

## SCHEDULE-II

### PART 'A'

#### SYLLABUS FOR WRITTEN EXAMINATION FOR RECRUITMENT TO THE POST OF ASSISTANT ENGINEER (CIVIL) IN ARUNACHAL PRADESH PUBLIC WORKS DEPARTMENT, GOVERNMENT OF ARUNACHAL PRADESH.

1.	Compulsory Paper	(i) General English	Maximum marks = 100
		(ii) General Knowledge	Maximum marks = 100
2.	Technical Paper	Civil Engineering	Maximum marks = 200
3.	Interview/Personality test		Maximum marks = 50

### SYLLABUS

#### GENERAL ENGLISH:

##### **Syllabus:-**

The questions will be designed to test their standard of English Grammar and Comprehension of language. The paper in English will consist of Comprehensive questions (Conventional essay type) including Objective type question carrying 1 to 15 marks of matriculation standard.

#### GENERAL KNOWLEDGE:

##### **Syllabus:-**

The General Knowledge will include current event and of such matters of every day observations and experiences in the area of scientific aspect as may be expected from a educated person who has not made an special study of any scientific subject. The paper will also include question of History of India and Geography of Nature which candidates should be able to answer without any special study. Certain questions will be based on analytical ability. The papers in General Knowledge will consist of Objective type questions only.

#### CIVIL ENGINEERING (SECTION-A)

1. Building materials and properties and strength of materials.
2. Building materials – Timers, stone, brick, lime tile, sand, surkhi, mortar and concrete, metal and glasses structural properties of metals and alloys used in engineering practice.

Stress and strains-Hook's Law-bending. Torsion and direct stresses. Elastic theory of bending of beams maximum and minimum stress due to eccentric leading. Bending moment and shear force diagram and deflection of beams under static and live loads.

3. **Building construction and water supply and sanitary engineering.**

**Construction-** Brick and stone masonry walls, floors and roofs, staircases, carpentry in wooden floors, roofs ceiling, door and windows, finishes (plastering pointing painting and varnishing etc.)

**Soil mechanics** – Soils and their investigations,. Bearing capacities and foundation of buildings and structures-principles of design.

**Building estimates** - Principle units of measurement taking out quantities for building and preparation of abstract of costs-specifications and data sheets for important items.

4. **Structural Engineering:**

**Steel structures:** Permissible stress, Design of beams simple and built-up columns and simple roof trusses and girders column bases and grillages for axially and eccentrically loaded columns – Belted, reverted and welded connections.

**RCC structures:** Specification of materials used proportioning workability and strength requirement ISI standards for design loads permissible stresses in RCC members subject to direct and bending stressed-design of simple supported overhanging and cantilever beams, rectangular and Tee beams in floors, roofs and lintels-axially loaded columns, their bases.

**CIVIL ENGINEERING SECTION-B**

1. **Water supply:** Sources of water, standards of purity, methods of unification, layout of distribution system, pumps and booster.

2. **Sanitation:** Sewers, storm water over flows, house drainage requirements appurtenances, septic tanks, amboff tanks, sewage treatment and dispersion trenches – Activated sludge process.

3. **Road and Bridges:**

**Survey and alignment** – Highway materials and their placements principles of design-width of foundation and payment, camber, gradient curves and super-elavation-retaining walls.

**Contruction:** Earth roads, stabilized and water bound macadam roads, bituminous surfaces and concrete roads, draining of roads.

**Bridges:** Types, economical spans, IRC loading designing superstructure of small span bridges-principles of designing foundation of abutments and piers of bridges, pile and well foundations.

Estimating earthwork for roads and canals:

This paper will consist of conventional questions and will be of a standard expected from a Bachelor of Engineering.

**GENERAL INSTRUCTION:**

1. All question papers must be answered in English, candidates may be permitted to use battery-operated calculators for the optional subject only.

2. Commission has discretion to fix qualifying marks in any or all the subject of the examination.