

8. Explain and derive the parallel axis theorem  
for the product of Inertia. **10**

No. of Printed Pages : 04

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**18A5007**

**B. Arch. EXAMINATION, Dec. 2018**

(First Semester)

(Main Only)

(ARCH.)

AR117C

Theory of Structures

*Time : 3 Hours]*

*[Maximum Marks : 50*

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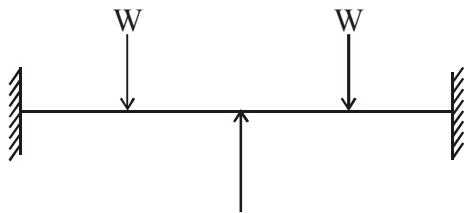
Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Assume if any missing data.

### Unit I

1. (a) State the static equilibrium and conditions of equilibrium also. **5**  
(b) Determine the degree of indeterminacy. **5**



2. Discuss the types of supports and reaction with the help of diagram. **10**

### Unit II

3. Define the following : **2,2,3,3**
  - (i) Shear stress
  - (ii) Shear strain
  - (iii) Volumetric
  - (iv) Elastic constant.
4. Write the steps for estimation of design loads in buildings as per BIS 875 code. **10**

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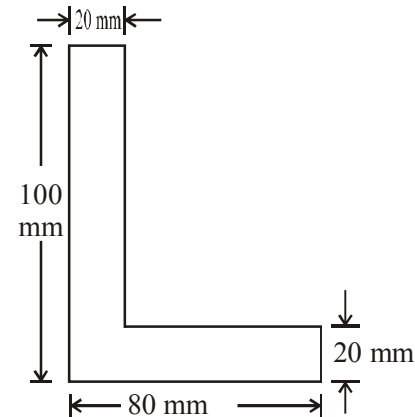
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### Unit III

5. A 6 m long simply supported beam carries loads of 2 kN and 3 kN at 2m and 5m respectively from one end. A UDL of 10 kN over the entire length. Draw (i) S.F. Diagram **10**  
(ii) B.M. Diagram.
6. A simply supported beam of span 5m is subjected to a concentrated load of 40 kN at 2m from the left support. Calculate the deflection under the load points. Take  $E = 200 \times 10^6 \text{ kN/m}^2$ ,  $I = 14 \times 10^{-6} \text{ m}^4$ . **10**

### Unit IV

7. Find out the position of the centroid and Moment of Inertia of L section in figure. **10**



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P.T.O.