

4.4 BUILDING CONSTRUCTION (446)



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4.4.1 Building Construction Paper 1 (446/1)

SECTION A (40 marks)

Answer all the questions in this section in the spaces provided.

- 1 (a) Differentiate between a flat roof and a pitched roof. (2 marks)
- (b) Sketch and label a plain concrete roofing tile. (2 marks)
- 2 (a) State **two** reasons why the current traditional houses are better than caves of the past. (1 mark)
- (b) Distinguish between a turning piece and a centre piece as used in arches. (3 marks)
- 3 (a) State **one** function of each of the following fixings:
- (i) cornice; (1 mark)
- (ii) dado rail. (1 mark)
- (b) State **four** places where a vertical damp proof course may be placed in a building. (2 marks)
- 4 (a) State the recommended minimum height above the finished floor level for the following electrical fittings:
- (i) switch; (1 mark)
- (ii) wall socket outlet. (1 mark)
- (b) State **two** advantages of each of the following paint finishes:
- (i) matt; (1 mark)
- (ii) gloss paint. (1 mark)
- 5 State **four**:
- (a) advantages of timber scaffolds over steel scaffolds. (2 marks)
- (b) activities that must be carried out immediately a contractor takes possession of a site. (2 marks)
- 6 Outline the procedure of constructing a foot path finished with precast concrete slabs. (4 marks)
- 7 (a) Using line diagrams, sketch the following types of profile boards:
- (i) intermediate profile; (1 mark)
- (ii) corner profile. (1 mark)

- (b) State **two** properties of each of the following materials for making mortar:
- (i) sand; (1 mark)
- (ii) water. (1 mark)
- 8 Sketch and label a vertical cross section of a trench to show the method of establishing a uniform depth using a boning rod. (4 marks)
- 9 (a) State **two** factors to consider when selecting a building site. (1 mark)
- (b) Sketch the following lengthening joints:
- (i) plain scarf joint; (1½ marks)
- (ii) splay joint. (1½ marks)

10 **Figure 1** shows a shaped block drawn in isometric.

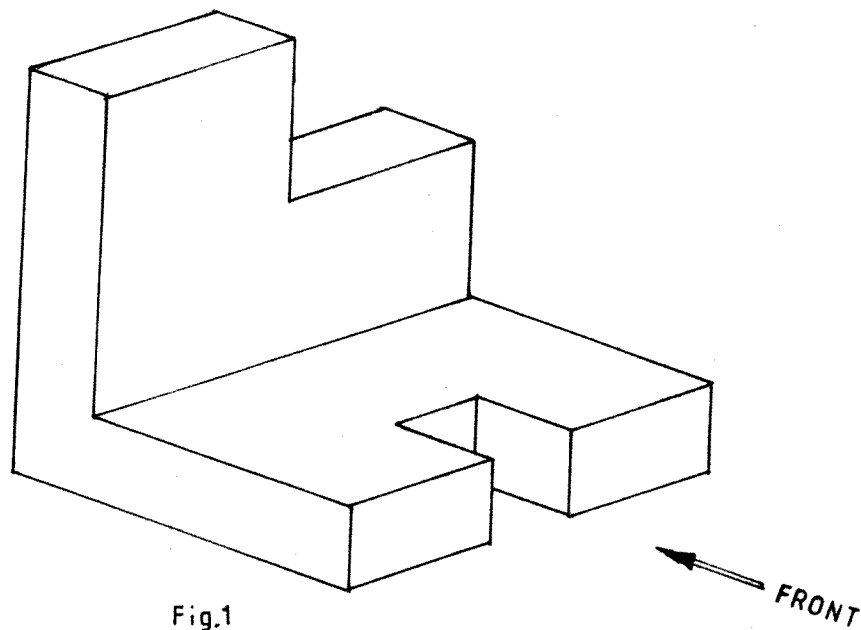


Fig.1

Figure 1

In 3rd angle projection, sketch the **three** views of the block. (4 marks)

SECTION B (60 marks)

Answer **question 11** on the A3 paper provided and any other **three** questions from this section in the spaces provided after question 15.

Candidates are advised **not** to spend more than **25 minutes** on question 11.

11 Figure 2 shows a pictorial view of a stand.

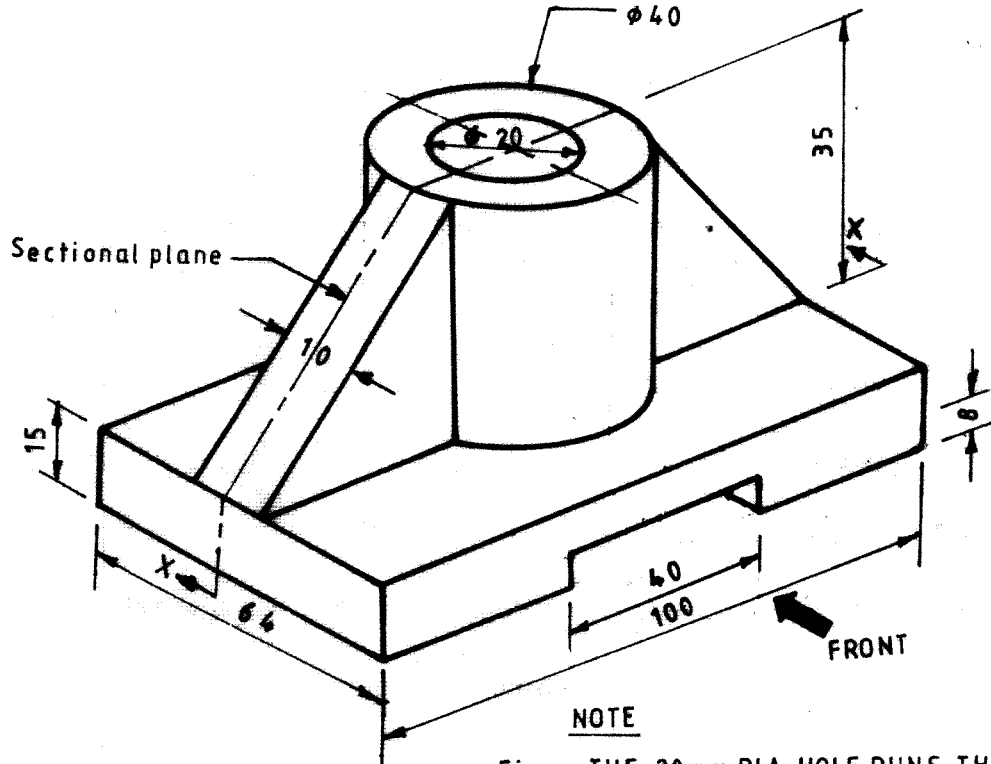


Figure 2

NOTE
 •THE 20 mm DIA. HOLE RUNS THROUGH TO THE BOTTOM
 •THE GROOVE AT THE BASE RUNS ACROSS

To a scale of 1:1, draw the following in first angle projection:

(15 marks)

- (i) sectional front elevation along X - X;
- (ii) end elevation;
- (iii) plan.

Insert **four** major dimensions.

- 12** (a) A foundation wall is 150 mm thick. With the aid of a labelled sketch, determine the:
- (i) depth of foundation concrete;
 - (ii) projection of the foundation concrete;

- (iii) foundation width. (6 marks)
- (b) (i) Differentiate between a common rafter and a jack rafter. (2 marks)
- (ii) Sketch and label a collar roof showing the mandatory height of the collar. (7 marks)
- 13** (a) State **three** factors to consider when transporting concrete on site. (3 marks)
- (b) Explain the following terminologies as used in foundations:
- (i) bearing capacity; (2 marks)
- (ii) made ground. (2 marks)
- (c) Explain the following activities carried out before laying foundations:
- (i) levelling the bottom; (2 marks)
- (ii) consolidation of the bottom; (2 marks)
- (iii) pegging; (2 marks)
- (iv) wetting. (2 marks)
- 14** (a) Outline the procedure of applying a rough cast finish on a new wall. (7 marks)
- (b) Using labelled sketches explain **two** methods of fixing a timber door frame to a masonry wall. (8 marks)
- 15** Sketch and label a direct cold water supply system for a one storey building. (15 marks)

4.4.2 Building Construction Paper 2 (446/2)

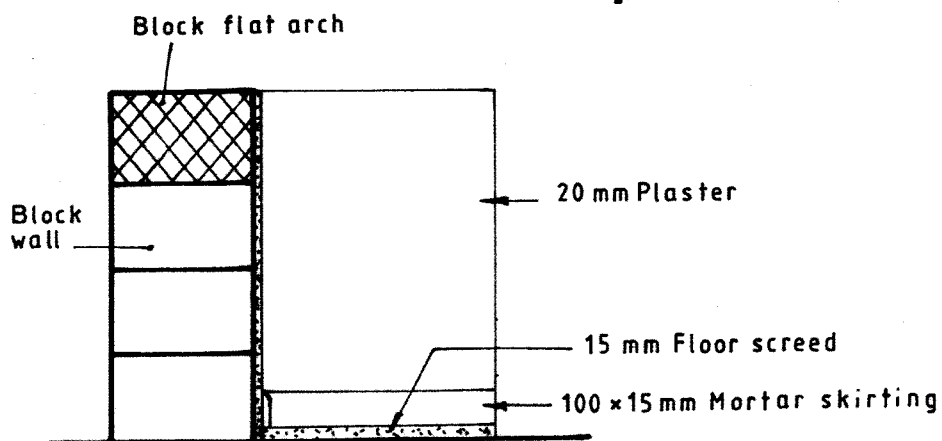
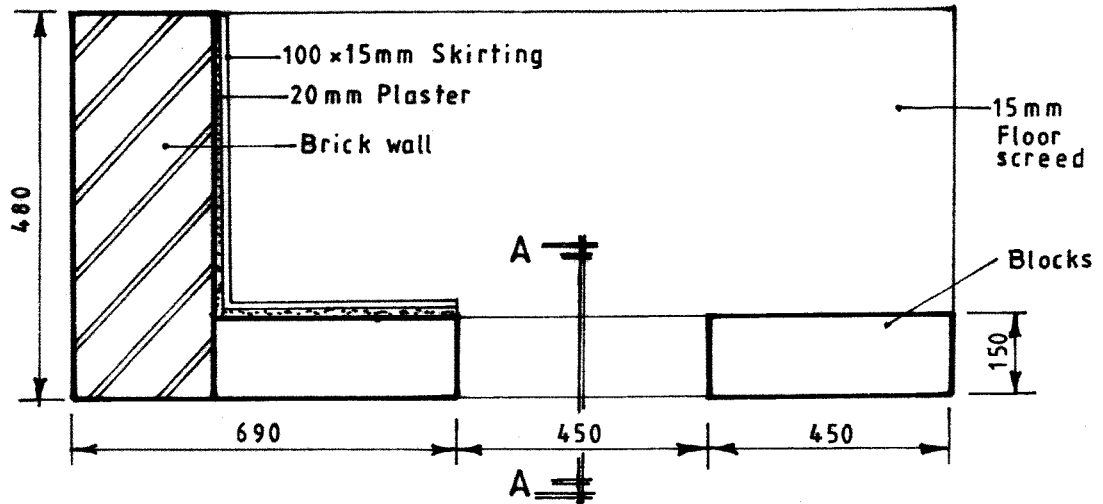
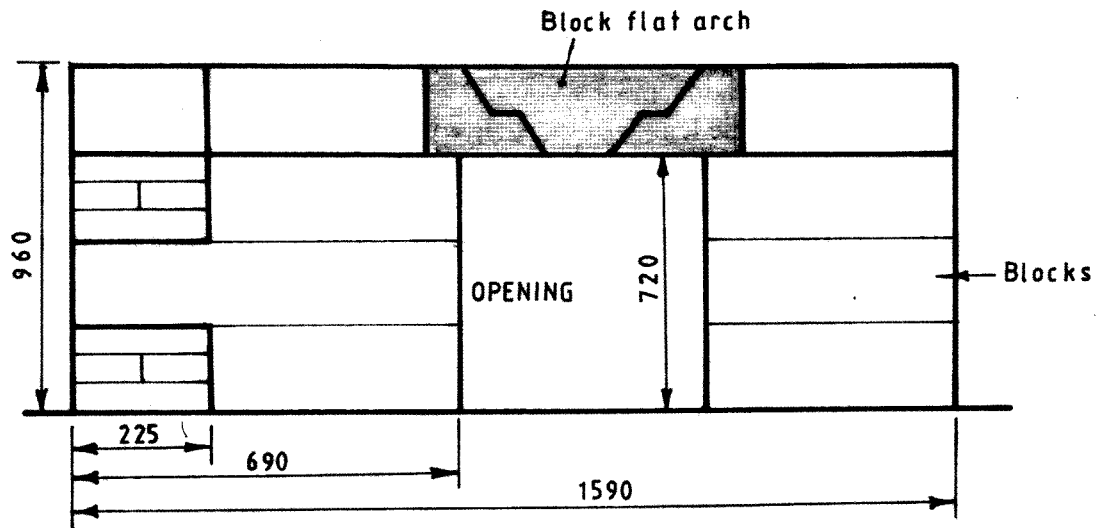
TEST A: BLOCKWORK AND BRICKWORK (54 marks) (13 Hours)

Test A shows a plan, incomplete elevation and a section of a return angle wall with an opening, plasterwork screed and a skirting. One length of the wall is built in blockwork showing some courses of brickwork while the other length of wall is built in brickwork showing at quoins. Part of the inner surface of the wall, at the return angle is plastered. The floor is wood float screeded and a 100 mm skirting applied. Blockwork joints are finished flush while the archwork joints and all brickwork joints are tooled.

MATERIAL SPECIFICATION PER CANDIDATE

No.	ITEM DESCRIPTION	MATERIAL	QUANTITY	SIZE (mm)	REMARKS
1	Blockwork	Concrete blocks	16	450 x 225 x 150	Bedded in Sand/ Lime mortar
2	Brickwork	Clay/ concrete bricks	52	225 x 115 x 75	Bedded in 10 mm Sand/ Lime plaster
3	Mortar	Lime/ sand	Sufficient	-	For bedding blocks/ bricks and plaster
4	Archwork	Timber	1 piece	1000 x 250 x20	Arch support
5	Archwork	Timber	1 piece	1000 x 38 x20	To be used as gauge and straight edge

BLOCKWORK AND BRICKWORK



SECTION A-A

TEST B: FORMWORK (46 marks)
(12 Hours)

Test B shows a pictorial view and elevations part of a formwork for an in-situ concrete floorslab and edge beam. Prepare the timber pieces and construct the model.

MATERIALS SPECIFICATIONS PER CANDIDATE

(a) **CUTTING LIST**

ITEM No.	DESCRIPTION	SIZE	No. OFF	REMARKS
1	Cross head	650 x 45 x 45	2	
2	Joist	230 x 45 x 20	2	
3	Runner	600 x 45 x 20	1	
4	Strut	1200 x 45 x 20	1	Cut into 4 pieces
5	Stiffener	600 x 45 x 20	1	Cut into 2 pieces
6	Cleat	600 x 45 x 20	1	Cut into 8 pieces
7	Bottom and Sides	600 x 150 x 20	4	
8	Plywood	350 x 150 x 3	1	

- (b) **NAILS-** 38 mm wire nails - Sufficient
- 25 mm wire nails - Sufficient

