

RPSC-A.En

Main Examinations

CIVIL ENGINEERING

Mains Practice Workbook

PAPER - I

SOM & TOS

Booklet

6

Key Features: Includes

- ☞ **Include 2, 5 & 20 Marks Practice Problems**
- ☞ **Cover RPSC-AE Latest Syllabus & Pattern**
- ☞ **Workbook are design according to RPSC Pattern**

SOM & TOS

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— **SOM** —

STRENGTH OF MATERIAL

PART - A

Note : Each questions carries **2 marks**. Answer should not exceed **15 words**.

1. Differentiate between normal stress and shear stress.

2. Distinguish between the following, giving due explanation : (a) Normal Stress and Normal strain

3. Distinguish between the following, giving due explanation : (a) Nominal stress & Actual Stress

4. Distinguish between the following, giving due explanation :(a) Yield Stress & Ultimate stress.

PART - B

Note : Each questions carries **5 marks**. Answer should not exceed **50 words**.

44. Draw the stress-strain curve for mild steel and show the salient points.

45. Prove that the total extension of a uniformly tapering rod of diameters D_1 and D_2 when the rod is subjected to an axial load P is given by -

$$dL = \frac{4PL}{\pi E D_1 D_2}$$

— **TOS** —

THEORY OF STRUCTURE

PART - A

Note : Each questions carries **2 marks**. Answer should not exceed **15 words**.

1. Briefly explain degree of freedom of structure

2. Write formula for static and kinematic indeterminacy of trusses

3. Write formula for static and kinematic indeterminacy for frames

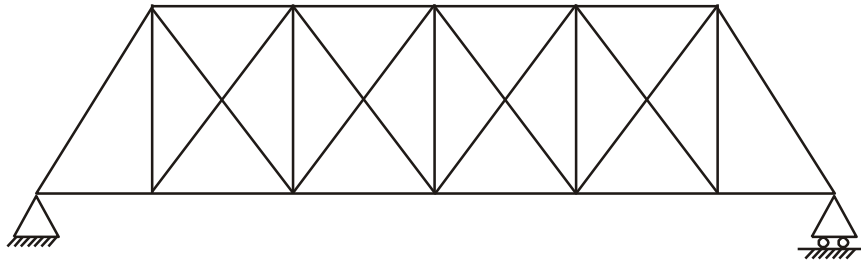
4. Define a rigid joint in structure

PART - B

Note : Each questions carries **5 marks**. Answer should not exceed **50 words**.

- 16 Difference between static indeterminacy and kinematic indeterminacy with examples of a fixed and beam.

17. Find the total degree of statical indeterminacy (both internal and external) for bridge truss shown in the figure.



PART - C

Note : Each questions carries **20 marks**. Answer should not exceed **200 words**.

28. Assuming all members of the truss shown in figure to be pin-jointed, calculate forces in them.

