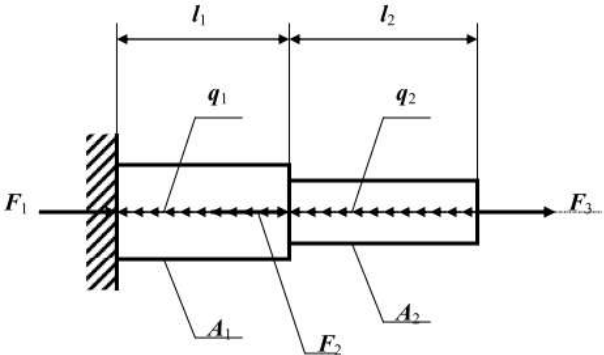
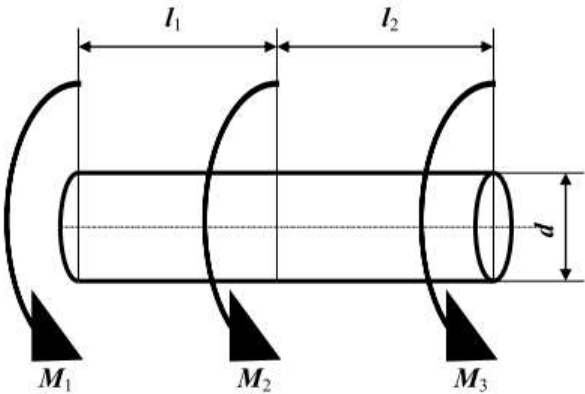
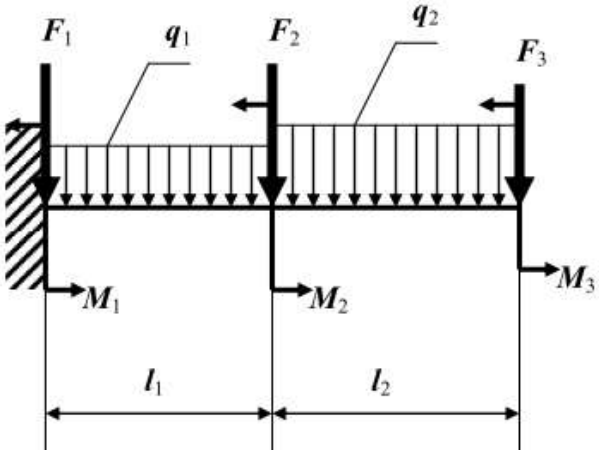


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	«Strength of materials» Exam paper №	FOR PUBLIC RELEASE

Exam papers were reviewed and approved at meeting of department at 02.10.2019, p. №4

<p>Task №1</p> 	<p>Strength calculation of staged rod under tension / compression.</p> <p>Given: $\sigma_r = 300$ MPa; $F_1 = 0$ kN; $F_2 = -20$ kN; $F_3 = 30$ kN; $q_1 = 10$ kN/m; $q_2 = 0$ kN/m; $l_1 = 0,3$ m; $l_2 = 1$ m; $A_1 = 2 A_0$; $A_2 = A_0$.</p> <p>Find out: $A_0 = ?$; to construct distribution diagrams of N and σ.</p>
<p>Task №2</p> 	<p>Calculation of shaft strength under torsion.</p> <p>Given: $\sigma_r = 300$ MPa; $M_1 = 10$ kNm; $M_2 = -20$ kNm; $l_1 = 0,3$ m; $l_2 = 1$ m.</p> <p>Find out: M_3, $d = ?$; shaft diameter should be found via strength condition; to construct distribution diagrams of T_{tq} and τ_{max};</p>
<p>Task №3</p> 	<p>Calculation of beam strength under bending.</p> <p>Given: $\sigma_r = 300$ MPa; $F_1 = 0$ kN; $F_2 = -20$ kN; $F_3 = 0$ kN; $q_1 = 10$ kN/m; $q_2 = 0$ kN/m; $M_1 = 0$ kNm; $M_2 = 0$ kNm; $M_3 = 30$ kNm; $l_1 = 0,3$ m; $l_2 = 1$ m.</p> <p>Find out: to match I-beam via strength condition; to construct distribution diagrams of Q and M.</p>