NTTF Securing your Future with your own Hands	SCHOOL OF POSTGRADUATE STUDIES Nettur Technical Training Foundation

SYLLABUS FOR ENTRANCE EXAMINATION & MODEL QUESTION PAPER - 2026

Common Entrance Examination for All Postgraduate Programmes (GATE Pattern)

#	Examination Topic	Duration
1	Computer Enabled Examination (60 Objective Questions)	1 Hour

SYLLABUS

ENGINEERING DRAWING :

First angle and third angle projections, Sections of solids, Missing lines, views, representation of screw threads, Ability to visualize in three dimensions and represent them in isometric / orthogonal / perspective views.

ENGINEERING MATERIALS :

Structural and mechanical properties of common engineering / metals, alloys, plastics and ceramics. Heat treatment of steels.

MACHINE DESIGN :

Material and manufacturing considerations. Design of elements subjected to static and variable stresses. Factor of safety. Stress concentration. Design of flanged joints and seals, shafts and keys, helical springs, rigid and flexible. couplings, universal (Hooke's) joints, Oldham coupling, Clutches and brakes, belt, chain and rope drives. Hydrodynamic lubrication. Rolling element bearings. Power screws. Design calculations of spur and helical gears. Indian Standards and specifications.

MANUFACTURING PROCESSES :

Metal casting, Forming, Joining, Machining including non-conventional machines, Metrology & inspection.

STATICS AND DYNAMICS:

Simple applications of equilibrium equations. Simple applications of equations of motion. Simple harmonic motion. Work, energy, power.

STRENGTH OF MATERIALS :

Stress, Strain, Biaxial and triaxial stresses. Stress-strain relationship for elastic bodies. Mohr's circle. Theories of failure. Calculations of stresses, slope of deflection. Torsion of cylindrical shafts. Energy methods. Thin and thick cylinders. Stability of columns.

THEORY OF MACHINES :

Constrained motion. Plane mechanisms; Velocity and acceleration diagrams. Coriolis component of acceleration. Instantaneous centre. Flywheels and their applications. Balancing of reciprocating and rotating masses. Planar cams and followers. Involute tooth geometry. Types of gears. Gear trains with fixed axes and planetary configuration, differential. Natural and forced vibration with and without damping for systems with single degree of freedom. Transmissibility and isolation of vibration. Transverse vibrations of beams and shafts, Critical speed. Multi rotor torsional vibratory systems. Principle of gyroscope.

Standard textbooks that are used in the graduate programmes will be sufficient to prepare for the entrance examination.

MODEL QUESTION PAPER

Choose the most applicable answer :

1. Silicon steel is used in
   a) Cutting tools
   b) Dies and punches
   c) Electrical industry
   d) Chemical industry.

2. A body which is free in space has _____ degrees of freedom
   a) Two
   b) Three
   c) Six
   d) Zero.

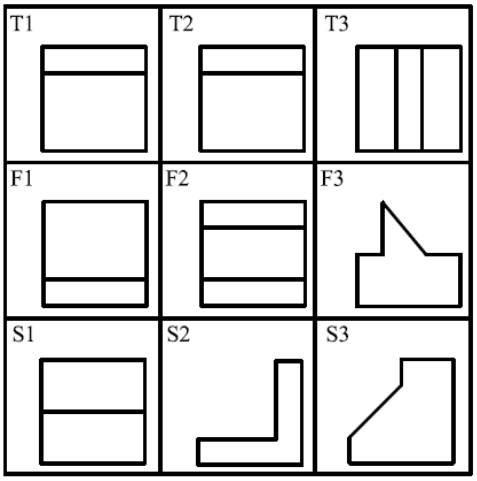
3. Upsetting or cold heading is a
   a) Rolling process
   b) Extruding process
   c) Bending process
   d) Forging process.

4. Investment casting uses a pattern made of
   a) Wax
   b) Clay
   c) Metal
   d) Wood.

5. Grinding wheel is balanced
   a) At the time of manufacture
   b) Before grinding
   c) After grinding operation
   d) Frequently.

6. If the pressure angle is large, the basic circles will be smaller resulting in
   a) Smaller contact ratio
   b) Greater contact ratio
   c) Either smaller or greater contact ratio
   d) None of the above.

7. The drawing given below does not match with top, front and side view. Select the correct one that matches properly from the table given below:



a)

T	T1	T2	T3
F	F2	F3	F1
S	S3	S2	S1

b)

T	T1	T3	T2
F	F1	F3	F2
S	S1	S3	S2

c)

T	T1	T2	T3
F	F1	F2	F3
S	S2	S3	S1

d)

T	T2	T3	T1
F	F1	F2	F3
S	S2	S3	S1