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ADVANCED THEORY OF VIBRATIONS 1: SYSTEMS WITH A FINITE NUMBER OF DEGREES OF FREEDOM

BASIC NOTATION

A	vibration amplitude;
A_{11}	bending stiffness of a rod;
A_{22}	bending stiffness of a rod with respect to the y axis (or x_2 axis);
A_{33}	bending stiffness of a rod with respect to the z axis (or x_3 axis);
C	capacitance; capacitor; capacity;
C	coefficients;
c	bending stiffness; torsional stiffness; spring rate:
D	variance; diameter of a disk, cylinder, wheel;
d	internal diameter; wire diameter;
E	Young modulus;
F	cross-sectional area;
F_0	amplitude of a perturbing force;
$F(t)$	perturbing force;
G	shear modulus;
g	free fall acceleration;
H	Heaviside function
I, i	electric-current intensity;
I_0	zero-order Bessel function of the first kind;
Y_0	zero-order Bessel function of the second kind;
J	moment of inertia;
J_x, J_y, J_p, J_k	geometric characteristics of the rod cross section;
K	correlation function; Krylov function;
k	rigidity of an elastic base;
L	inductance;
l	length;
M	moment of force;
M_1, M_2, M_3	torque and bending moments;
m	mass;
P, $P(t)$	force;
P_1, P_2, P_3	components of a concentrated force in the related coordinate system;
P_{x1}, P_{x2},, P_{x3}	components of a concentrated force in a Cartesian coordinate system;
p_i, λ_j	eigenfrequency (natural frequency); free vibration frequency;
Q	force; generalized force;
Q_1, Q_2, Q_3	axial force and cutting forces, respectively; q generalized coordinate;
q_1, q_2, q_3	components of a distributed load in a related coordinate system;
q_{x1}, q_{x2},, q_{x3}	components of a distributed load in a Cartesian coordinate system;

R	dissipative Rayleigh function; electric resistance; radius of curvature;
r	radius;
S	spectral density;
T	kinetic energy; vibration period; tension; tension force;
t	time;
U	voltage;
v	velocity;
v_*	ultimate velocity; critical velocity;
W	transfer function;
w	linear acceleration;
X, Y, Z	displacements in the directions of x, y, z coordinate axes;
$Y_{(*)}$	Lalplace transform of an original;
α	coefficient of viscous friction; angle of attack;
δ	logarithmic decrement; Dirac delta-function;
δ_{ij}	displacement of a point in the direction i under the action of a unit force in the direction j;
μ	small parameter; coefficient of dynamic viscosity; coefficient of Coulomb friction;
Π	potential energy;
ρ	density of a material;
σ	normal stress; mean-square deviation;
τ	time; tangential stress;
Φ	magnetic flux;
φ	angular displacement;
Ω, $\dot{\varphi}$	angular velocity;
ω	frequency of free vibrations; angular velocity;
ω_*	critical angular velocity;
$\mathcal{M}_1$, $\mathcal{M}_2$,, $\mathcal{M}_3$	components of a concentrated moment in a related coordinate system;
$\mathcal{M}_{x1}$, $\mathcal{M}_{x2}$,, $\mathcal{M}_{x3}$	components of a concentrated moment in a Cartesian coordinate system;