

30.17 BUILDING CONSTRUCTION (446)

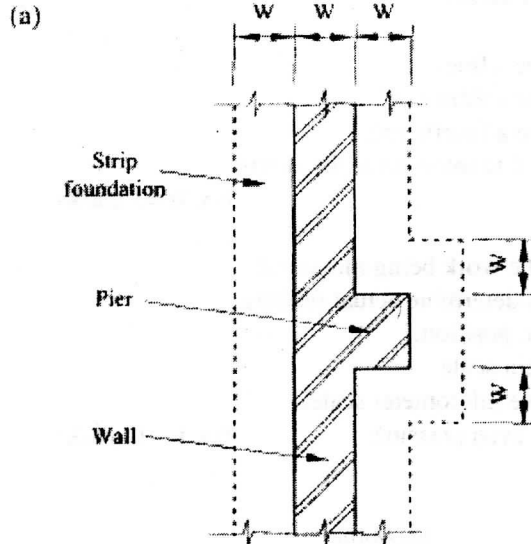
30.17.1 Building Construction Paper 1 (446/1)



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SECTION A

1. (a)



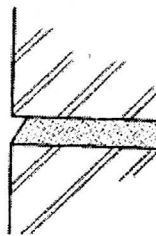
The foundation shall project beyond the pier on all sides at least the same extent as they project beyond the wall.

Correct sketch	1
Explanation	$\frac{1}{2}$
	2 marks

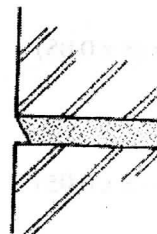
- (b)
- For upper storeys of building or high rise building
 - on the side of a busy street where obstruction is not allowed.
 - where it is not possible to fix standards into the ground in the usual manner.

(Any 2 x 1 = 2 marks)

2. (a)



Weather struck joint



Reverse struck joint

Sketch	$2 \times \frac{1}{2} = 1$
Correct name	$2 \times \frac{1}{2} = 1$
TOTAL	= 2marks

- (b) Two reasons why cow dung is used in walling for making traditional shelter are:-

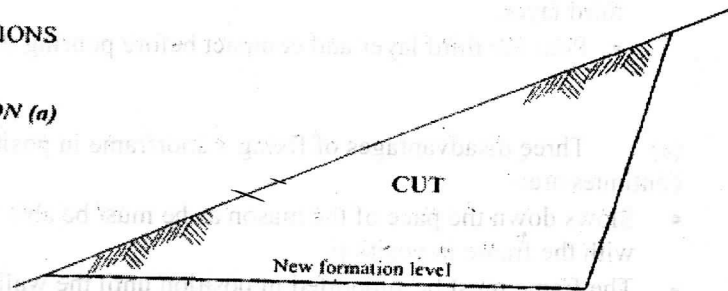
- Due to its plasticity, it can easily spread.
- It acts as an adhesive hence able to stick where applied.
- Takes time before it wears out.
- Easily decorated for aesthetic purpose.

(Any 2 x 1 = 2 marks)

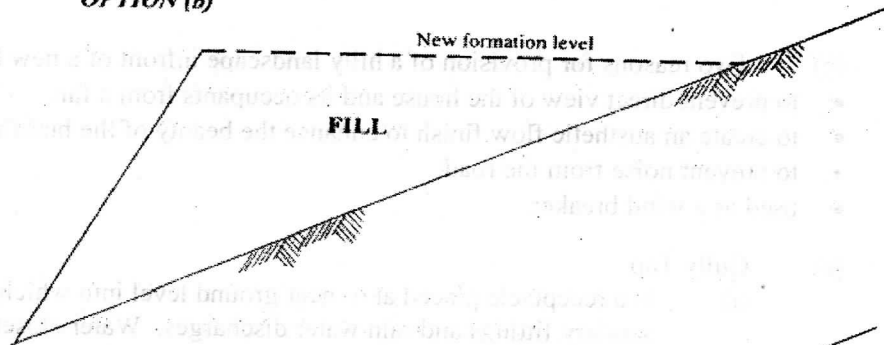
3.

THREE OPTIONS

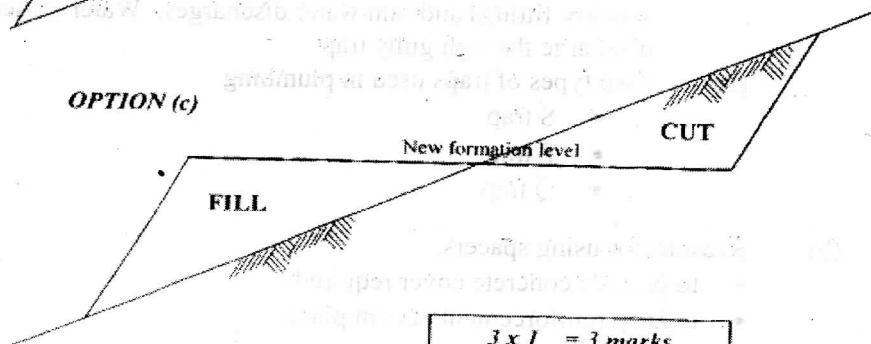
OPTION (a)



OPTION (b)

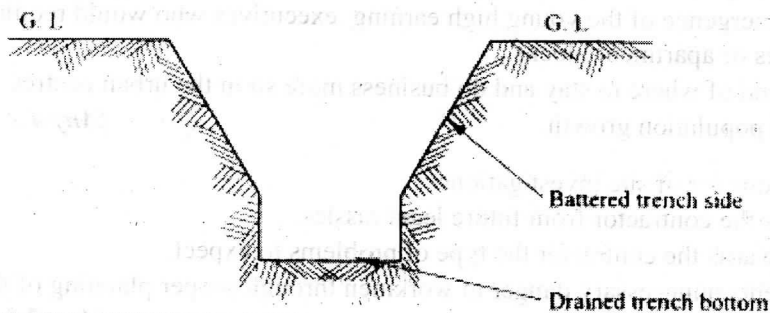


OPTION (c)



3 x 1 = 3 marks

4. (a) Method of treating to a shallow foundation trench in a wet loose soil.



SKETCH	= 1
LABELS	any 2 x ½ = 1
TOTAL	= 2 marks

(b) Procedure of backfilling a foundation trench upto the ground level.

- Source for granular material.
- Pour the material into the position upto the first third.
- Compact fully.

- Pour the next layer and compact leaving the last stage to allow for another third layer.
- Pour the third layer and compact before pouring the concrete on top.

(2 marks)

5. (a) Three disadvantages of fixing a doorframe in position as the construction work continues are:-

- Slows down the pace of the mason as he must be able to trim the ends completely plumb and square with the frame in position.
- The frame must be supported in position until the walling is complete.
- Creates obstructions to wheeling of materials in or out of the structure.
- May be damaged during the construction process.

(Any 2 x 1 = 2 marks)

(b) Two reasons for provision of a hilly landscape in front of a new building are:

- to prevent direct view of the house and its occupants from a far.
- to create an aesthetic flow finish to enhance the beauty of the building.
- to prevent noise from the road.
- used as a wind breaker.

(Any 2 x 1 = 2 marks)

6. (a) Gully Tap

(i) is a receptacle placed at or near ground level into which all waste from sanitary fittings and rain water discharges. Water closets **must not** discharge through gully trap.

(1 mark)

(ii) Two types of traps used in plumbing

- S trap
- P trap
- Q trap

(Any 2 x 1 = 2 marks)

(b) Reasons for using spacers.

- to provide concrete cover required.
- to keep reinforcement bars in place.

(2 x 1 = 2 marks)

7. (a) Four reasons for the Building industry being on the upward trend.

- high growth of the agricultural sector which has led to demand for buildings.
- upward growth of the economy more so to those in the upper class.
- the emergence of the young high earning executives who would require to stay in upbeat estates or apartment blocks.
- demand of where to stay and do business more so in the urban centres.
- rapid population growth.

(Any 4 x 1/2 = 2 marks)

(b) Two reasons for of site investigations.

- Saves the contractor from future legal tussles.
- Forewarns the contractor the type of problems to expect.
- Prevents unnecessary danger to workmen through proper planning of the operations.

(Any 2 x 1 = 2 marks)

8. (a) Reasons for laying foundation bases at least 150mm below ground level are:

- To avoid underscoring by floods.
- Deep enough to prevent vegetation growth under foundations.
- Stability of building.

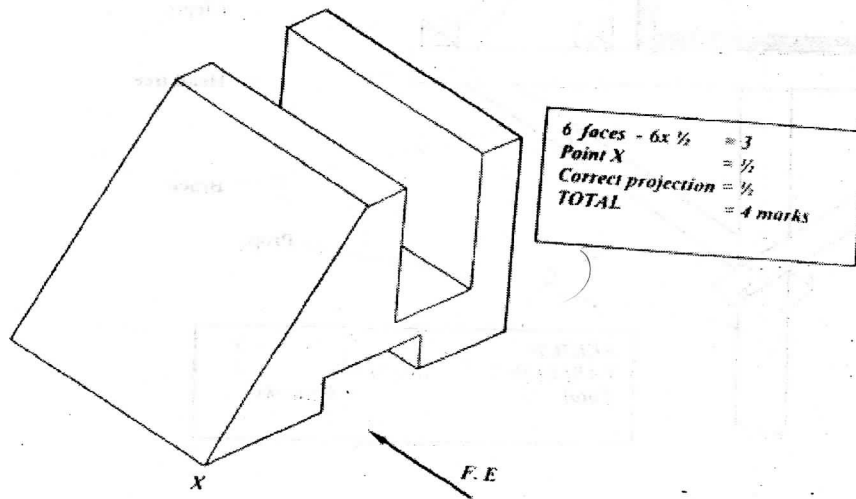
(Any 2 x 1 = 2 marks)

- (b) Positions in a superstructure wall where dampproof course is placed are:-
- Between wall and floor slab
 - Threshold
 - Window cills
 - Parapets
- (4 x ½ = 2 marks)

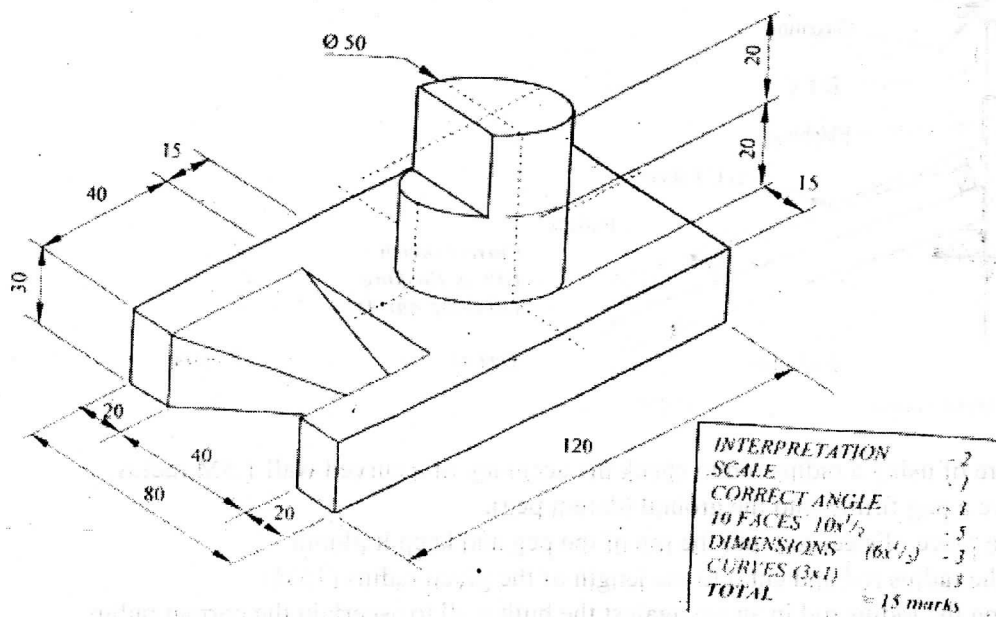
9. (a) Four methods of applying preservatives to timber piles.
- Hot and cold process
 - Pressure or vacuum process
 - Soaking
 - Surface application
 - Charring
- (Any 4 x ½ = 2 marks)

- (b) Pre-cautions to be taken before fixing a metal window.
- Steel window should be painted before fixing to prevent corrosion.
 - Handles should be fixed to windows before glazing the panels
 - Movement of shutters should be checked and adjusted before installation.
- Any 2 x 1 = 2 marks

10.



11.

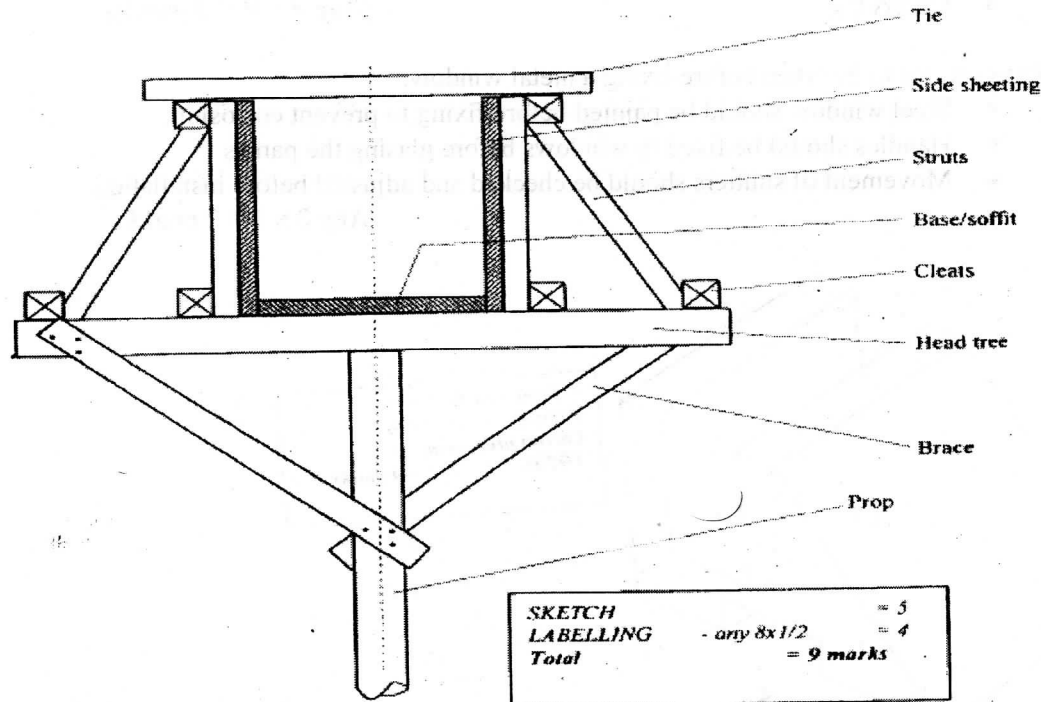


12. (a) Procedure of bridging an opening using a cast-in-situ. Concrete lintel.

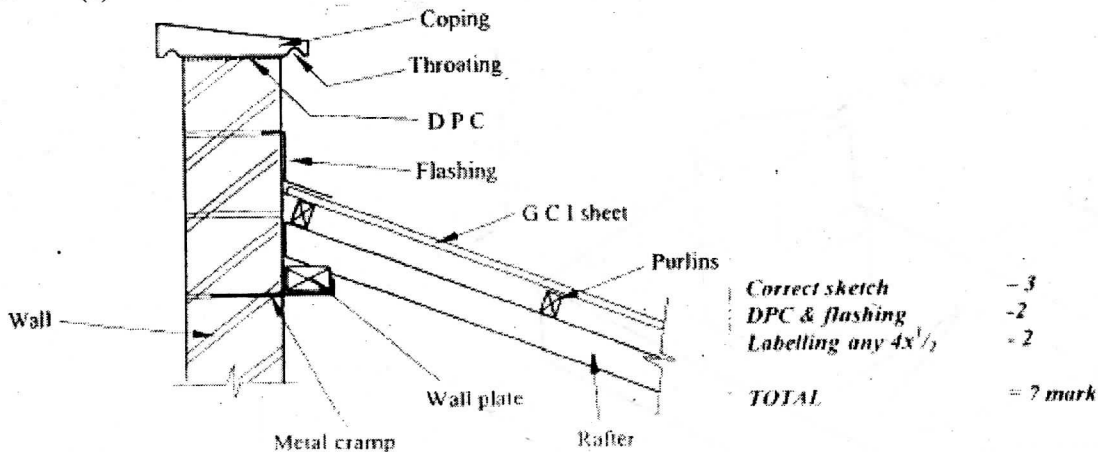
- Prepare the formwork.
- Support the formwork in position.
- Lay the reinforcement.
- Prepare an appropriate concrete mix.
- Pour the concrete in position.
- Compact the concrete.
- Cure the concrete until it is mature.

(6 marks)

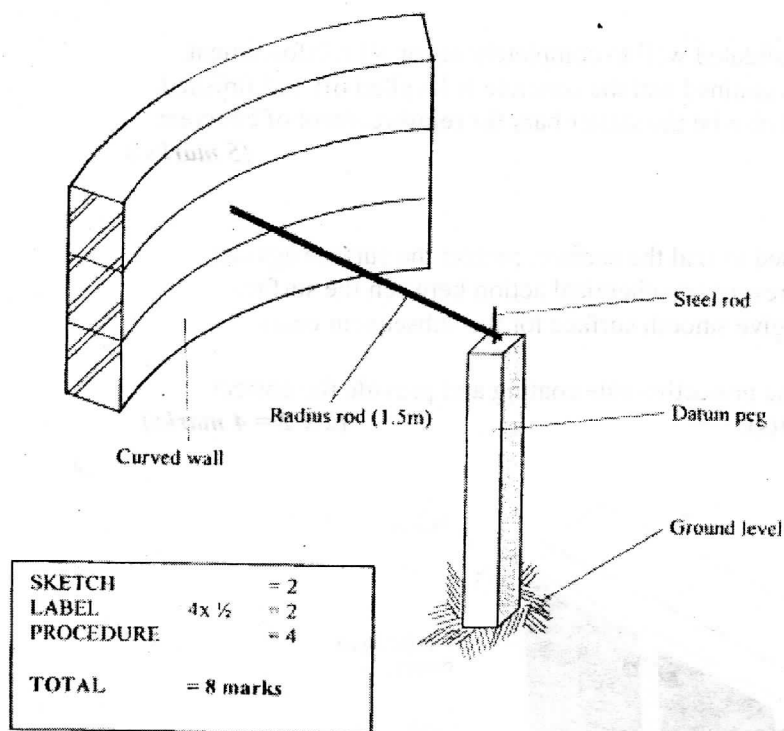
(b)



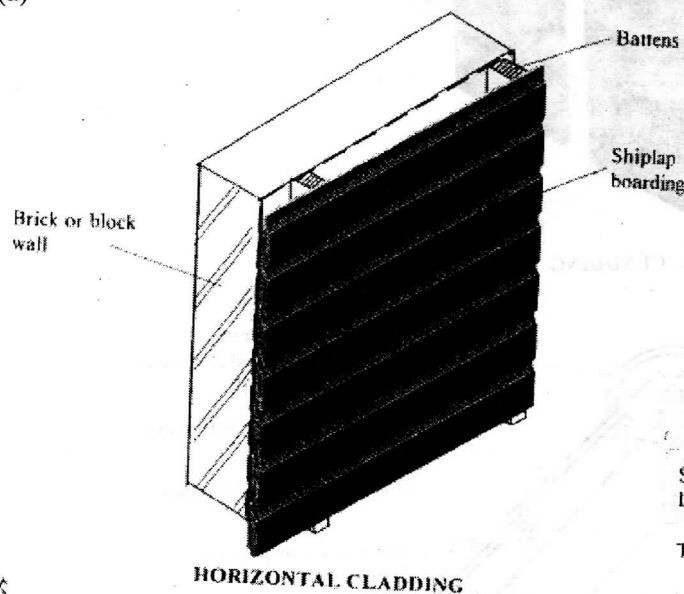
13. (a)



- (b) Procedure of using a radius rod to check the accuracy of a curved wall 1.5M radius.
- Drive a peg firmly into the ground (datum peg).
 - Fix a piece of steel rod into the top of the peg and keep it plumb.
 - Fit the radius rod and cut it to the length of the given radius (1.5M).
 - Swing the radius rod in an arc against the built wall to ascertain the correct radius.



14 (a)



14. (b) Procedure of laying pad foundations:

Concrete blinding layers:

The base of the pad is treated with a weak concrete blinding which will act to prevent rapid loss of moisture from the poured concrete for the pad. The blinding layer is also used to level the base and also prevent loss of cement grout into the soil beneath.

Pad Reinforcement:

Reinforcement is set and laid with spacers on the sides of the pad and at the bottom to provide the required concrete cover.

Casting Concrete:

Concrete is placed and consolidated well to completely cover all reinforcement. Designed depth of the pad is attained and the concrete is levelled off and finished. Incorporated in the base will also be the starter bars for reinforcement of concrete column. (5 marks)

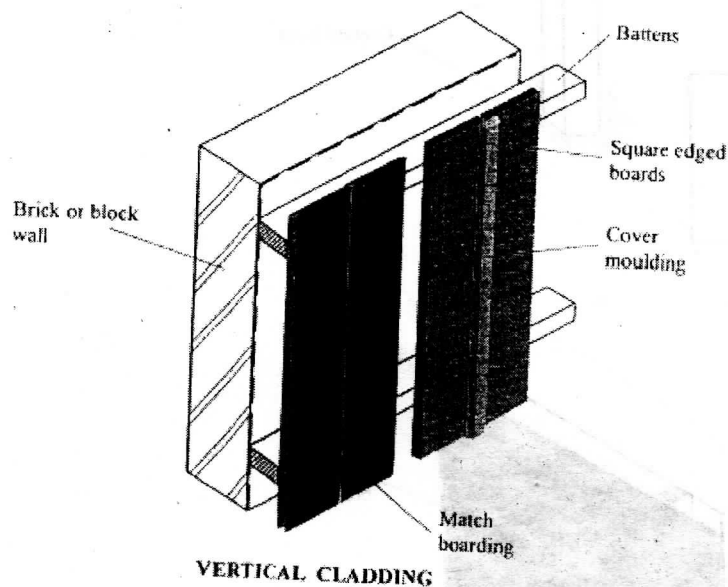
15. (a) **Priming paints:**

These are first coat paints used to seal the surface, protect the surface against Damp air, act as barrier to prevent any chemical action between the surface And the finishing coats and give smooth surface for the subsequent coats.

Undercoat paints:

These are used to build up the protective side coating and provide the correct surface for the finishing coat(s). (2 x 2 = 4 marks)

(b)



(c)

