{1}{2} = 1$   
= 2 marks

5.



Sketch = 2  
Labels, Any 4 x 1/2 = 2  

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= 4 mks

6. (a) Functions of

(i) Architrave:

- (Seals) hide joint between frame and wall
- Provide a beautiful finish

(ii) Skirting:

- (seals) hide joint between wall and floor
- provide a beautiful finish
- prevent water splashing on lower wall when washing the floor.

(1 x 2 x 1 = 2 marks)

(b) Recommended pipe sizes for

- (i) wash hand basin =  $\phi$  12 mm (1 mark)
- (ii) bath tub =  $\phi$  20 mm (1 mark)

7. Functional requirements of

(i) Doors

- Properly hung to open and close with ease
- Sufficient fire resistance
- Sufficient sound insulation
- Strong
- Weather resistance

(Any 2 x 1 = 2 marks)

(ii) Walls:

- Strong and stable
- Carry their own weight and loads from above
- Adequate fire resistance
- Adequate sound insulation.
- Weather resistance

(Any 2 x 1 = 2 marks)

8. Pointing is a finish on masonry joints done after the walling is complete while jointing is a finish on masonry joints done as the work proceeds.

(2 x 1 = 2 marks)

9. (a) Functions of parts of a scaffold:

(i) Baseplates

- It distributes the weight of standard
- It supports the standard
- It is for adjusting heights in adjustable baseplates
- It is for swivelling on sloping ground

(ii) Guard rail

- It prevents the workers from falling off
- It prevents materials from falling off.

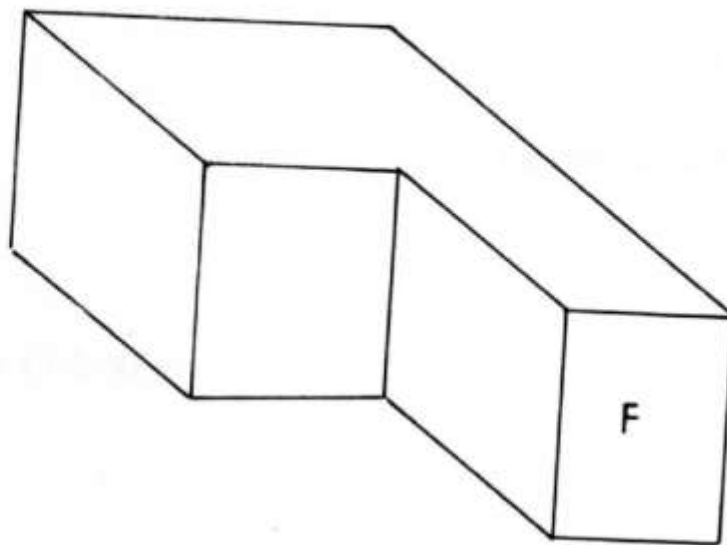
(Any 1 x 2 = 2 marks)

(b) Activities at the end of a construction project

- handing over the site
- making good the surrounding
- removing machines used
- demolishing the site huts

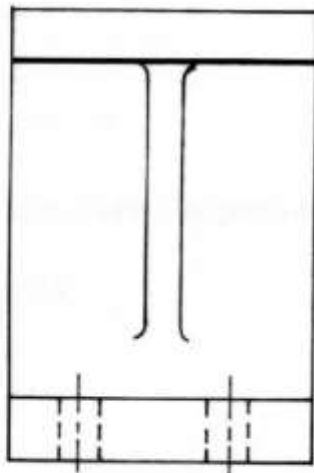
(Any 2 x 1 = 2 marks)

10.



Interpretation	=	1 mark
Correct oblique angle	=	1 mark
Line work	=	1 mark
Correct scale	=	<u>1 mark</u>
		<u>4 marks</u>

11.



PLAN

Correct 3 Angle projection	=	2
Correct scale 1:1	=	2

**FRONT ELEV**

Outline	=	1
Hidden detail	=	1
Web	=	1
Holes	=	2

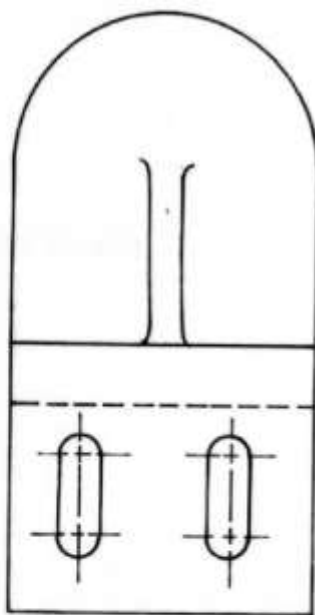
**END ELEV**

Outline	=	1
Hidden detail	=	1
Web	=	1

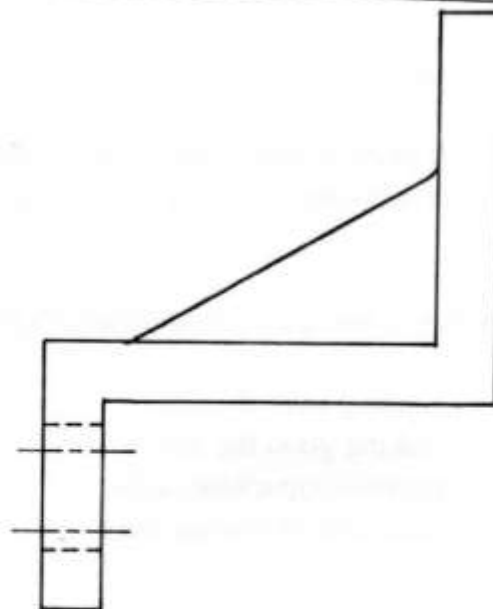
**PLAN**

Outline	=	1
Hidden details	=	1
Web	=	1

**Total = 15 mks**



FRONT ELEV.

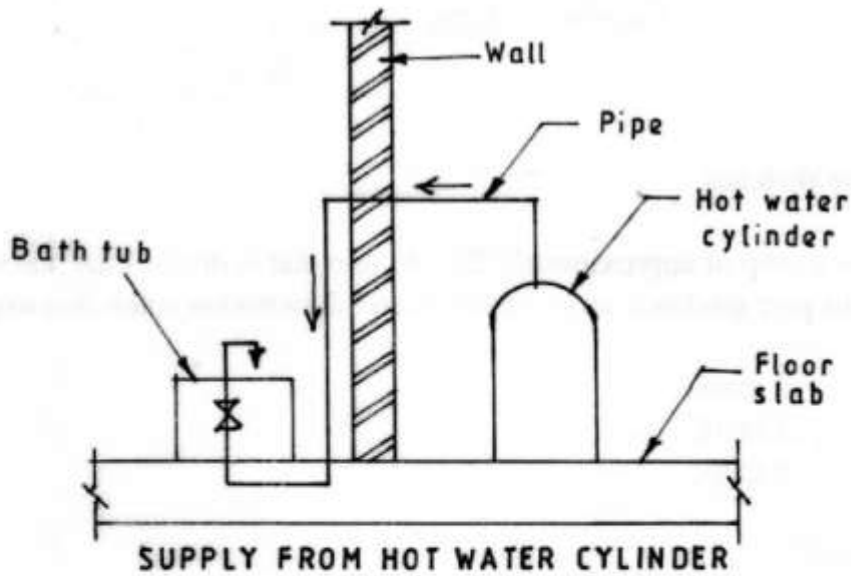


END ELEV.

12. (a) Procedure of laying a floor screed
- (i) Hack the surface of the old floor slab
  - (ii) Brush off the dust and sprinkle water
  - (iii) Pour cement slurry on the floor surface
  - (iv) Mix mortar to predetermined ratios
  - (v) Pour, spread, consolidate and level the screed
  - (vi) Finish the surface to the desired finish

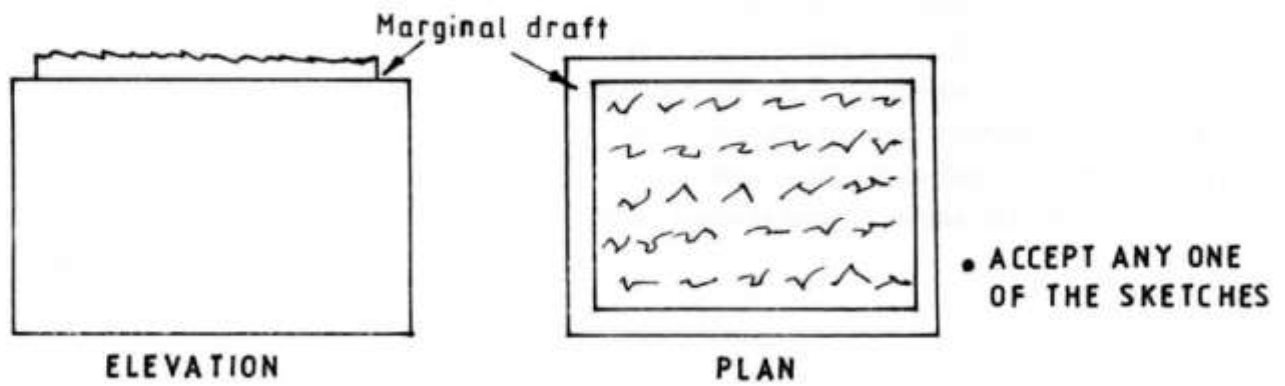
(1 x 6 = 6 marks)

(b)



Sketch	= 2
Labels, Any 4 x 1/2	= 2
	= 4 mks

12. (c)



Sketch = 2  
Explanation = 3  

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= 5 mks

Accept either of the sketches

A marginal draft is a strip of approximately 20 - 40 mm that is dressed flat and square around a surface of a stone to give guidance as to the depth and dimensions when dressing a stone.

Sketch - 2 marks  
Explanation - 3 marks  

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5 marks

13. (a) Advantages of:

(i) Oil - based paints

- Easy to clean the surface
- They are resistant to fading / don't fade
- They are attractive
- They are durable

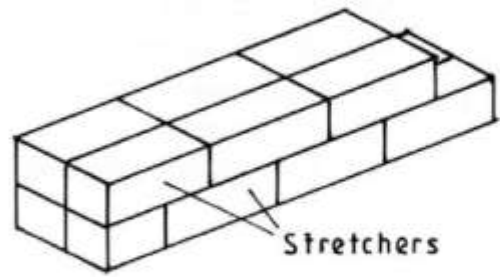
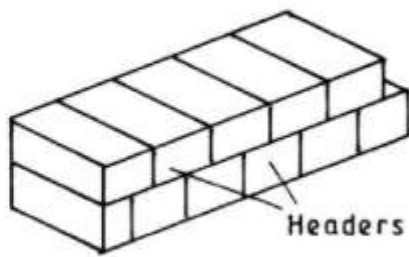
(Any 2 x 1 = 2 marks)

(ii) Water - based paints

- Easy clean up
- Have stable colour over time
- Dry quickly
- They are odour free

(Any 2 x 1 = 2 marks)

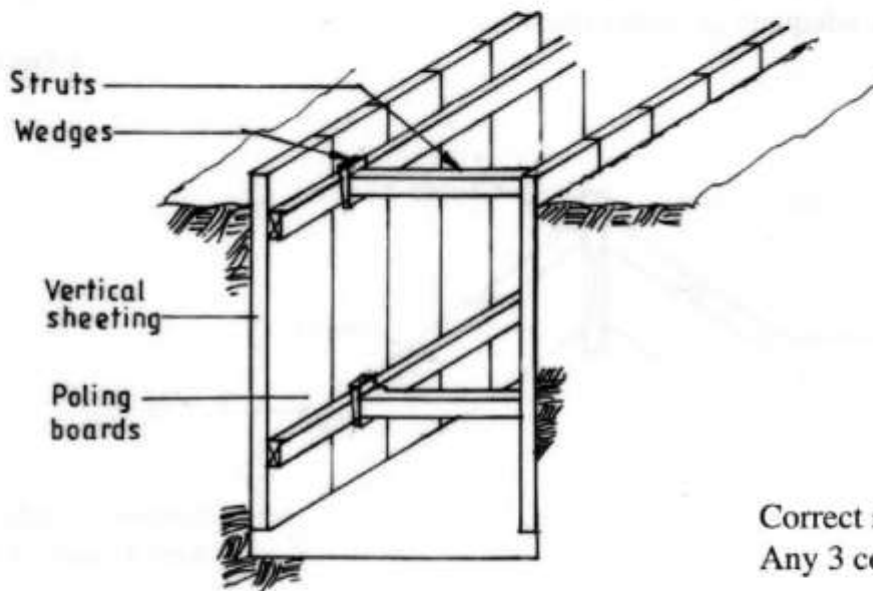
13. (b)



Headerbond consists of entire headers showing on the face of the wall while stretcher bond has an arrangement showing only stretchers on the face of the wall.

Sketching	2 x 2 =	4 marks
Explanation	2 x 1 =	2 marks
	<u>        </u> =	<u>6 marks</u>

13. (c)



Correct sketch = 2 marks  
 Any 3 correct labels = 3 marks  
5 marks



14. (a) Advantages of stones

- Readily available
- Available in different colours and textures
- Can be dressed to the desired shape and size
- They are durable
- They have good thermal and sound insulation properties

(Any 4 x 1 = 4 marks)

(b) Functions of the following:

(i) Plaster

- Is a background for other finishes that are more durable like paint etc
- Provides an attractive surface / aesthetics
- Provides a weather and water resistant surface
- Provides a surface that is resistant to chemical attack

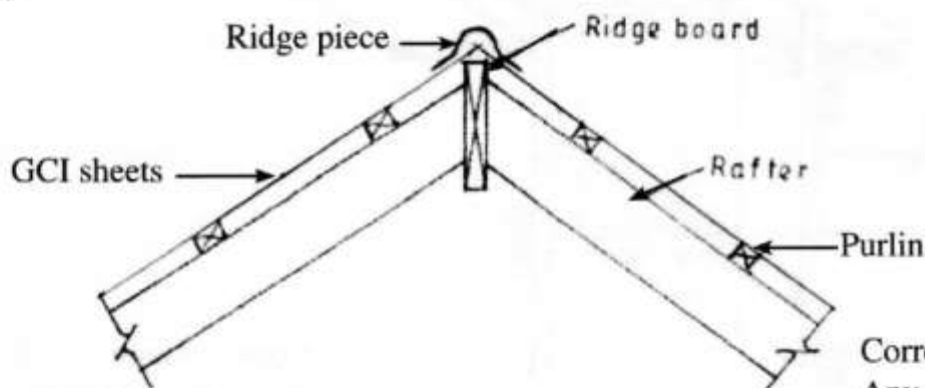
(Any 3 x 1 = 3 marks)

(ii) Floor screed

- Provide a hard surface finish
- Provides a surface for other finishes like tiles etc
- Provides adequate thermal insulation
- Provides adequate acoustics (beauty).

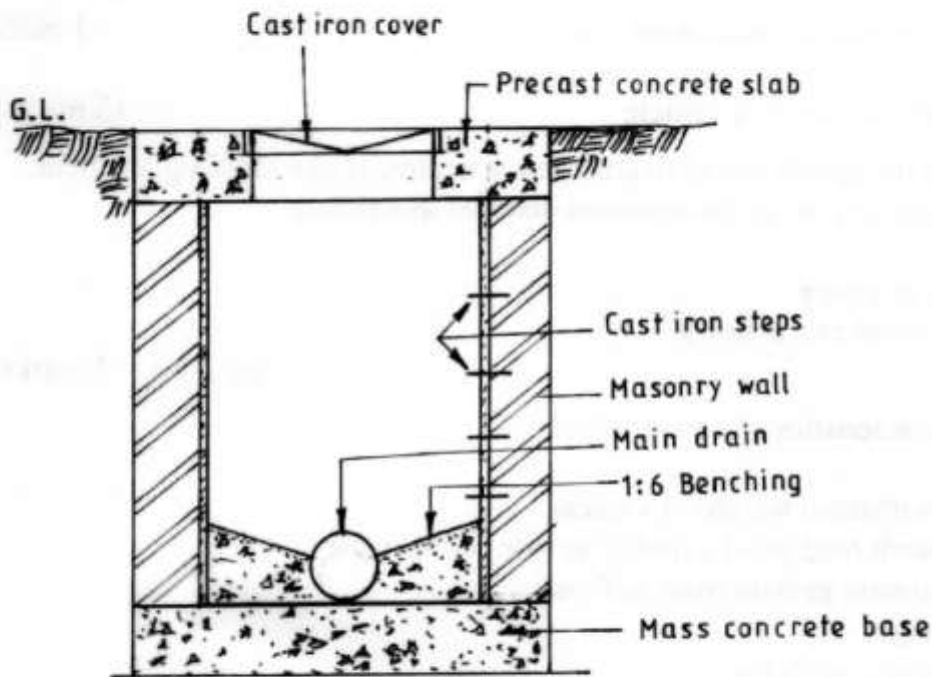
(Any 3 x 1 = 3 marks)

(c)



Correct sketch = 3 marks  
Any 4 labels  $4 \times \frac{1}{2} =$  2 marks  
5 marks

15. (a)

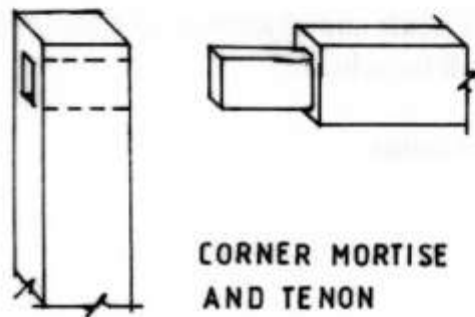


SKETCH = 6  
LABELS, Any 6x½ = 3  

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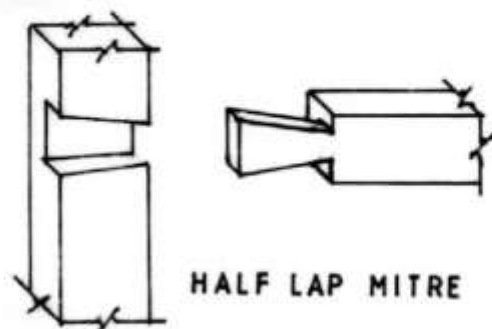
Total = 9 mks

15. (b) (i) Corner Mortise and Tenon



Sketch = 3 marks

(ii) Half lap dovetail tee joint



Sketch = 3 marks