

Examination Plan

The parts of examination, subjects, number of questions, total marks and time period will be as per the details given below-

Part	Subject	Number of Questions	Total Marks	Time Period
Part-1	(1) Theory of Machines and Machine Design	15	15	Two Hours (120 Minutes)
	(2) Engineering Mechanics	10	10	
	(3) Strength of Materials	10	10	
	(4) Thermodynamics	05	05	
	(5) Internal Combustion (I.C.) Engine	05	05	
	(6) Steam Engineering and Power Plant Engineering	05	05	
	(7) Refrigeration and Air Compression	05	05	
	(8) Fluid Mechanics and Hydraulic Machines	10	10	
Part-2	Knowledge of concepts of Computer and Information Technology and contemporary technological development and innovation in this field	15	15	
Part-3	General information related to the state of Uttar Pradesh	20	20	
Total		100	100	

Note- There is a provision of negative marking for each wrong answer for the above examination, which will be 25 percent i.e. $\frac{1}{4}$ of marks prescribed for that question.

21/07/20

SYLLABUS

Part-1

(Subject related Knowledge)

(1) Theory of Machines and Machine Design-

Concept of simple machines, four-bar linkages and link motion, flywheels and energy fluctuations Power transmission via belts (V-belts and flat belts), clutches (plate and conical), gears, types of gears, gear profiles, gear ratio calculations, governors (principles, and classification), cams, bearings

(2) Engineering Mechanics-

Equilibrium of forces, Laws of motion, Friction

(3) Strength of Materials-

Stress and strain, elastic limit and elastic constants, riveted joints, bending moment and shear force diagrams, stress in composite bars, torsion of circular shafts, thin-walled pressure vessels.

(4) Thermodynamics-

Properties of pure substances, introduction to steam tables, steam formation process, states of wet and superheated steam, dryness fraction of steam, degree of superheat, First Law of Thermodynamics, steady flow process, Steady Flow Energy Equation (SFEE), Second Law of Thermodynamics, heat source, sink and reservoir, heat engine, heat pump, and refrigerator.

(5) Internal Combustion (I.C.) Engine-

Air-standard cycle, Diesel cycle, Performance of I.C. engines

(6) Steam Engineering and Power Plant Engineering-

Rankine cycle efficiency (with and without pump work), boilers, classification, specifications, mountings (fittings), accessories, nozzles, and steam turbines.

(7) Refrigeration and Air Compression-

Air compressors and their cycles; principles of refrigeration plants.

(8) Fluid Mechanics and Hydraulic Machines-

Fluid Statics, Measurement of Fluid Pressure, Hydraulic Turbines

Centrifugal Pumps: Classification, Principles, Performance

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Part-2

(Knowledge of Concepts of Computer and Information Technology and Contemporary Technological Development and Innovation in this field)

- History, Introduction and Application of Computer, Information Technology, Internet and World Wide Web (WWW).
- General Knowledge related to:
 - ✓ Hardware and Software.
 - ✓ Input and Output.
 - ✓ Internet Protocol/IP Address.
 - ✓ IT gadgets and their application.
 - ✓ Creation of e-mail ID and use/operation of e-mail.
 - ✓ Operation of Printer, Tablet and Mobile.
 - ✓ Important elements of Word Processing (MS-Word) and Excel Processing (MS-Excel).
 - ✓ Operating System, Social Networking, e-Governance.
- Digital Financial Tools and Applications.
- Future Skills and Cyber Security.
- Technological Development and Innovation in the field of Computer and Information Technology (Artificial Intelligence, Big Data Processing, Deep Learning, Machine Learning, Internet of Things) and India's achievements in this field etc.

Part-3

(General Information related to The State of Uttar Pradesh)

In this part of the question paper, questions based on History, Culture, Art, Architecture, Festivals, Folk Dance, Literature, Regional Languages, Heritage, Social Customs and Tourism, Geographical Landscape and Environment, Natural Resources, Climate, Soil, Forest, Wildlife, Mines and Minerals, Economy, Agriculture, Industry, Business and Employment, Polity, Administration of Uttar Pradesh and Current Events.

10-लिखित परीक्षा के सम्बन्ध में विशेष नोट -

विज्ञापन संख्या-24-परीक्षा/2026, सम्मिलित अवर अभियंता (यांत्रिक) मुख्य परीक्षा (प्रा0अ0प0-2025)/24 की लिखित परीक्षा हेतु अभ्यर्थियों की शार्टलिस्टिंग उनके प्रारम्भिक अर्हता परीक्षा-2025 के नार्मलाइज्ड स्कोर के आधार पर की जाएगी। प्रश्नगत विज्ञापन के अंतर्गत विज्ञापित पदों के सापेक्ष श्रेणीवार 15 गुना अभ्यर्थियों को [अंतिम कटऑफ अंक तक नार्मलाइज्ड स्कोर (दशमलव के 02 स्थान तक) धारित करने वाले समस्त अभ्यर्थियों को सम्मिलित करते हुए] लिखित परीक्षा हेतु शार्टलिस्ट किया जायेगा।