TELANGANA STATE POWER GENERATION CORPORATION LIMITED
ASSISTANT ENGINEER

Online Test Series

Civil Engineering - Schedule

No.of Tests : 20	
Subject Wise Tests	15
Full Length Mock Tests	5

Note:

★ The Syllabus considered as per Notification of TSGENCO. ACE Engineering Academy does not take any responsibility for deviations in syllabus in the final exam. As per Notification of TSGENCO each question carries '1' mark.

★ The Dates of Tests may Change according to the TSGENCO-AE Exam schedule.

★ All Tests will be active till TSGENCO-AE Examination.

★ Tests will be activated at 06:00 pm on the scheduled day.

Subject-wise Tests

(No.of Questions: 30, Time duration: 30 Minutes and Max Marks: 30 M)

Test No	Name of the Test	Date of Activation
Test-01	Engineering Mechanics & Solid Mechanics	14-10-2023
Test-02	Building Materials & Construction Management	16-10-2023
Test-03	Structural Analysis	18-10-2023
Test-04	Fluid Mechanics, Hydraulic Machines and Hydro power	20-10-2023
Test-05	Hydrology and Water Resources Engineering	22-10-2023
Test-06	Environmental Engineering	24-10-2023
Test-07	Geo-technical & Foundation Engineering	26-10-2023
Test-08	Transportation Engineering	28-10-2023
Test-09	Surveying	30-10-2023
Test-10	Design of Steel Structures	01-11-2023
Test-11	Design of Concrete and Masonry structures	03-11-2023
Test-12	Power Plant Engineering	05-11-2023
Test-13	Telangana Culture, Movement. Post formation development of Telangana State.	06-11-2023
Test-14	General Awareness and English	07-11-2023
Test-15	Analytical & Numerical Ability and Basic knowledge of Computer for handling office works such as MS Office etc	08-11-2023

Full Length Mock Test Series

(No.of Questions: 100, Time duration: 100 Minutes and Max Marks: 100)

Test-16	Full Length Mock Test-01	09-11-2023
Test-17	Full Length Mock Test-02	13-11-2023
Test-18	Full Length Mock Test-03	17-11-2023
Test-19	Full Length Mock Test-04	21-11-2023
Test-20	Full Length Mock Test-05	25-11-2023

SYLLABUS

CIVIL ENGINEERING

Section –A Total 80 Marks

1.Engineering Mechanics:

System of forces, free-body diagrams, equilibrium equations; Internal forces in structures; Frictions and its applications; Centre of mass; Free Vibrations of undamped SDOF system.

2. Solid Mechanics:

Bending moment and shear force in statically determinate beams; Simple stress and strain relationships; Simple bending theory, flexural and shear stresses, shear centre; Uniform torsion, Transformation of stress; buckling of column, combined and direct bending stresses.

3. Structural Analysis:

Statically determinate and indeterminate structures by force/ energy methods; Method of superposition; Analysis of trusses, arches, beams, cables and frames; Displacement methods: Slope deflection and moment distribution methods; Influence lines; Stiffness and flexibility methods of structural analysis.

4. Building Materials & Construction Management:

Stone, Lime, Glass, Plastics, Steel, FRP, Ceramics, Aluminum, Fly Ash, Basic Admixtures, Timber, Bricks and Aggregates: Classification, properties and selection criteria.

Cement: Types, Composition, Properties, Uses, Specifications and various Tests; Lime & Cement Mortars and Concrete: Properties and various Tests; Design of Concrete Mixes: Proportioning of aggregates and methods of mix design.

Construction Management: Types of construction projects; Project planning and network analysis - PERT and CPM; Cost estimation.

5. Fluid Mechanics, Open Channel Flow, Pipe Flow:

Fluid properties; Dimensional Analysis and Modeling; Fluid dynamics including flow kinematics and measurements, CFD Analysis, orifices and mouthpieces, notches and weirs, impact of jets; Flow net; Viscosity, Boundary layer and control, Drag, Lift, Principles in open channel flow, Flow Patterns, Flow controls. Hydraulic jump; Surges; Pipe networks.

6. Hydraulic Machines and Hydro power:

Various pumps, Air vessels, Hydraulic turbines – types, classifications & performance parameters; Power house – classification and layout, storage, pondage, control of supply.

7. Hydrology and Water Resources Engineering:

Hydrological cycle, Ground water hydrology, Well hydrology and related data analysis; Streams and their gauging; River morphology; Flood, drought and their management; Capacity of Reservoirs.

Water Resources Engineering: Multipurpose uses of Water, River basins and their potential; Irrigation systems, water demand assessment; Resources - storages and their yields; Water logging, canal and drainage design, Gravity dams, falls, weirs, Energy dissipaters, barrage Distribution works, Cross drainage works and head-works and their design; Concepts in canal design, construction & maintenance; River training, measurement and analysis of rainfall.

Environmental Engineering (8, 9, 10 & 11)

8. Water Supply Engineering:

Sources, Estimation, quality standards and testing of water and their treatment; Rural, Institutional and industrial water supply; Physical, chemical and biological characteristics and sources of water, Pollutants in water and its effects, Estimation of water demand; Drinking water Standards, Water Treatment Plants, Water distribution networks.

9. Waste Water Engineering:

Planning & design of domestic waste water, sewage collection and disposal; Plumbing Systems. Components and layout of sewerage system; Planning & design of Domestic Waste-water disposal system; Sludge management including treatment, disposal and re-use of treated effluents; Industrial waste waters and Effluent Treatment Plants including institutional and industrial sewage management.

10. Solid Waste Management:

Sources & classification of solid wastes along with planning & design of its management system; Disposal system, Beneficial aspects of wastes and Utilization by Civil Engineers.

11. Air Pollution:

Types of pollutants, their sources and impacts, air pollution control, air quality standards, Air quality Index and limits.

12. Geo-technical Engineering:

Soil exploration - planning & methods, Properties of soil, classification, various tests and inter- relationships; Permeability, Capillarity & Seepage, Compressibility, consolidation and Shearing resistance, Earth pressure theories and stress distribution in soil; Properties and uses of geo-synthetics.

13. Foundation Engineering:

Types of foundations & selection criteria, bearing capacity, settlement analysis, design and testing of shallow & deep foundations; Slope stability analysis, Earthen embankments, Dams and Earth retaining structures: types, analysis and design, Principles of ground modifications.

14. Surveying:

Classification of surveys, various methodologies, instruments & analysis of measurement of distances, elevation and directions; Field astronomy, Global Positioning System; Map preparation; Photogrammetry; Remote sensing concepts; Survey Layout for culverts, canals, bridges, road/railway alignment and buildings, Setting out of Curves.

15. Transportation Engineering:

Highways - Planning & construction methodology, Alignment and geometric design; Traffic Surveys and Controls; Principles of Flexible and Rigid pavements design.

Tunneling - Alignment, methods of construction, disposal of muck, drainage, lighting and ventilation. Railway Systems – Terminology, Planning, designs and maintenance practices; track modernization. Harbors – Terminology, layouts and planning.

16. Design of Steel Structures:

Principles of Working Stress methods, Design of tension and compression members, Design of beams and beam column connections, built-up sections, Girders, Industrial roofs, Riveted and welded joints, Principles of Ultimate load design.

17. Design of Concrete and Masonry structures:

Limit state design for bending, shear, axial compression and combined forces; Design of beams, Slabs, Lintels, Foundations, Retaining walls, Tanks, Staircases; Principles of pre-stressed concrete design including materials and methods; Earthquake resistant design of structures; Design of Masonry Structure.

18. Power Plant Engineering:

Basic power generation concepts, Steam Power Plants with Sub- critical, critical and super critical technology, Combustion Process, Gas Turbine Plant, Direct Energy Conservation, Hydro Electric Power Plant, nuclear & Power from Non-conventional sources, Power plant economics-Capital cost, Investment of fixed charges, operating cost, arrangements for power distribution, load curves, connected load, maximum demand, demand factor, average load, load factor, diversity factor, Environmental considerations- Effluents from Power Plants and impact of environment, Pollution and pollution standards-Methods of pollution control , Power plant components-their theory and design, types and applications, Basics of batteries and their uses.

Section –B Total 20 Marks.

General Awareness and Numerical Ability:

i) Analytical & Numerical Ability
ii) General Awareness
iii) English
iv) Telangana Culture, Movement. Post formation development of Telangana State.
v) Basic knowledge of Computer for handling office works such as MS Office etc.