

Khulna University of Engineering and Technology

Department of Architecture

BArch. 2<sup>nd</sup> Year 1<sup>st</sup> Semester Regular Examination, 2019

Course no: Arch 2131 Course title: Buddhist and Hindu Architecture of Indian  
Sub-Continent

Full Marks: 210

Time: 03 Hours

N.B i) Answer any three questions from each section in separate script.

ii) Figures in the right margin indicate full marks.



**Section-A**

**Question-01**

- (a) Where did the earliest known civilization of India originate from? Identify the reasons for choosing to settle down there. 15
- (b) Justify the extreme effectiveness of town planning in case of ancient civilizations of India with an example. 05
- (c) How would you characterize the streets of the cities of Harappa and Mohenjodaro? Illustrate the grid of main and subsidiary streets of Mohenjodaro in a layout plan. (05+10)

**Question-02**

- (a) What were the basic building materials of Indus Valley Civilization? 05
- (b) What type of walls surrounded the cities of Harappa and Mohenjodaro? What purpose did these walls serve? 06
- (c) Illustrate an isometric projection of a conjecturally restored typical house of Mohenjodaro. Point out the basic characteristics of a typical house of Mohenjodaro from that projection. 24

**Question-03**

- (a) Illustrate how the cave architecture of Asokan period resemble thatch and timber huts of the Aryan village. Discuss an example of cave architecture of Asokan period with neat sketches. (10+10)
- (b) According to ancient monumental principle, what were the soundest ways of assuring a long life of a structure? Explain the reasons behind choosing circle in plan of Asokan architecture? (06+09)

**Question-04**

- (a) Illustrate an ideal Buddhist stupa with neat sketch and point out the different elements and features of the stupa in the sketch. 15
- (b) How would you characterize the "stambha" of the Asokan period? Draw a neat sketch of the Buddhist stambha. 20

**Section-B**

**Question-05**

- (a) How worship process of Hindu's helped to develop the temple form in this subcontinent? Use a plan view of a temple for the discussion. 25
- (b) What does every symbolic offering to the deities represents? 10

Question-06

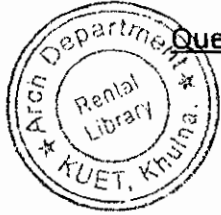
- (a) Compare modern temples and Dravidian temples to find out the similarities and dissimilarities of architectural characteristics. Use necessary sketches. 20
- (b) Explain the principle architectural features of a temple? Use proper sketches to describe the elements. 15

Question-07

- (a) Are the geometry of Vastu Purusha Mandala and the placement of different deities can help to design a climatically comfortable house? Use proper logic to explain your standpoint with necessary diagrams/drawings. 25
- (b) Draw the Dravidian orders and describe them. 10

Question-08

- (a) "The extreme limit of florid magnificence" was developed under the Vijaynagar Dynasty. -Compare this Dynasty's architectural features with other Dravidian Dynastys' to establish your point of view about the statement. 20
- (b) Describe the architectural characteristics of Sun Temple? Use proper sketches if necessary. 15



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B.Arch 2<sup>nd</sup> Year 1<sup>st</sup> Term Regular Examination, 2019

Arch-2161- Construction Details



Full Marks : 210

Time : 3 Hours

- N.B i) Answer any three questions from each section in separate script.  
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Section A

- 1.a. Describe (with sketches) a type of shallow foundation system that would support heavy structural load in soft clay or marshy site. 25  
b. Briefly discuss the type of materials for DPC and the rules of choosing the best option. 10  
2. a Make a comparative discussion between Precast Concrete Piles and Cast-in-situ Concrete Piles. 20  
b. State the basic purposes of foundation. In soft soil and under heavy condition, if you have to place walls or columns close to the property line, what type of foundation will you choose. Why? 15  
3.a Briefly discuss Timber Pile (with sketches). Discuss the advantages and disadvantages of concrete pile compared to Timber pile. 25  
b. State the advantages and disadvantages of concrete pile compared to Timber pile. 10  
4.a Write Short Notes on Steel Grillage. 15  
b. Write Short Notes on (Any two) 20  
i. RCC Column Footing  
ii. Wall Footing  
iii. Pier Foundation

Section B

5. a What is Floor? Describe its components. 3+6  
b. Between mud flooring and cement flooring, which one would you suggest as an efficient flooring material for a primary school and why? 16  
c. What are the differences between Partition Wall and Curtain Wall 10  
6.a What is expansion joint? Why is it necessary in large buildings? 05  
b What are the considerations of expansion joint? 08  
c Identify different parts of a stair with neat sketches 12  
d What are the rules of thumb for calculating standard stair dimension? 10  
7. a Explain advantage and disadvantage of flat roof 15  
b. Explain Clearstory Roof and Hip Roof with necessary sketches 10

- c. Write short notes on:
- i. Quarter turn stair
  - ii. Circular Stair

10

8. Write short notes with sketches (Any Five)



- a. Bay window.
- b. Pivoted window
- c. Dormer window
- d. Lantern window
- e. Battened, ledged and braced door
- f. Flush door
- g. Splayed step

7x5

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Hum-2125- Principles of Economics



Full Marks : 210

Time : 3 Hours

- N.B i) Answer any three questions from each section in separate script.  
ii) Figures in the right margin indicate full marks.

**Section-A**

- 1.a. Distinguish between extension-contraction in demand and increase-decrease of demand with diagram. 20  
b. What is demand law? Draw a demand curve from a hypothetical demand function. 15  
2. a What are the properties of a perfect competition market? Explain short run equilibrium of a firm under perfect competition. 20  
b. What are the differences between competitive market and monopoly market ? 15  
3.a What is production? Is there any relationship between total product and marginal product?-Describe 20  
b. Draw the curve of TFC,AC,MC,AVC from the following table: 15

Q	1	2	3	4	5	6
TVC	60	80	90	105	140	210
TFC	60	60	60	60	60	60

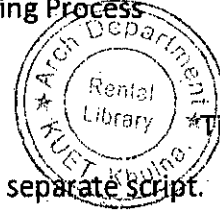
- 4.a Find the equilibrium price and quantity with a demand function given by  $\theta_d = 24 - 2P$  and A supply function given by  $\theta_s = 40P$  15  
b. What is utility? Explain the relationship between total utility and marginal utility. 20

**Section-B**

5. a What is GDP? List and describe the four components of GDP. Give an example of each. 15  
b. Explain why an economy income must equal to its expenditure. 20  
6.a Distinguish between autonomous and induced investment. 08  
b Explain how higher savings leads to a higher standard of living. What might deter a policymaker from trying to raise the rate of saving? 20  
c Show the relationship between income and investment. 07  
7. a What is the role of Financial system ? Name and describe two markets that are the part of the Financial system in the Bangladesh economy. 15  
b. What is national saving? Describe a tax code that might increase private saving. If this policy were implemented, how would it affect the market for loanable funds. 20  
8. a Explain the idea of Inflation. 05  
b. 'Inflation and unemployment cannot co-exist in an economy'-Explain 10  
c. How Fiscal Policy and Monetary Policy help to reduce the rate of inflation? Is there any positive effects of Inflation? 20

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URP-2125- Fundamental of Planning Process



Full Marks : 210

Time : 3 Hours

- N.B i) Answer any three questions from each section in separate script.  
ii) Figures in the right margin indicate full marks.

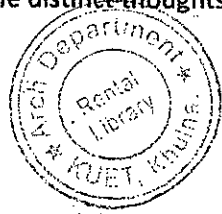
Section A

- |      |   |    |
|------|---|----|
| 1.a. | Discuss the three dimensions of planning with necessary example.  | 07 |
| b.   | Illustrate the cyclic process of Planning   | 08 |
| c.   | Describe the following terms (any four)<br>i.City ii. Mega City iii.Primate City iv.Suburb v. Cosmopolitan City   | 20 |
| 2. a | Show the settlement hierarchy with diagram.   | 05 |
| b.   | Define and classify region with necessary examples. As per the Pourashova Ordinance-2009<br>What are the conditions for declaring urban area in Bangladesh? | 15 |
| c.   | Define the following terms (Ant three)<br>i.Project ii. Programme iii. Policy iv.Strategy   | 15 |
| 3.a  | Describe the following terms (Any three)<br>i. Master Plan ii. Detailed Area Plan iii.Action Plan iv.Grid Iron /Chess Board Plan<br>v.Structure Plan        | 15 |
| b.   | Describe about the strategic plan with necessary example.   | 10 |
| c.   | Describe the Project Planning for Urban Development Plan with the flow Diagram.   | 10 |
| 4.a  | What the term SMART indicates in Planning ? How a general goal become SMART goal?<br>Describe with necessary examples.                                      | 15 |
| b.   | Show the classification of projects with their approving authorities in Bangladesh  | 05 |
| c.   | Show the institutional linkage of Planning Commission in Bangladesh.  | 05 |
| d.   | Illustrate the diagram of simplified steps in investment project processing/approval process  | 10 |

Section B

- |      |  |    |
|------|--|----|
| 5. a | Explain the concept of Planning. Why Planning is more needed in a developing country like Bangladesh. Explain. | 10 |
| b.   | Define Paradigm Shift in Planning Theory. Explain with appropriate example.                                    | 12 |
| c.   | Being an architect why should you learn the Fundamental of Planning Process.                                   | 13 |
| 6.a  | 'Transactive Planning is a tool for developing inter-personal relationship'-explain this statement.            | 10 |

- b. What is your understanding about Advocacy Planning? How a Planner can play the role of an advocate in this planning? Provide an example. 15
- c. 'Radical Planning Theory is based on some distinct thoughts or ideas- explain 10
7. a. What is SITAR model? Explain. 08
- b. What is your understanding about the sustainability triangle of the three conflicting Planning goals? (Hint: Can be defined as Three E) 15
- c. Explain the concept of Mined Scanning Approach of planning with appropriate example. 12
8. a. Write short note on the following 5x7
- i. Top-down and Bottom -up approach
  - ii. Criticism of Comprehensive Planning
  - iii. Factory Town
  - iv. Negotiation
  - v. Rational Vs Incremental Planning.



**Khulna University of Engineering and Technology**  
Department of Architecture  
B.Arch 2<sup>nd</sup> Year 1<sup>st</sup> Term Regular Examination, 2019  
Course No: CE-2125 Course Title: Structure I : Mechanics

Full Marks 210

Time 3 hrs

N.B Answer any **Three** questions from each section in separate script  
Figure in the right margin indicate full marks.



**Section A**

1. (a) Define Force. Describe different types of force system. 10  
(b) For the following figure, draw the free body diagram of the members. [Figure 1(b)] 10  
(c) Two weights are suspended from a cable as shown in [figure 1(c)] below. For  $\Theta=120^\circ$ , determine the internal forces in the various parts of the cable and the weight  $W$ . [figure 1(c)] 15
2. (a) Define the following terms: i) Transmissibility of force, 10  
ii) Free body diagram,  
iii) Two force member.  
(b) Determine the resultant of the following force system. 10  
[Figure 2(b)]  
(c) The derrick shown diagrammatically in figure supports a load of  $w=2000\text{lb}$ . Find the tension in the boom cable and the compression in the boom, When  $\Theta$  is (a)  $30^\circ$  and (b)  $150^\circ$ . 15  
[Figure 2(c)]
3. (a) Define the following terms : i) Moment of a force; 09  
ii) Shear force;  
iii) Bending moment  
(b) Write down the different types of supports and loading systems 09  
(c) An overhanging beam is loaded as shown in the figure below. 17  
Determine the reactions; shear force and bending moment at section (i)-(i) and (ii)-(ii) as shown in the figure below. Also check the answer by using the alternate part of the section.  
[Figure 3(c)]
4. (a) Draw comparative stress-strain diagram for different materials. 06  
(b) Write down the design assumptions and steps for truss analysis. 08  
(c) For the truss in the figure below, find the external reactions and then find the loads on the members. Also find out the zero-force member. [Figure 4(c)] 21



## Section B



- (a) Differentiate between the terms 'centroid' and 'centre of gravity'. State and prove 'Pappus and Guldinus' theorems. 17
- (b) Find the centroid of a right circular cone, whose altitude is  $h$  and whose base has a radius  $r$ . 18
6. (a) Locate the centroid of the area included between the parabola  $y^2=8x$ , the Y-axis and the line  $y=8$  in. 17
- (b) Compute the centroid of the area shown in figure below. 18  
[Figure 6(b)]
7. (a) State the parallel axes theorem for moment of inertia and prove that  $j = \bar{j} + Ad^2$ , where the symbols have their usual meaning. 15
- (b) For the shaded area shown in figure below compute  $I_x$  and the moment of inertia about a centroidal axis parallel to  $x$  axis 20  
[Figure 7(b)]
8. (a) Derive an expression for the moment of inertia of a homogenous right circular cylinder about the geometric axis. 15
- (b) The wood handle, of the mallet of following figure, is  $L=3$  ft long, weighs **3.50 lb.** and has a uniform cross section. 20  
The head, weighing **17.95 lb.**, is a cylinder of diameter **6 in.**  
Find the radius of gyration of the body with respect to the  $Y$  axis. The mallet head with the handle inclusion is homogenous.  
[Figure 8(b)]

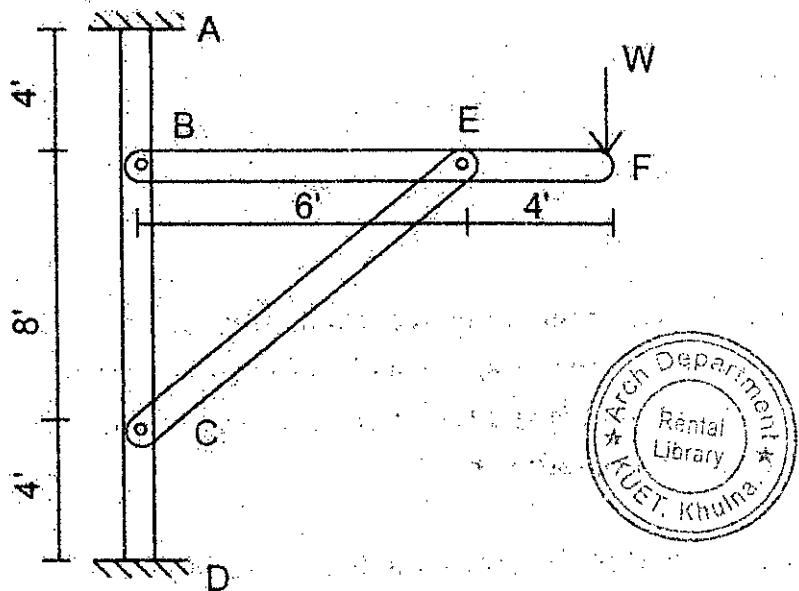


Fig : 1(b)

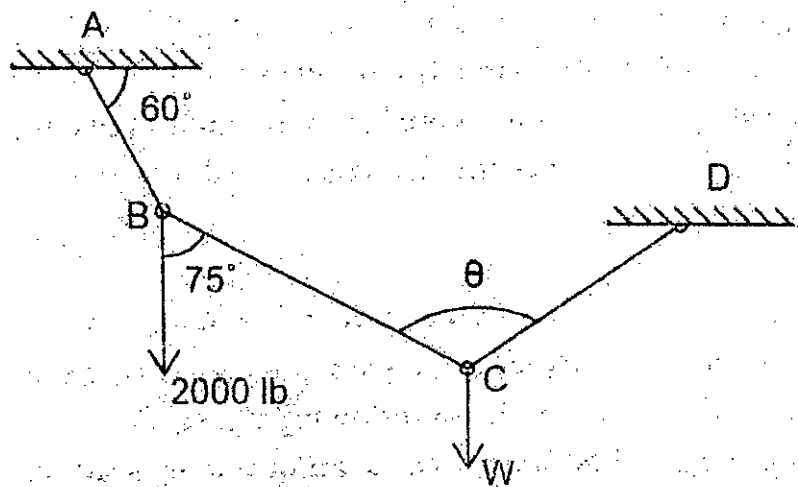


Fig : 1(c)

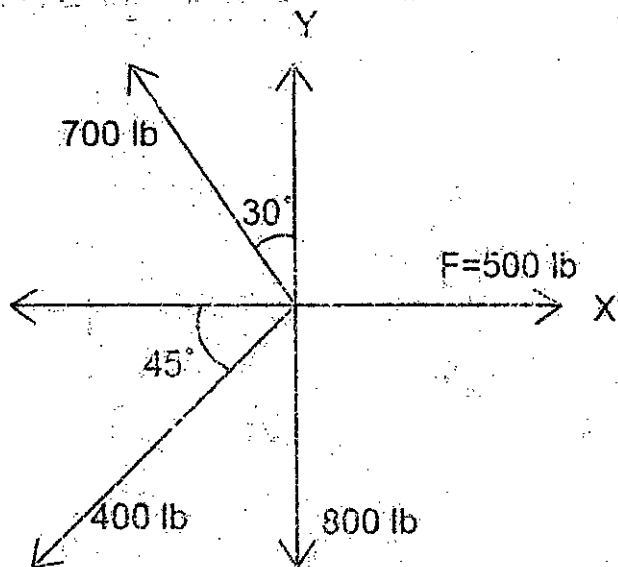


Fig : 2(b)

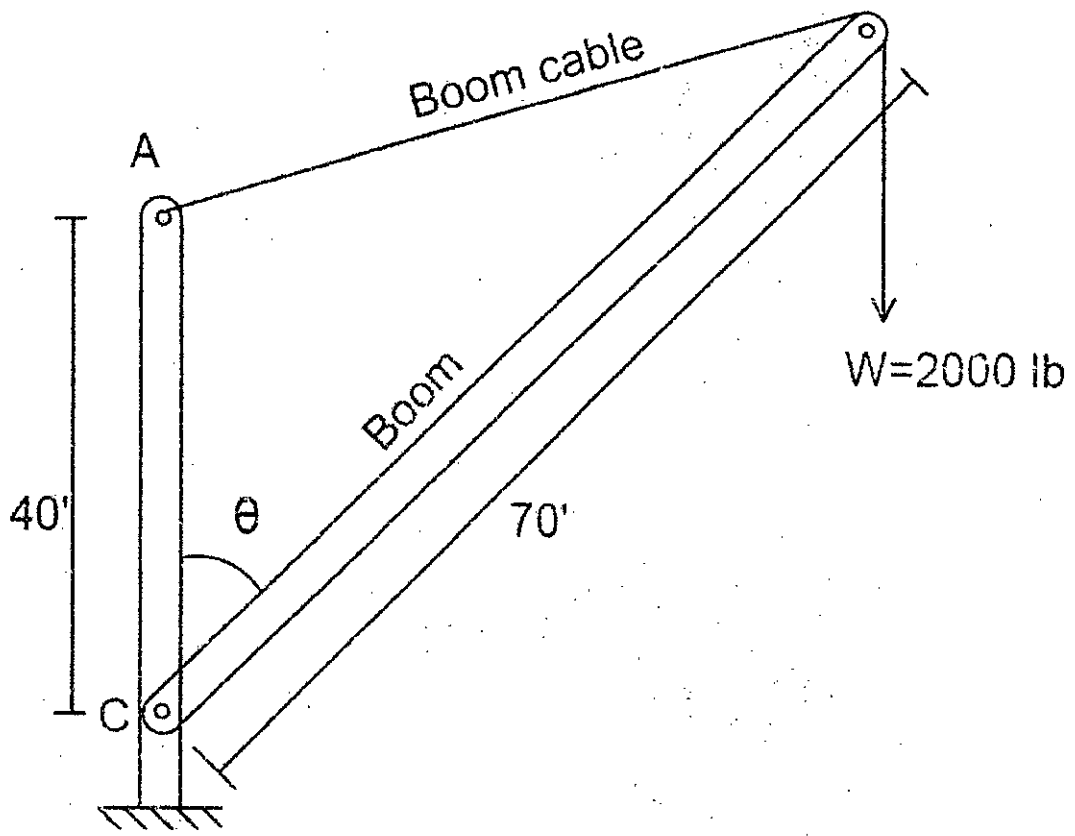


Fig : 2(c)

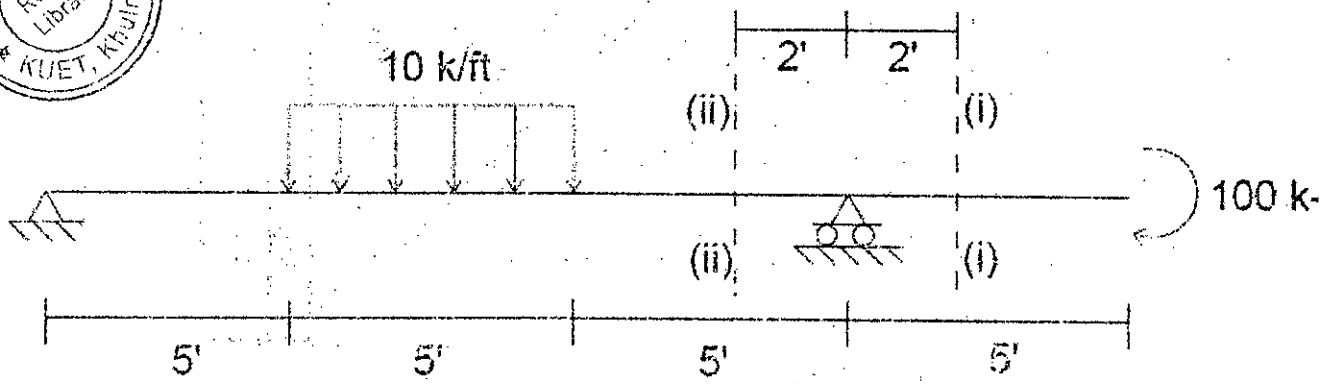


Fig : 3(c)

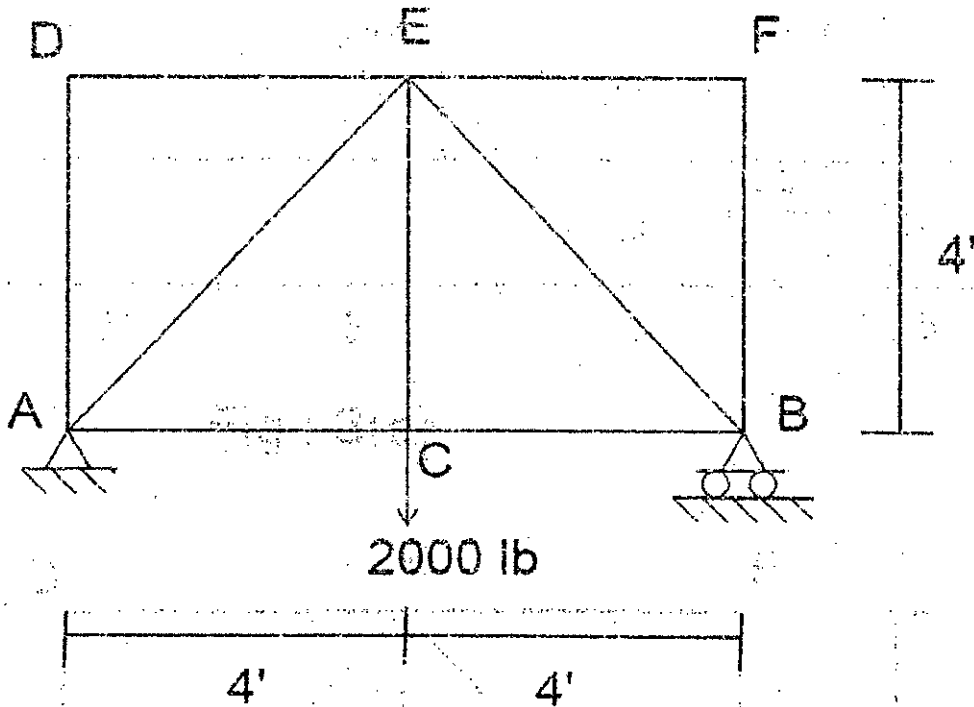


Fig : 4(c)

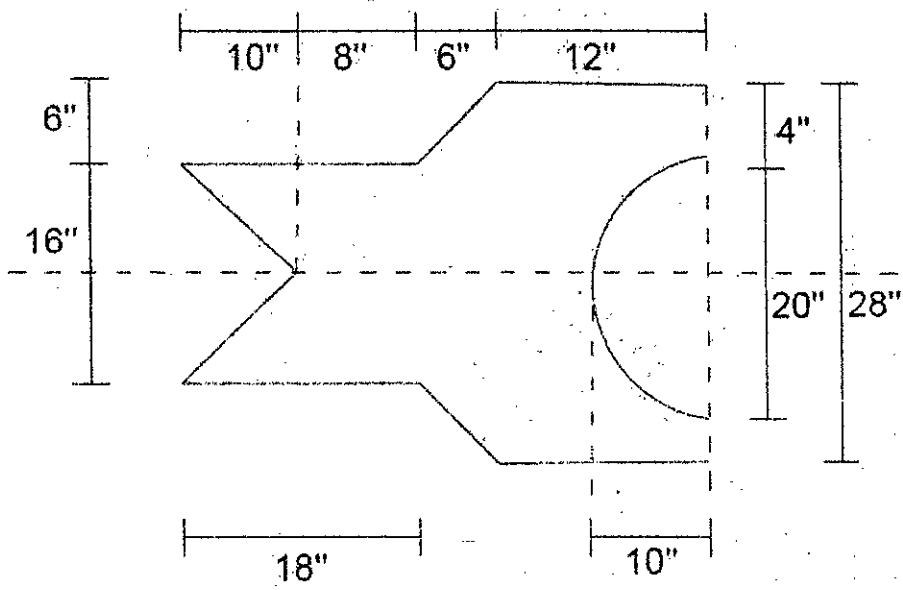


Fig : 6(b)

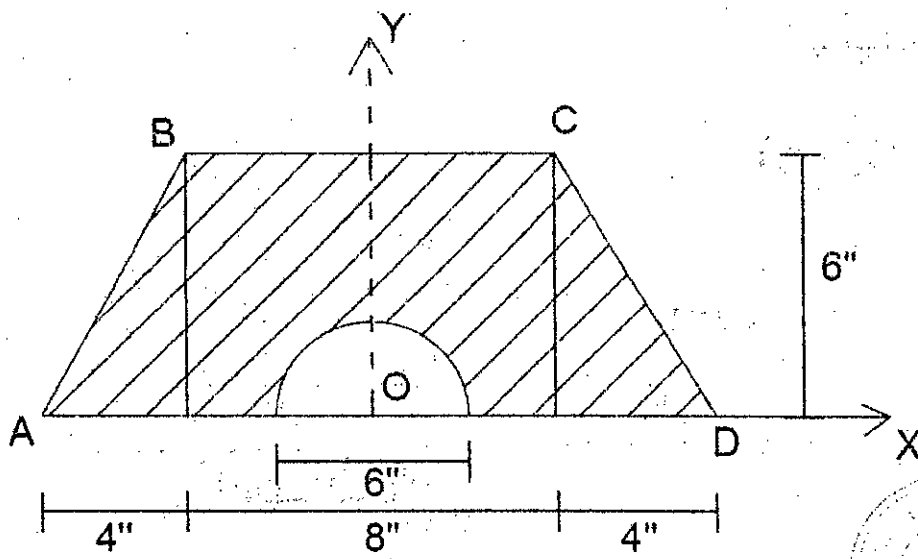


Fig : 7(b)

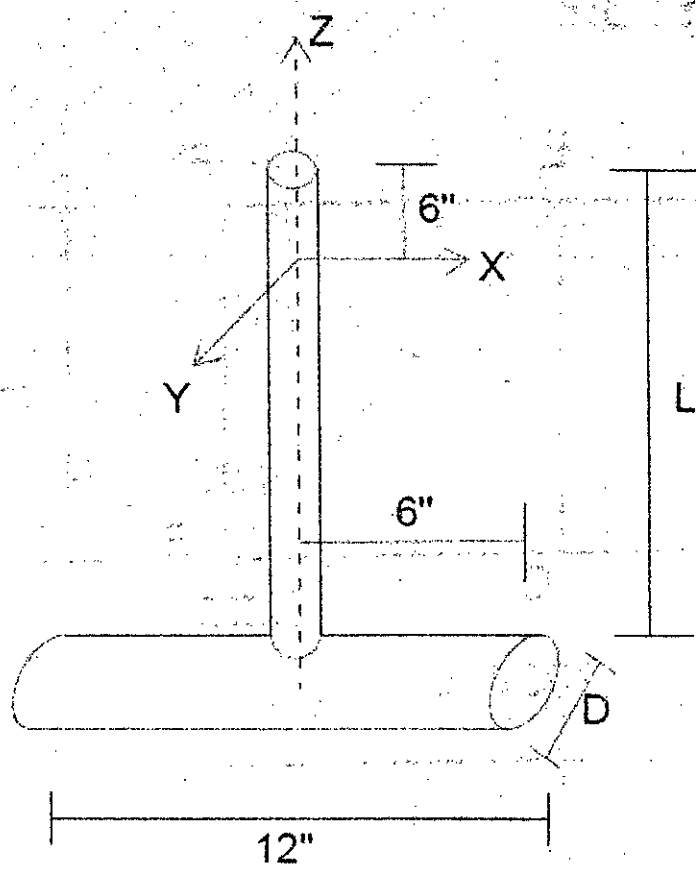


Fig : 8(b)