

DEVELOPMENT OF SUKHAD CHULHA WITH REDUCED SIZE OF SECOND POT AND MODIFIED DESIGN

Taking into account the suggestions made by the beneficiaries of the NPIC Programme that the second pot size of Sukhad model may be slightly reduced, developmental work in modifying the design of Sukhad model was taken up. Three different models of chulhas, as illustrated in Figs. 2 to 4 were constructed to carry out the testing as per MNES norms. Model - 1, shown in Fig. 2, is the original Sukhad model whereas Model 2, shown in Fig. 3, is with the second pot size reduced to 16 cm diameter. The centre to centre distance between the two pots was reduced by 2 cm and the first tunnel length was reduced slightly as shown in the figure. The clearance all around the second pot was reduced while accommodating the outlet of first tunnel and inlet of the second tunnel, along with the baffling bridge in between, inside the second pot. The test results, as shown in Table-3, indicate that there is a marginal reduction in the efficiency in the case of Model - 2 compared to that of Model - 1.

As a longer first tunnel arranged a little more steeply permits easy maintenance of the baffling bridge geometry inside the second pot of a smaller diameter, Model - 3 (shown in Fig. 4) was developed keeping the first tunnel at an angle of 38 degrees (original angle 30 degrees) to the horizontal. This arrangement of the tunnel also necessitated an increase in the height of the second pot.

Table : 3

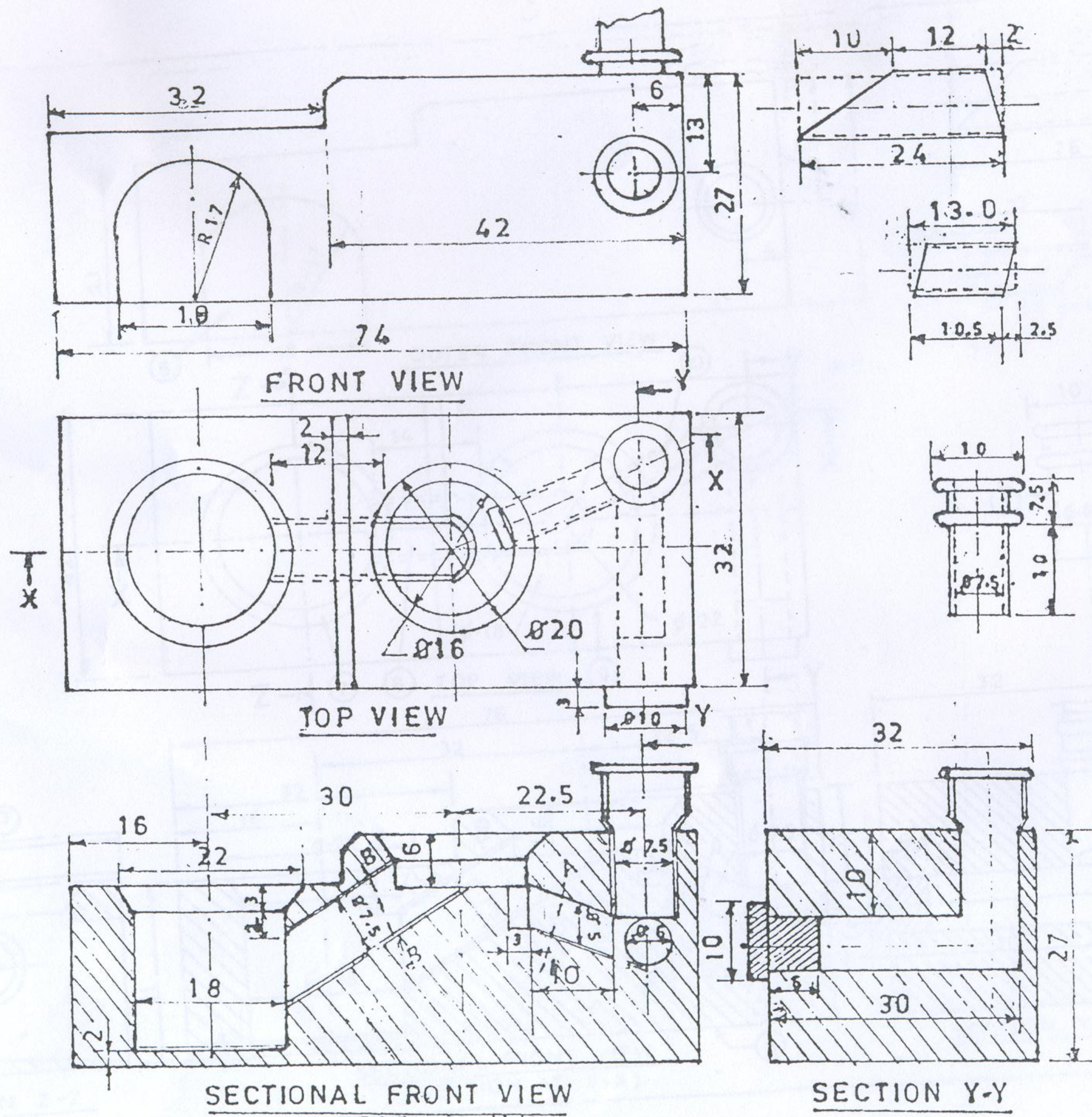
PERFORMANCE TESTS ON SUKHAD CHULHA

Trial No.	Model No.	Name/Description	I dia. cm	II dia. cm	Time taken (min) to attain 93° c in		Efficiency (%)	Power rating KW
					I Pot	II Pot		
1.	1	Sukhad (original)	18	18	45	105	20.09	0.9391
2.	2	Sukhad with reduced II pot	18	16	40	80	18.55	0.8671
3.	2	-do-	18	16	40	75	18.4	0.8946
4.	3	Modified Sukhad	18	16	45	85	18.4	0.8601
5.	3	-do-	18	16	45	85	18.36	0.8582

The tests on model - 3 have also shown a marginal reduction in the efficiency as can be seen from Table - 3. It is therefore concluded that Model - 2 or Model - 3 which have a second pot size of 16 cm with slight modification in the other dimensions can be adopted in the field without a significant sacrifice in the efficiency of the chulha.

MATERIAL REQUIRED FOR CONSTRUCTION OF MODIFIED SUKHAD (REDUCED SECOND POT) - TWO POT HOLE POTTERY LINING CHULHA AND THEIR COST (Table - 4)

Sl.No.	Description of the Item	Quantity	Cost (Rs.)
1	Chimney - 3" A.C. Pipe, 10' length	1 No.	58-00
2	Pottery liner for I pot hole	1 No.	13-00
3	Pottery ring for II pot hole	1 No.	5-00
4	3" A.C. Tunnel (26 cm length)	1 No.	5-00
5	2" A.C. Tunnel (13 cm length)	1 No.	3-00
6	3" A.C. Coupl	1 No.	25-00
7	Transport, handling, breakages and documentation etc.,	-	9-00
Total Cost			118-00



SECTION BB

SECTION AA

Fig. 1 SUKHAD, MODEL WITH REDUCED SECOND POT SIZE
 ALL DIMENSIONS IN CM
 SCALE: 1:7

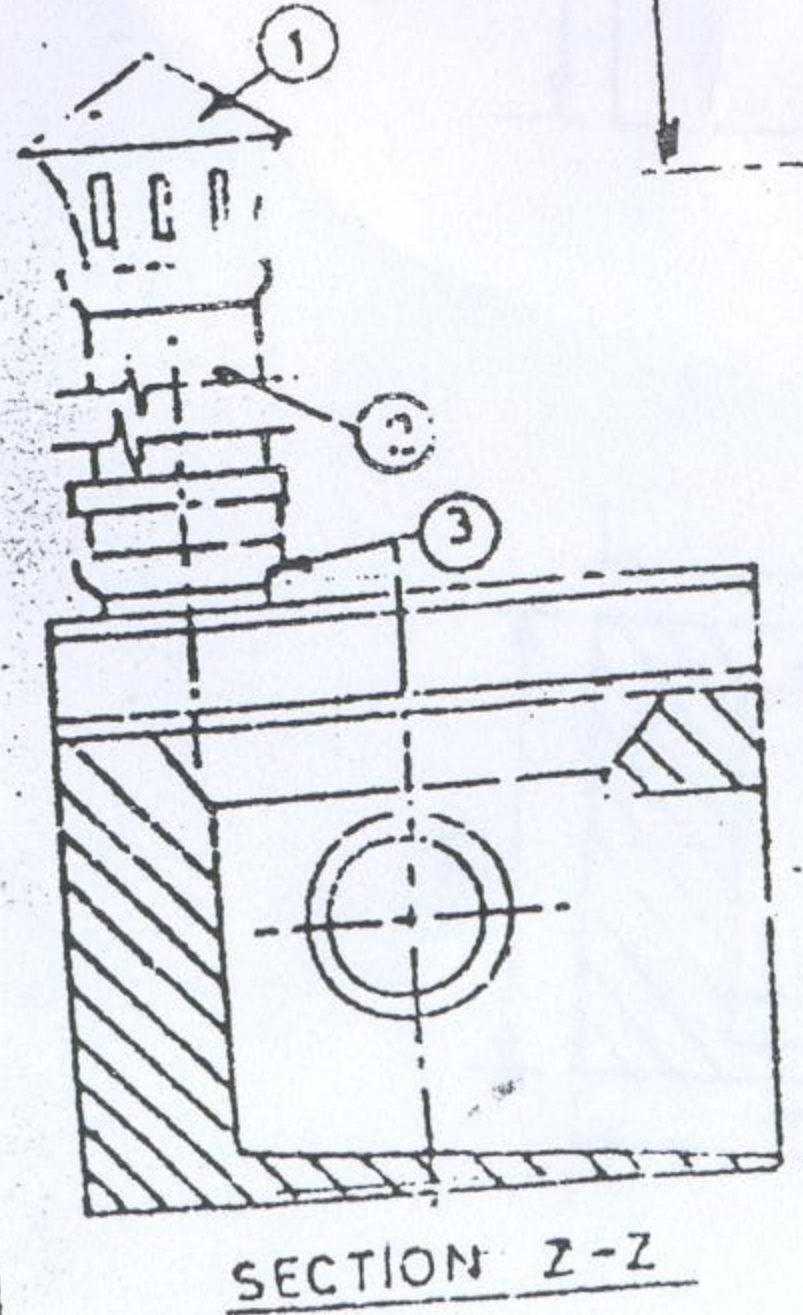
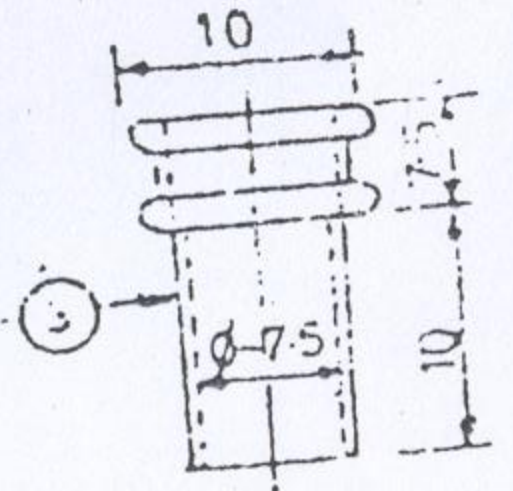
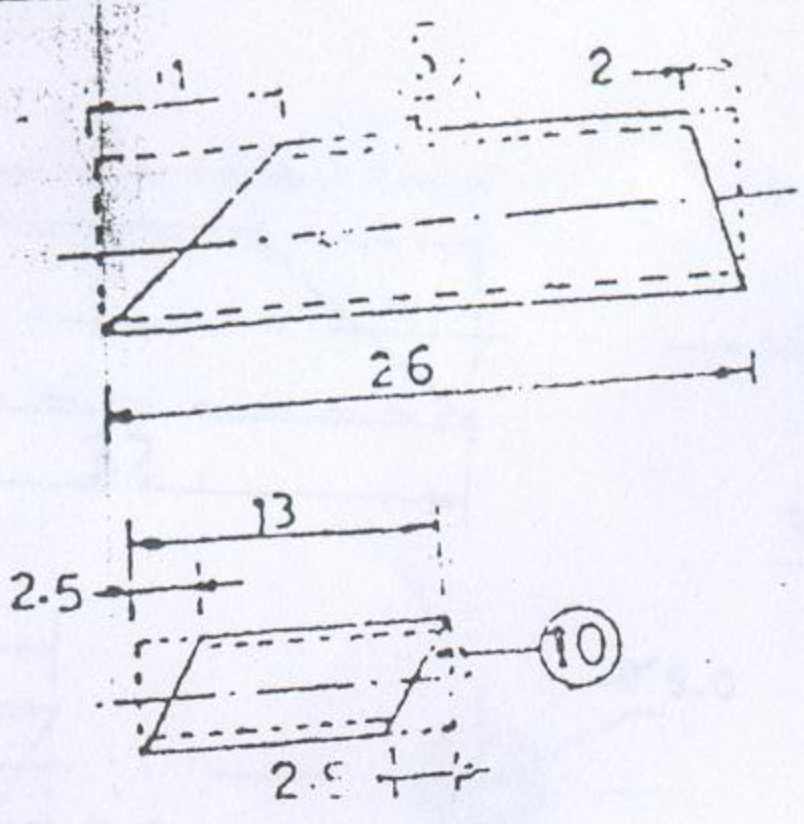
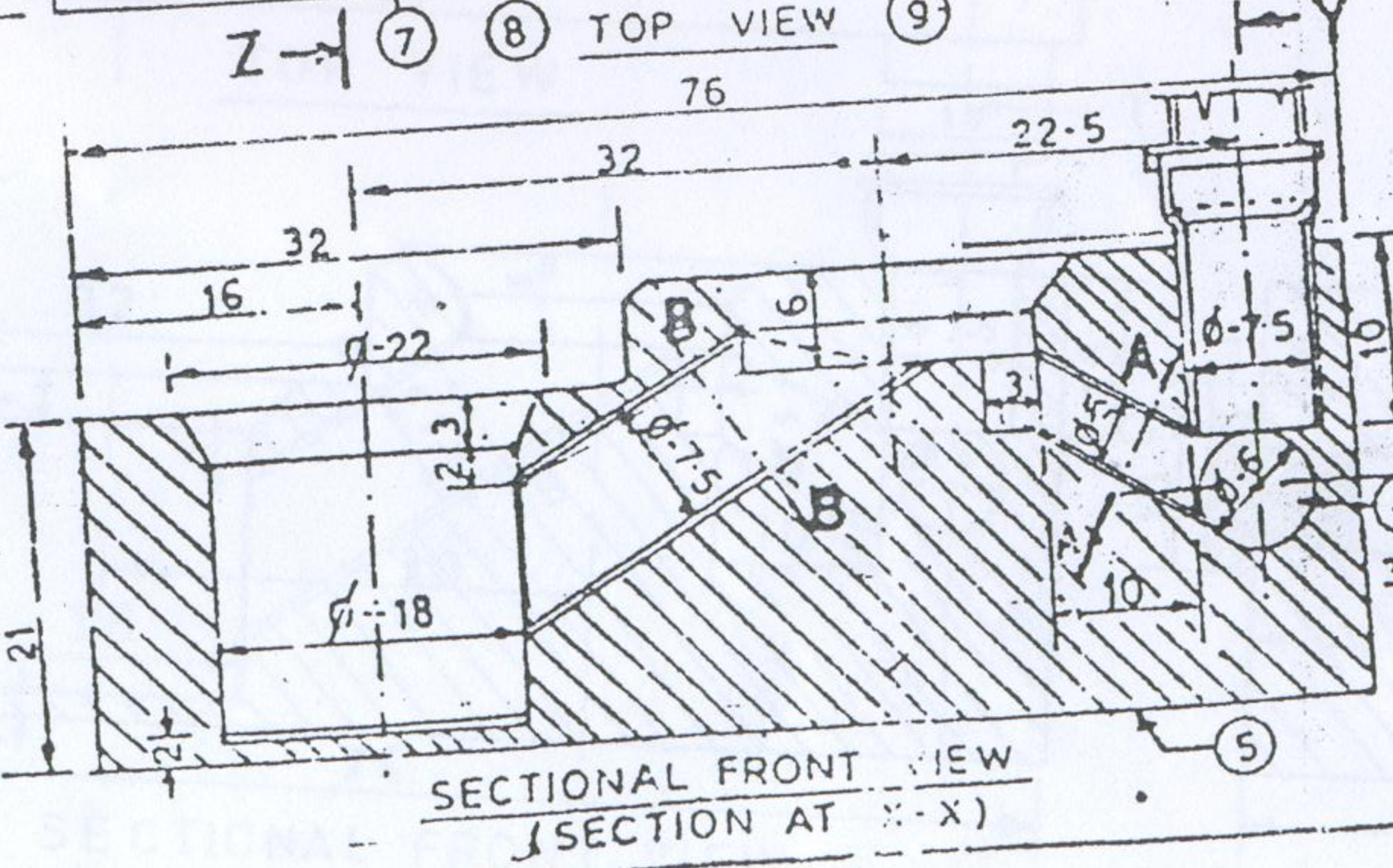
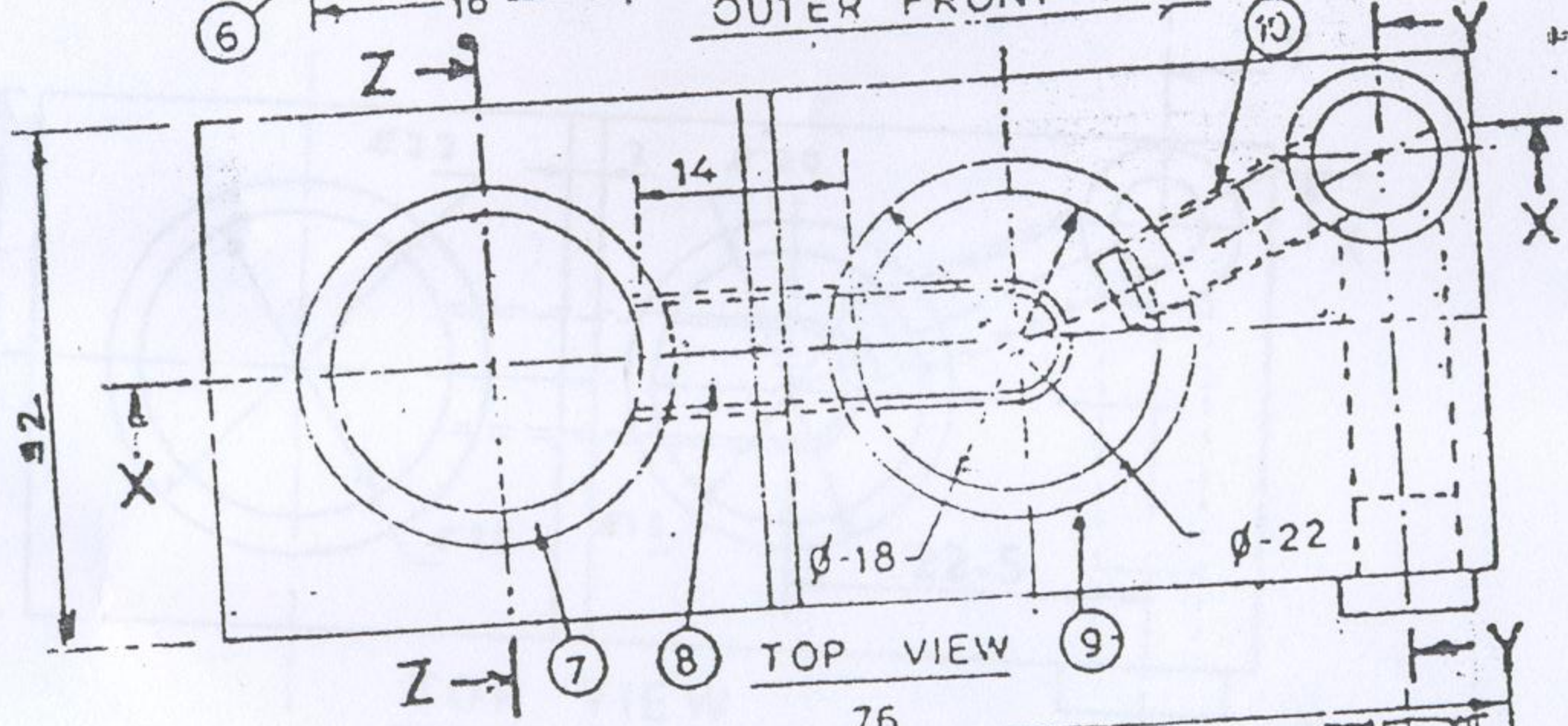
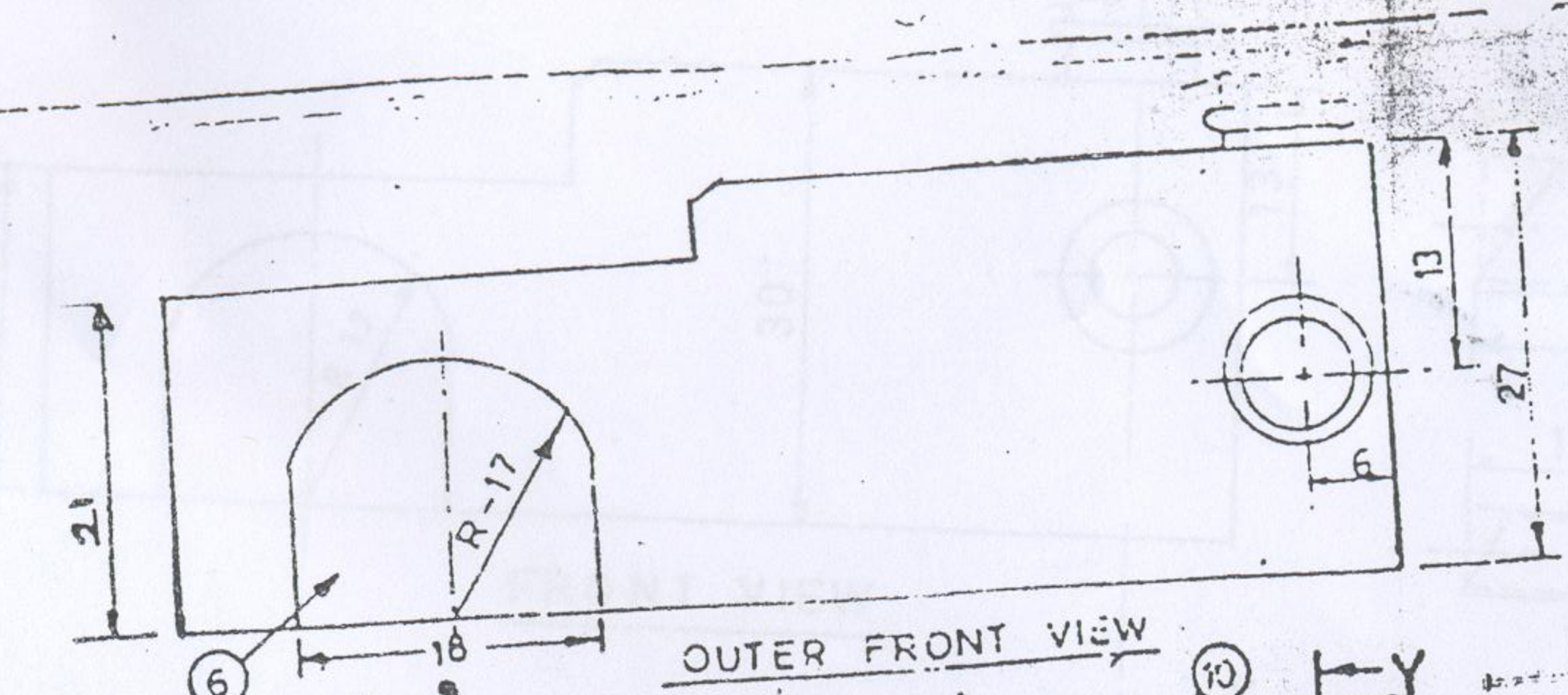


Fig. 2. SUKHAD. MODEL (ORIGINAL)

ALL DIMENSIONS IN CM SCALE 1:7

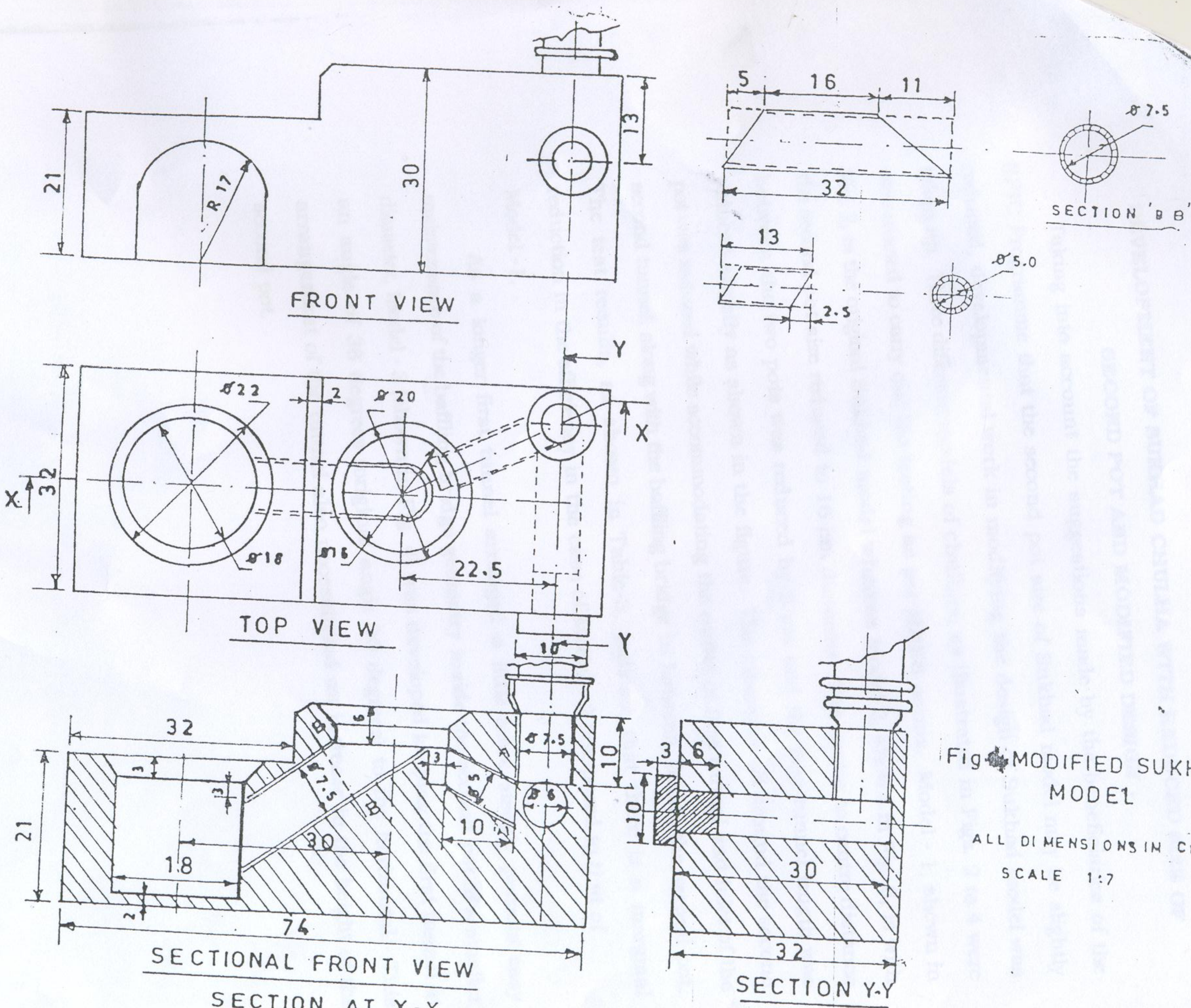


Fig. MODIFIED SUKHAD MODEL

ALL DIMENSIONS IN CM
SCALE 1:7