



ARIHANT

ENGINEERING ACADEMY

SSC-JE

(STAFF SELECTION COMMISSION
-JUNIOR ENGINEER)

ONLINE TEST SERIES

MECHANICAL ENGINEERING - SCHEDULE

No. of Test:- 30	
Subject Wise Mock Test	13
Mixed Subject Mock Test	07
Full Length Test	10

- All tests will be activating as per the date and valid up to the exam.

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www.arihantexams.in

Syllabus

Paper – I

Mechanical Engineering

Theory of Machines and Machine Design

Concept of simple machine, Four bar linkage and link motion, Flywheels and fluctuation of energy, Power transmission by belts – V-belts and Flat belts, Clutches – Plate and Conical clutch, Gears – Type of gears, gear profile and gear ratio calculation, Governors – Principles and classification, Riveted joint, Cams, Bearings, Friction in collars and pivots.

Engineering Mechanics and Strength of Materials

Equilibrium of Forces, Law of motion, Friction, Concepts of stress and strain, Elastic limit and elastic constants, Bending moments and shear force diagram, Stress in composite bars, Torsion of circular shafts, Bucking of columns – Euler's and Rankin's theories, Thin walled pressure vessels.

Thermal Engineering

Properties of Pure Substances: p-v & P-T diagrams of pure substance like H₂O, Introduction of steam table with respect to steam generation process; definition of saturation, wet & superheated status. Definition of dryness fraction of steam, degree of superheat of steam. H-s chart of steam (Mollier's Chart).

1st Law of Thermodynamics: Definition of stored energy & internal energy, 1st Law of Thermodynamics of cyclic process, Non Flow Energy Equation, Flow Energy & Definition of Enthalpy, Conditions for Steady State Steady Flow; Steady State Steady Flow Energy Equation. 2nd Law of Thermodynamics : Definition of Sink, Source Reservoir of Heat, Heat Engine, Heat Pump & Refrigerator; Thermal Efficiency of Heat Engines & co-efficient of performance of Refrigerators, Kelvin – Planck & Clausius Statements of 2nd Law of Thermodynamics, Absolute or Thermodynamic Scale of temperature, Clausius Integral, Entropy, Entropy change calculation of ideal gas processes. Carnot Cycle & Carnot Efficiency, PMM-2; definition & its impossibility.

Air standard Cycles for IC engines: Otto cycle; plot on P-V, T-S Planes; Thermal Efficiency, Diesel Cycle; Plot on P-V, T-S planes; Thermal efficiency.
IC Engine Performance, IC Engine Combustion, IC Engine Cooling & Lubrication.

Rankine cycle of steam: Simple Rankine cycle plot on P-V, T-S, h-s planes, Rankine cycle efficiency with & without pump work.

Boilers; Classification; Specification; Fittings & Accessories: Fire Tube & Water Tube Boilers. Air Compressors & their cycles; Refrigeration cycles; Principle of a Refrigeraton Plant; Nozzles & Steam Turbines

Fluid Mechanics & Machinery

Properties & Classification of Fluid: ideal & real fluids, Newton's law of viscosity, Newtonian and Non-Newtonian fluids, compressible and incompressible fluids.

Fluid Statics: Pressure at a point.

Measurement of Fluid Pressure: Manometers, U-tube, Inclined tube.

Fluid Kinematics: Stream line, laminar & turbulent flow, external & internal flow, continuity equation.

Dynamics of ideal fluids: Bernoulli's equation, Total head; Velocity head; Pressure head; Application of Bernoulli's equation.

Measurement of Flow rate Basic Principles : Venturimeter, Pilot tube, Orifice meter.

Hydraulic Turbines: Classifications, Principles.

Centrifugal Pumps: Classifications, Principles, Performance.
Production Engineering

Classification of Steels: mild steel & alloy steel, Heat treatment of steel, Welding – Arc Welding, Gas Welding, Resistance Welding, Special Welding Techniques i.e. TIG, MIG, etc. (Brazing & Soldering), Welding Defects & Testing; NDT, Foundry & Casting – methods, defects, different casting processes, Forging, Extrusion, etc, Metal cutting principles, cutting tools, Basic Principles of machining with (i) Lathe (ii) Milling (iii) Drilling (iv) Shaping (v) Grinding, Machines, tools & manufacturing processes.

Paper – II

General Intelligence & Reasoning: The Syllabus for General Intelligence would include questions of both verbal and non-verbal type. The test may include questions on analogies, similarities, differences, space visualization, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationships, arithmetical computations and other analytical functions.

General Awareness: Questions will be aimed at testing the candidate's general awareness of the environment around him/her and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to History, Culture, Geography, Economic Scene, General Polity and Scientific Research, etc. These questions will be such that they do not require a special study of any discipline.

SSC – JE Online Test Series

Test Packages

S. No	Test series Title	Stream	Total Test	Price
1	SSC – JE Prelims Online Test Series	ME	30	1000/-

Test Details

S. No	Test Name	Test Type	Subject/ Syllabus	Tests	Questions	Marks	Duration	Total Tests	Total Questions
1	SSC –	Subject wise Tests	Full Syllabus	13	50	50	30 Minutes		

2	JE Online Test Series	Mixed Subjects Test	Full Syllabus	7	100	100	60 Minutes	30	3350
3		Full Length Mock Tests	Full Syllabus	10	200	200	120 Minutes		

Test Schedule

ME

SSC – JE 2021 Prelims Online Test Series Schedule

Mechanical Engineering

Test No./Name	Start Date	End Date	Subjects/ Topic Covered	No. of Questions	Total Marks	Total Time	Minus Marks
Subject Wise Test – 01 Theory of Machine	23.10.2021	Till SSC – JE 2022 Prelims Exam	Theory of Machine	50	50	30	¼ Marks
Subject Wise Test -02 Machine Design	30.10.2021	Till SSC – JE 2022 Prelims Exam	Machine Design	50	50	30	¼ Marks
Subject Wise Test –03 Engineering Machines	6.11.2021	Till SSC – JE 2022 Prelims Exam	Engineering Machines	50	50	30	¼ Marks
Subject Wise Test –04 Strength of Materials	13.11.2021	Till SSC – JE 2022 Prelims Exam	Strength of Materials	50	50	30	¼ Marks
Subject Wise Test –05 Thermal Engineering 1	20.11.2021	Till SSC – JE 2022 Prelims Exam	Thermal Engineering 1	50	50	30	¼ Marks
Subject Wise Test –06 Thermal Engineering 2	27.11.2021	Till SSC – JE 2022 Prelims Exam	Thermal Engineering 2	50	50	30	¼ Marks
		Till SSC					

Subject Wise Test –07 RAC	4.12.2021	– JE 2022 Prelims Exam	RAC	50	50	30	¼ Marks
Subject Wise Test –08 IC Engine	11.12.2021	Till SSC – JE 2022 Prelims Exam	IC Engine	50	50	30	¼ Marks
Subject Wise Test –09 Rankine Cycle Power Plant	18.12.2021	Till SSC – JE 2022 Prelims Exam	Rankine cycle power plant	50	50	30	¼ Marks
Subject Wise Test- 10 Fluid Mechanics & Machinery	25.12.2021	Till SSC – JE 2022 Prelims Exam	Fluid mechanics & machinery	50	50	30	¼ Marks
Subject Wise Test- 11 Production	1.01.2022	Till SSC – JE 2022 Prelims Exam	Production	50	50	30	¼ Marks
Subject Wise Test-12 General Intelligence & Reasoning	4.01.2022	Till SSC – JE 2022 Prelims Exam	General Intelligence & Reasoning	50	50	30	¼ Marks
Subject Wise Test- 13 General Awareness	8.01.2022	Till SSC – JE 2022 Prelims Exam	General Awareness	50	50	30	¼ Marks
Mixed Test – 01	15.01.2022	Till SSC – JE 2022 Prelims Exam	TOM +MD	100	100	60	¼ Marks
Mixed Test – 02	22.01.2022	Till SSC – JE 2022 Prelims Exam	Mechanics + SOM	100	100	60	¼ Marks
Mixed Test – 03	29.01.2022	Till SSC – JE 2022 Prelims Exam	Thermo 1+ Thermo 2 + RAC + IC Engine	100	100	60	¼ Marks
		Till SSC	Rankine Cycle				¼ Marks

Mixed Test – 04	05.02.2022	– JE 2022 Prelims Exam	power plant + Fluid mechanics and Machinery	100	100	60	
Mixed Test – 05	12.02.2022	Till SSC – JE 2022 Prelims Exam	Production	100	100	60	¼ Marks
Mixed Test – 06	15.02.2022	Till SSC – JE 2022 Prelims Exam	General Intelligence & Reasoning + General Awareness	100	100	60	¼ Marks
Mixed Test – 07	19.02.2022	Till SSC – JE 2022 Prelims Exam	General Intelligence & Reasoning + General Awareness	100	100	60	¼ Marks
Full length Test – 01	22.02.2022	Till SSC – JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test – 02	25.02.2022	Till SSC – JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test –03	01.03.2022	Till SSC – JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test –04	04.03.2022	Till SSC – JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test –05	08.03.2022	Till SSC – JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test –06	11.03.2022	Till SSC – JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
		Till SSC					

Full length Test -07	15.03.2022	- JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test -08	18.03.2022	Till SSC - JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test -09	22.03.2022	Till SSC - JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks
Full length Test -10	25.03.2022	Till SSC - JE 2022 Prelims Exam	Full Syllabus	200	200	120	¼ Marks