

ECE: 2207 - ENGINEERING DRAWING III : Special/supplementary

INSTRUCTIONS TO CANDIDATES

- i. Answer question one and any other two questions
- ii. All units are in millimetres unless stated otherwise

QUESTION ONE (30 Marks)

- (a) Draw the typical bracing details shown in Figure Q1(a) to a suitable scale, making any necessary assumptions of the section sizes. (12 Marks)

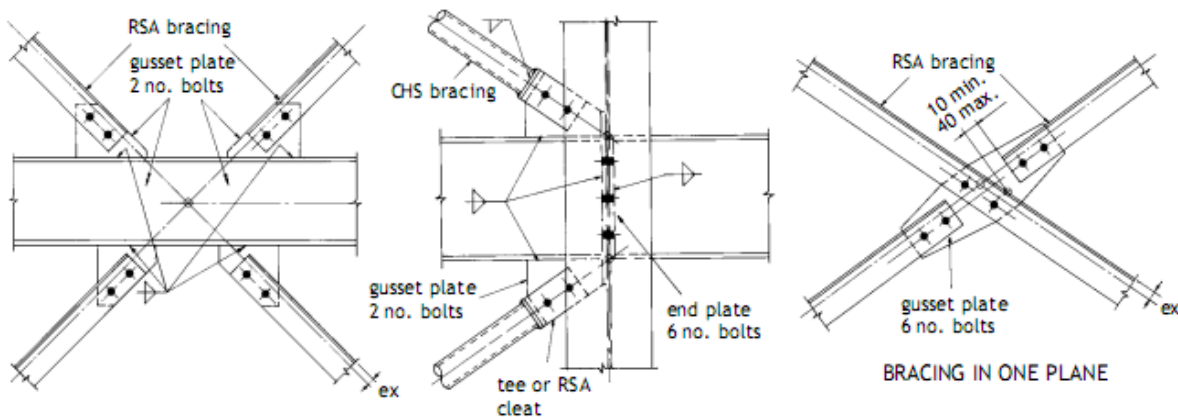


Figure Q1(a)

- (b) Clearly draw a cross-section of a minor standard single carriage way indicating all the details if the road is to be constructed under labour based technology . (10 Marks)
- (c) Clearly draw the truss section shown in Figure Q1(c) whose members are made of equal angle sections. The sections are to be welded together at the connections. (8 Marks)

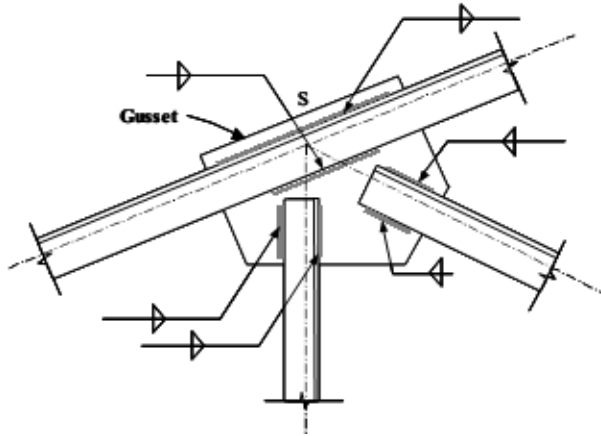


Figure Q1(c)

QUESTION TWO (20 Marks)

- (a) At a scale of 1:50 draw a welded connection joint joining hot rolled steel sections and a bolted joint for a hollow section. Make any necessary assumptions. **(10 Marks)**
- (b) A bridge deck is to be constructed using a hot rolled universal beam section. The designer has proposed use of 203 x 203 x 52 UB on all the beams. The beams are spanning 4000 mm to be supported on universal columns. Making any reasonable assumptions detail the universal beam indicating all the relevant information. **(10 Marks)**

QUESTION THREE (20 Marks)

A drinking water pipeline is to be laid from the intake point to the purification tanks 66 km away. Table 1 shows the results of a topographical survey carried out on the proposed line. Plot the sectional longitudinal profile of the proposed line taking the horizontal and vertical scales as 1:10 and 1:0.5 respectively.

Table 1: Topographical survey data for a drinking water pipeline

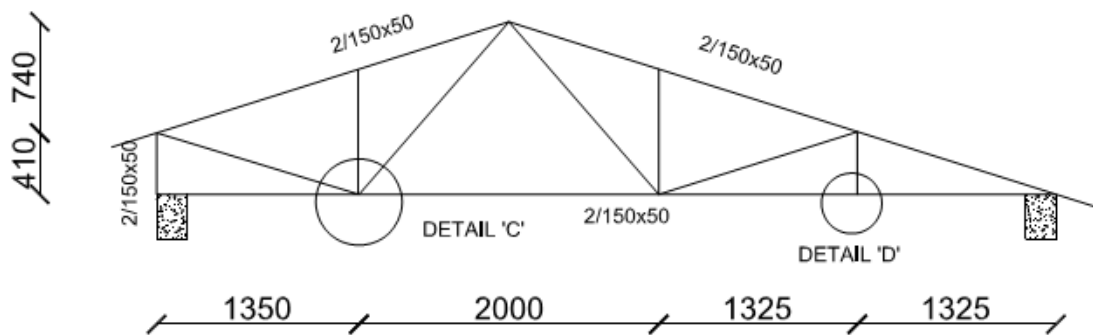
Chainage (cm)	Hydraulic level (M)	Reduced level (M)	Survey remarks	Pipe details
0 + 0000	4000	4000	Intake point	150 mm
0 + 1000	3999	3960		
0 + 2000	3999	3975		
0 + 2500	3999	3960	Joining to a road	
0 + 3200	3998.72	3925		
0 + 3500	3998.6	3930		
0 + 3600	3998.56	3930	Stream crossing	



0 + 3800	3998.48	3930	Stream crossing	100 mm
0 + 3900	3998.44		Stream crossing	
0 + 4100	3998.36	3920		
0 + 4300	3998.28	3910		
0 + 4400	3998.24	3907.5	Road junction	
0 + 4800	3998.08	3900	Road junction	
0 + 6100	3997.56	3900		
0 + 6600	3997.36	3890		

QUESTION FOUR (20 Marks)

The truss shown in Figure Q4 is made of timber. Using a suitable scale draw the truss and the details C and D as shown in the figure.



TRUSS T2 (2 NOs)

(ALL INTERNAL MEMBERS ARE 100x50 TIMBER), SCALE 1:50

Figure Q4

QUESTION FIVE (20 Marks)

Using a scale of 1:1, clearly draw the invert block drain shown in Figure Q5.